EMC

TEST REPORT

REPORT NO. : F87031708
MODEL NO. : 1769VE
DATE OF TEST : Mar. 16, 1998

PREPARED FOR : CHUNTEX ELECTRONIC CO., LTD.

ADDRESS : 6F, NO. 2, ALLEY 6, LANE 235 PAO CHIAO RD.,
HSIN TIEN, TAIPEI HSIEN, TAIWAN, R.O.C.

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION

NVLAP®
Accredited Laboratory

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

TABLE OF CONTENTS

1. CERTIFICATION

Issue Date: April 9, 1998

Product	:	COLOR MONITOR
Trade Name	:	CTX
Model No.	:	1769VE
Applicant	:	CHUNTEX ELECTRONIC 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 Mar. 21, 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: Howard Chou, DATE: 4/9/98
(Howard Chou)

CHECKED BY: Sharon Hsiung, DATE: 4/9/98
(Sharon Hsiung)

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

ADVANCE DATA TECHNOLOGY CORPORATION

NVLAP®
Accredited Laboratory

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	COLOR MONITOR
Model No.	:	1769VE
Power Supply Type	:	Switching
Power Cord	:	Nonshielded (1.8m)
Data Cable	:	Shielded (1.8m)

Note: The EUT is a 17" color monitor with resolution up to 1280x1024.

There is a 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	VL SERIES 4 5/100	B94VECTRA500T	Nonshielded Power (1.8m)
2	KEYBOARD	ACER	6311	CQ86311-K	Shielded Signal (1.1m)
3	MOUSE	COMPAQ	M-S28-6MD	DZL210472	Shielded Signal (1.8m)
4	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (1.2m) Nonshielded Power (1.8m)
5	MODEM	DATATRONICS	1200CK	E2O5OV1200CK	Shielded Signal (1.2m) Nonshielded Power (1.8m)
6	VGA CARD	GORDIA	DSV3365	LUT-DSV3365	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 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 - 2000 MHz (Radiated Emission)
Input Voltage	:	120 Vac, 60 Hz
Temperature	:	21 ℃
Humidity	:	60 %
Atmospheric Pressure	:	1060 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -18.8 dB at 17.254 MHz Minimum passing margin of radiated emission: -2.3 dB at 198.56 MHz

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

* 1280x1024mode (64 kHz),
* 1024x768 mode (69 kHz),
* 640x480 mode (31.5 kHz)

The worst emission levels were found under 1280x1024mode (64 kHz) and therefore the test data of only 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. Repeat steps 3-7.

4.2 TEST DATA OF CONDUCTED EMISSION

EUT: **COLOR MONITOR** MODEL: **1769VE**

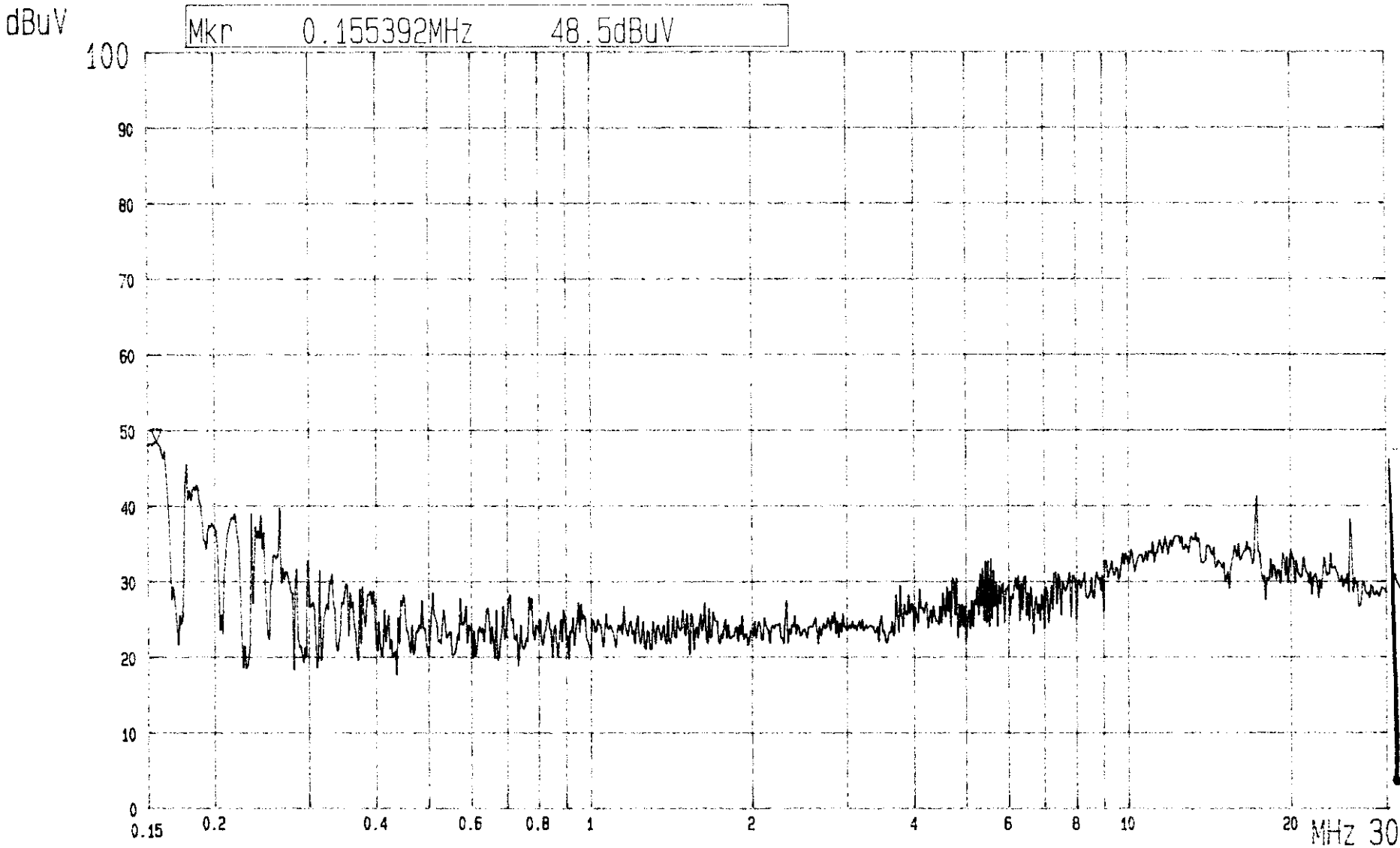
MODE: **1280x1024 (64 kHz)**

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: Howard Chou

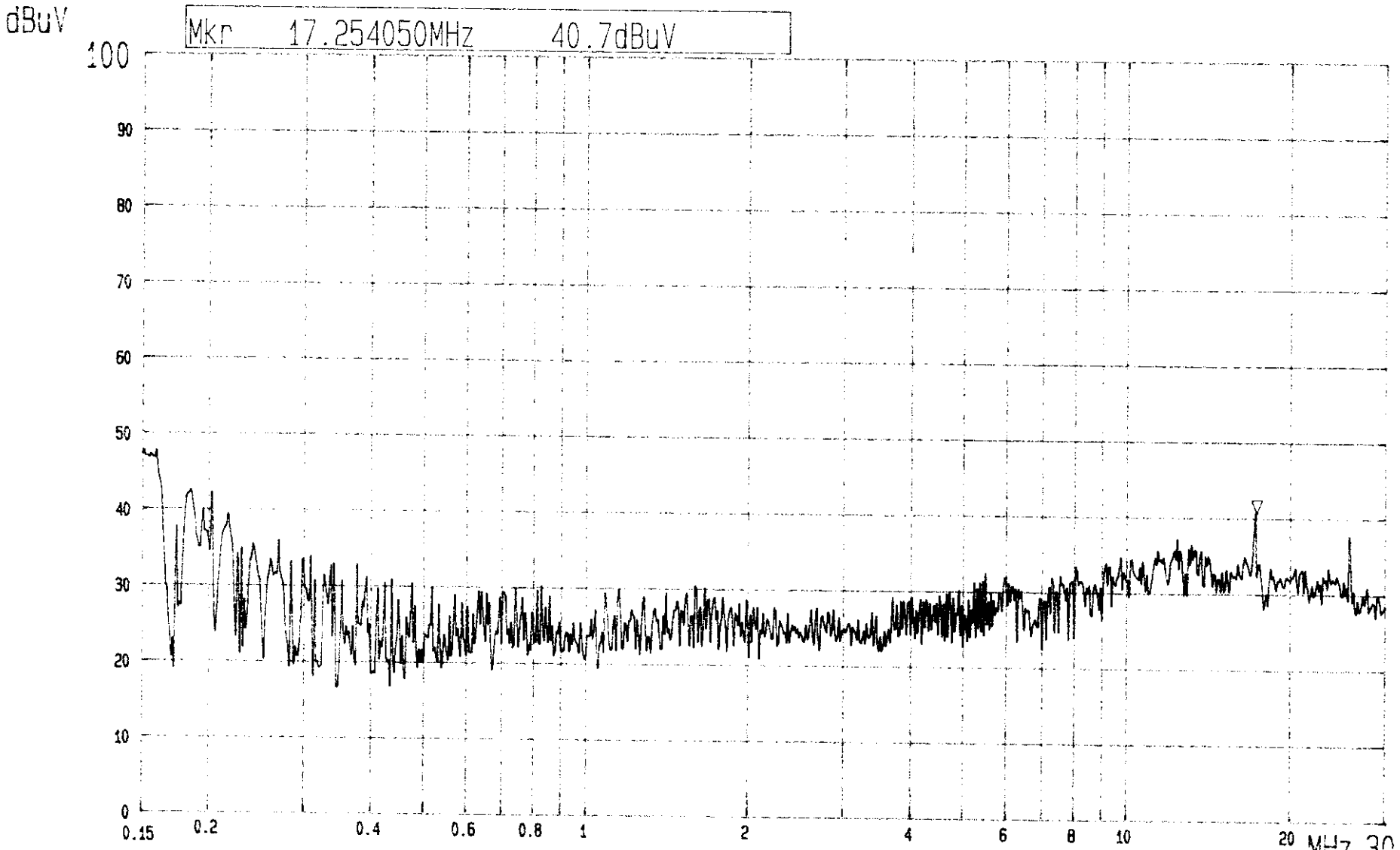
Freq.	L Level		N Level		Limit		Margin [dB (μV)]			
[MHz]	[dB (μV)]		[dB (μV)]		[dB (μV)]		L		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.150	41.80	-	42.30	-	66.00	56.00	-24.2	-	-23.7	-
0.233	39.00	-	39.50	-	62.34	52.34	-23.3	-	-22.8	-
0.705	28.20	-	29.20	-	56.00	46.00	-27.8	-	-26.8	-
4.724	30.00	-	30.10	-	56.00	46.00	-26.0	-	-25.9	-
12.332	36.00	-	37.20	-	56.00	46.00	-20.0	-	-18.8	-
17.254	41.20	-	40.70	-	60.00	50.00	-18.8	-	-19.3	-

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



Tested by

|--- Date 21.MAR.'98 Time 15:58:53
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE) ADT CORP.
MODEL: 1769VE LISN: L



Tested by Edward Chan

| --- Date 21.MAR.'98 Time 16:03:09
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE) ADT CORP.
MODEL: 1769VE LISN: N

4.3 TEST DATA OF RADIATED EMISSION

EUT: **COLOR MONITOR** MODEL: **1769VE**

MODE: **1280x1024 (64 kHz)**

ANTENNA: CHASE BILOG CBL6111A POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz

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

TEST PERSONNEL: Howard Chou

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
57.14	8.7	10.2	18.9	30.0	-11.1
81.01	9.3	15.6	24.9	30.0	-5.1
129.51	14.8	8.2	23.0	30.0	-7.0
138.13	14.7	10.9	25.6	30.0	-4.4
181.28	12.1	12.3	24.4	30.0	-5.6
189.91	12.4	10.2	22.6	30.0	-7.4
198.56	12.6	15.1	27.7	30.0	-2.3

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: **COLOR MONITOR** MODEL: **1769VE**

MODE: **1280x1024 (64 kHz)**

ANTENNA: CHASE BILOG CBL6111A POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz

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

TEST PERSONNEL: Howard Chou

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
55.72	9.0	18.0	27.0	30.0	-3.0
81.76	8.3	18.1	26.4	30.0	-3.6
138.13	17.1	8.7	25.8	30.0	-4.2
181.30	12.7	9.1	21.8	30.0	-8.2
189.92	13.2	7.0	20.2	30.0	-9.8
198.56	13.7	12.2	25.9	30.0	-4.1
224.44	15.1	11.7	26.8	30.0	-3.2

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:

Color Picture Tube:	43.1cm/17 inches (viewable 15.7") diagonal measurement (Low radiation / Anti-Static/ Anti-Magnetic)		
Dot Pitch	0.28mm, High Contrast		
Scan Frequency	Horizontal 30 to 70 kHz (Automatically)		
	Vertical 50 to 160 Hz (Automatically)		
Max. Resolution	1280x1024		
Plug & Play:	DDC 1/DDC 2B		
Power Supply	AC 100-120V/200-240V, 50/60 Hz (Automatically)		
Power Consumption	85W max		
Dimensions	412(W)x368(H)x417(D) mm		
Weight	16.5Kgs		
Environmental Consideration	Operating	Temperature	5°C to 40°C
		Humidity	20% to 80%
	Storage	Temperature	-20°C to 60°C
		Humidity	10% to 90%