FCC ID: DBL1995SL

EMC

TEST REPORT

REPORT NO. : F87060404
MODEL NO. : VL950ST, VL950S
DATE OF TEST : June 11, 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.

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1. CERTIFICATION

Issue Date: July 17, 1998

Product	:	COLOR MONITOR
Trade Name	:	CTX
Model No.	:	VL950ST, VL950S
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 June 11, 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: Chris Yang , DATE: 7/17/98
(Chris Yang)

CHECKED BY: Ariel Hsieh , DATE: 7/17/98
(Ariel Hsieh)

APPROVED BY: Mike Su , DATE: 7/17/98
(Mike Su)

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	COLOR MONITOR
Model No.	:	VL950ST, VL950S
Power Supply Type	:	Switching
Power Cord	:	Nonshielded (1.8m)
Data Cable	:	Shielded (1.8m)

Note: The EUT is a 19" color monitor with resolution up to 1600x1200 (93.7 kHz).

The EUT has two model names, which are identical to each other in all aspects except for the following:

- Model: VL950ST (with TCO Monitor)
- Model: VL950S (without TCO PCB)

From the above models, model: VL950ST was chosen as the representative during the test and therefore only its data is recorded in this report.

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

For more detailed features description, please refer to ATTACHMENT I - 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	D4572A	FCC DoC	Nonshielded Power (1.8m)
2	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded Signal (1.4m)
3	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (1.2m) Nonshielded Power (2.4m)
4	MODEM	ACEEX	1414	IFAXDM1414	Shielded Signal (1.5m) Nonshielded Power (1.8m)
5	MOUSE	DEXIN	A2P800A	NIYA2P800A	Shielded Signal (1.5m)
6	CCD CAMERA	COMPAQ	YC72-CPQ	EDUYC72-CPQ	Shielded Signal (1.8m)
7	VGA CARD	DIAMOND	Stealth 64 Video VRAM PCI	FTUPCI968524	N/A

Note: 1. Support unit 6 was connected to the USB port of EUT.
2. Three USB cables (1.8m) were connected to the three USB ports of EUT to form three open loop cables.
3. A USB 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 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)

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8594A	3144A00308	Sept. 1, 1998
HP Preamplifier	8447D	2944A08119	Aug. 2, 1998
ROHDE & SCHWARZ TEST RECEIVER	ESVP	893496/030	July 17, 1998
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 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	:	26 ℃
Humidity	:	60 %
Atmospheric Pressure	:	989 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -19.2 dB at 22.482 MHz Minimum passing margin of radiated emission: -2.2 dB at 143.99 MHz

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

* 1600x1200 mode (93.7 kHz),
* 1280x1024 mode (80 kHz),
* 1024x768 mode (60 kHz),
* 640x480 mode (31.5 kHz)

The worst emission levels were found under 1600x1200 (93.7 kHz) and therefore the test data of only this mode is recorded.

4.1.1EUT 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. CCD camera captures an image and sends it to PC.
5. PC sends "H" messages & picture messages to monitor (EUT) and monitor displays them on screen.
6. PC sends "H" messages to modem.
7. PC sends "H" messages to printer, and printer prints them on paper.
8. Repeat steps 3-8.

4.2 TEST DATA OF CONDUCTED EMISSION

EUT: **COLOR MONITOR** MODEL: **VL950ST**

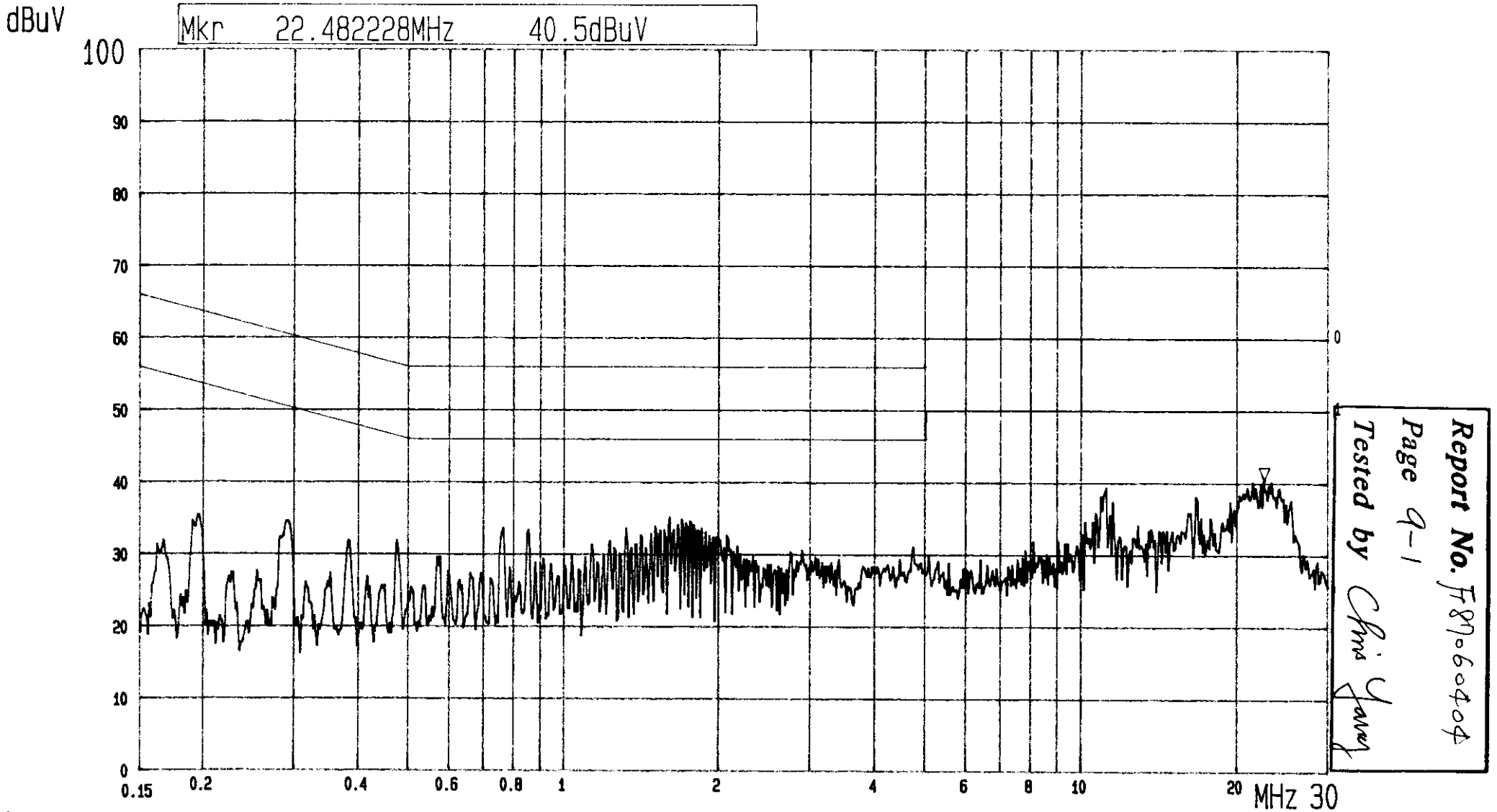
MODE: **1600x1200 (93.7 kHz)**

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: Chris Yang

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
0.193	34.70	-	38.70	-	63.91	53.91	-29.2	-	-25.2	-
0.288	34.50	-	35.50	-	60.58	50.58	-26.1	-	-25.1	-
1.316	33.70	-	30.70	-	56.00	46.00	-22.3	-	-25.3	-
1.686	35.00	-	31.50	-	56.00	46.00	-21.0	-	-24.5	-
11.158	39.50	-	38.70	-	60.00	50.00	-20.5	-	-21.3	-
22.482	40.20	-	40.80	-	60.00	50.00	-19.8	-	-19.2	-

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 levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value



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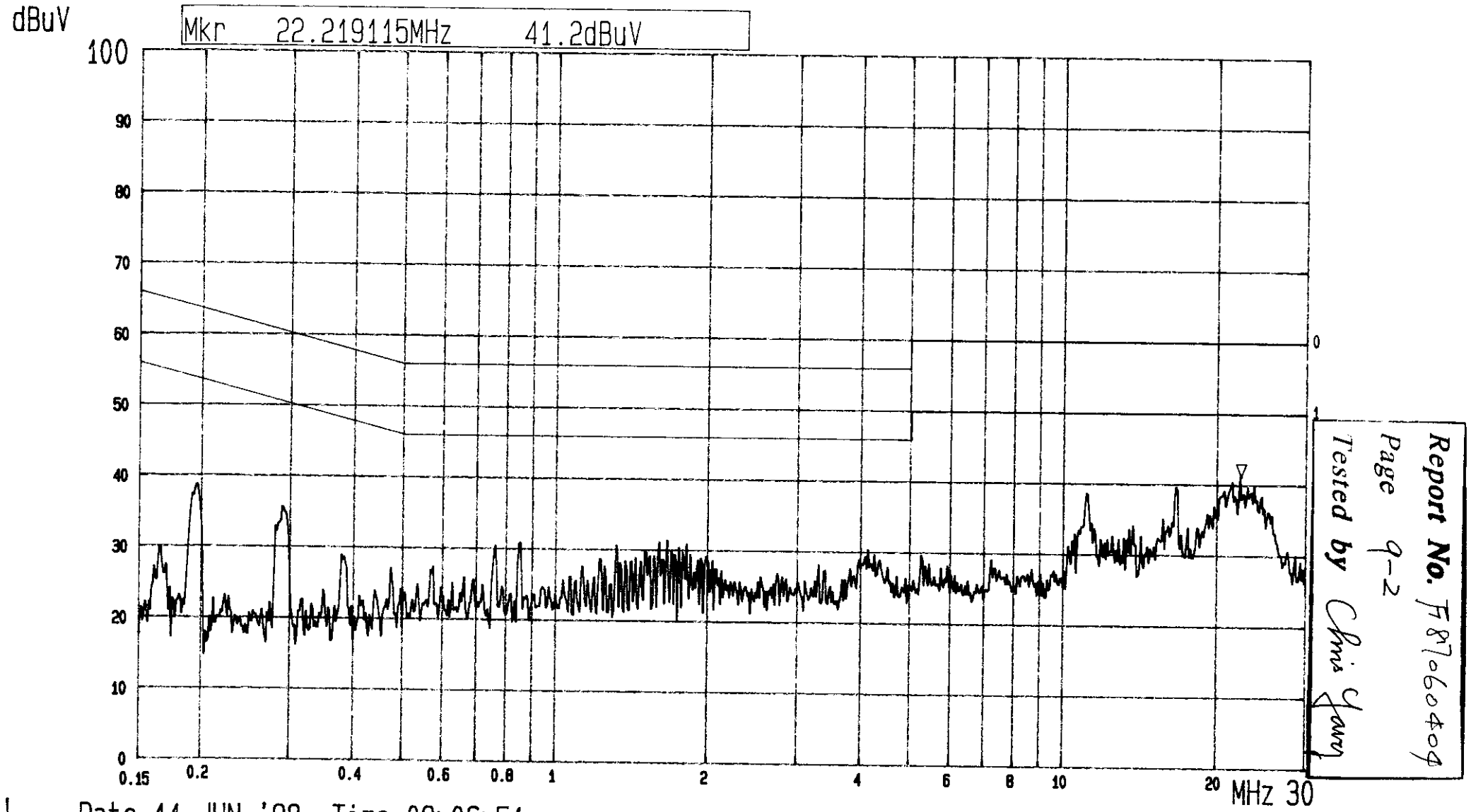
|--- Date 11.JUN.'98 Time 08:58:37
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE) ADT CORP.
MODEL : VL950ST 1600X1200 93.7KHz LISN : L



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|--- Date 11.JUN.'98 Time 09:06:51
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE) ADT CORP.
MODEL : VL950ST 1600X1200 93.7KHz LISN : N

4.3 TEST DATA OF RADIATED EMISSION

EUT: **COLOR MONITOR** MODEL: **VL950ST**

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

ANTENNA: CHASE BILOG CBL 6112/EMCO Horn 3115

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: Chris Yang

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
50.10	10.3	16.3	26.6	30.0	-3.4
53.60	9.5	16.5	26.0	30.0	-4.0
119.99	15.1	11.5	26.6	30.0	-3.4
143.99	13.8	11.4	25.2	30.0	-4.8
155.98	12.7	12.7	25.4	30.0	-4.6
167.10	12.3	13.8	26.1	30.0	-3.9
167.98	12.3	15.1	27.4	30.0	-2.6
179.98	12.2	14.4	26.6	30.0	-3.4
200.44	13.3	12.9	26.2	30.0	-3.8
203.98	13.5	11.7	25.2	30.0	-4.8
215.99	14.1	11.1	25.2	30.0	-4.8

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: **VL950ST**

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

ANTENNA: CHASE BILOG CBL 6112/EMCO Horn 3115

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: Chris Jang

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
50.11	9.9	17.0	26.9	30.0	-3.1
116.99	14.8	11.1	25.9	30.0	-4.1
119.99	15.5	12.1	27.6	30.0	-2.4
143.99	14.5	13.3	27.8	30.0	-2.2
167.98	12.3	14.0	26.3	30.0	-3.7
179.98	12.6	13.8	26.4	30.0	-3.6
191.98	13.2	12.6	25.8	30.0	-4.2
200.46	13.6	14.0	27.6	30.0	-2.4
203.98	13.8	13.6	27.4	30.0	-2.6
215.98	14.2	12.0	26.2	30.0	-3.8
227.97	14.7	12.1	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	48.2 cm/ 19 inches (viewable 18") diagonal measurement. 90 degree deflection, High Contrast anti-glare, anti-reflection, anti-static, medium short persistence phosphor, dark bulb.
* Dot Pitch	0.26 mm, High Contrast
* Input Signal	Video: 0.7 Vp-p/75 ohm Analog Positive Sync.: Separate Sync. TTL Level Horizontal Sync. Positive/Negative Vertical Sync. Positive/Negative : Composite Sync. TTL Level Positive/Negative
* Scan Frequency	Horizontal: 30 to 95 KHz (Automatically) Vertical: 50 to 160 Hz (Automatically)
* Display Area	Horizontal: 365 mm (Adjustable) Vertical: 270 mm (Adjustable)
* Max. Resolution	1600x1200 non-interlaced
* Video Bandwidth	150 MHZ
* Misconvergence	Center 0.3 mm, Corner 0.4 mm maximum
* Plug & Play	DDC 1/DDC 2B
* USB	Down stream port x 4 Per down stream port support current 500 mA (Max)
* Power Supply	AC 100-120V/200-240V, 50/60 Hz (Automatically)
* Power Consumption	155W max.
* Dimensions	460 (W) x 454.7 (H) x 426.5 (D) mm
* Weight	25.8 Kgs (G.W.) 22.2 Kgs (N.W.)
* Environmental Consideration	
Operating	Temperature: 0℃ to 40℃ Humidity: 20% to 80%
Storage	Temperature: -20℃ to 60℃ Humidity: 10% to 90%