FCC ID: DBL1795SLU

EMC

TEST REPORT

REPORT NO. : F87051302
MODEL NO. : VL710ST, VL700ST, VL710S, VL700S
DATE OF TEST : May 13, 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

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

1.

CERTIFICATION

Issue Date: Aug. 7, 1998

Product	:	COLOR MONITOR
Trade Name	:	CTX
Model No.	:	VL710ST, VL700ST, VL710S, VL700S
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 May 13, 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: 8/7/98
(John Liao)

:CHECKED BY Ariel Hsieh , DATE: 8/7/98
(Ariel Hsieh)

APPROVED BY: Mike Su , DATE: 8/7/98
(Mike Su)

ADVANCE DATA TECHNOLOGY CORPORATION

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	COLOR MONITOR
Model No.	:	VL710ST, VL700ST, VL710S, VL700S
Power Supply Type	:	Switching
Power Cord	:	Nonshielded (1.8 m)
Data Cable	:	Shielded (1.8 m)

Note: The EUT is a 17" color monitor with resolution up to 1600x1200 (93.7kHz).

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

* Model: VL710ST (with TCO Monitor; resolution: 31~95 kHz)
* Model: VL700ST (with TCO Monitor; resolution: 31~69 kHz)
* Model: VL710S (with MPR II Monitor; resolution: 31~95 kHz)
* Model: VL700S (with MPR II Monitor; resolution: 31~69 kHz)

From the above models, model: VL710ST was selected as the representative model 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 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	DoC Approved	Nonshielded Power (1.8 m) Shielded USB Cable (1.8m)
2	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded Signal (1.4 m)
3	MOUSE	HP	M-S34	DZL211029	Shielded Signal (1.8 m)
4	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (1.5 m) Nonshielded Power (1.9 m)
5	MODEM	DATATRONICS	1200C+	E2O5OV1200CK	Shielded Signal (1.2 m) Nonshielded Power (1.9 m)
6	CCD CAMERA	COMPAQ	YC72-CPQ	EDUYC-CPQ	Shielded Signal (1.6 m)
7	VGA CARD	DIAMOND	STEALTH 64 VIDEO	FTUPCI968524	N/A

Note: 1. Support unit 6 was connected to the USB port of EUT.

2. Three USB cables (1.8 m) were connected to the three USB ports of EUT to form three open loop cables.

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	8594E	3520A01861	Feb. 12, 1999
HP Preamplifier	8447D	2944A08118	June 29, 1998
HP Preamplifier	8347A	3307A01088	Sept. 4, 1998
ROHDE & SCHWARZ TEST RECEIVER	ESVS 10	840241/010	Sept. 9, 1998
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 28, 1998
CHASE BILOG Antenna	CBL6111A	1079	July 19, 1998
EMCO Double Ridged Guide Antenna	3115	9312-4192	April 3, 1999
ADT Turn Table	U200	9701	N/A
EMCO Tower	1051	1825	N/A
Open Field Test Site	Site 3	ADT-R03	July 18, 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	828109/007	Aug. 4, 1998
ROHDE & SCHWARZ Artificial Mains Network	ESH2-Z5	892107/003	July 22, 1998
EMCO L.I.S.N.	3825/2	9504-2359	Aug. 1, 1998
Shielded Room	Site 3	ADT-C03	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	:	28 ℃
Humidity	:	61 %
Atmospheric Pressure	:	992 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -3.0 dB at 19.406 MHz Minimum passing margin of radiated emission: -2.1 dB at 216.00 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 (69 kHz)
* 640x480 mode (31.5 kHz)

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

4.2 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. CCD camera captures images and sends video messages to monitor and then monitor sends them on its display screen.
6. PC sends "H" messages to modem.
7. PC sends "H" messages to printer, and the printer prints them on paper.
8. Repeat steps 3-8.

4.3 TEST DATA OF CONDUCTED EMISSION

EUT: **COLOR MONITOR** MODEL: **VL710ST**

MODE: **1600x1200 (93.7 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
0.150	40.40	-	41.90	-	66.00	56.00	-25.6	-	-24.1	-
0.280	36.50	-	35.20	-	60.81	50.81	-24.3	-	-25.6	-
0.850	27.10	-	29.60	-	56.00	46.00	-28.9	-	-26.4	-
1.884	29.70	-	38.50	-	56.00	46.00	-26.3	-	-17.5	-
19.406	51.80	47.00	51.70	46.90	60.00	50.00	-8.2	-3.0	-8.3	-3.1
24.003	49.30	-	49.50	-	60.00	50.00	-10.7	-	-10.5	-

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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CISPR 22 CLASS B

EUT:	MODEL: VL710ST
Op Cond:	1600X1200 93.7kHz
Test Spec:	LISN : L
Comment:	120V AC / 60Hz
	FULL SYSTEM

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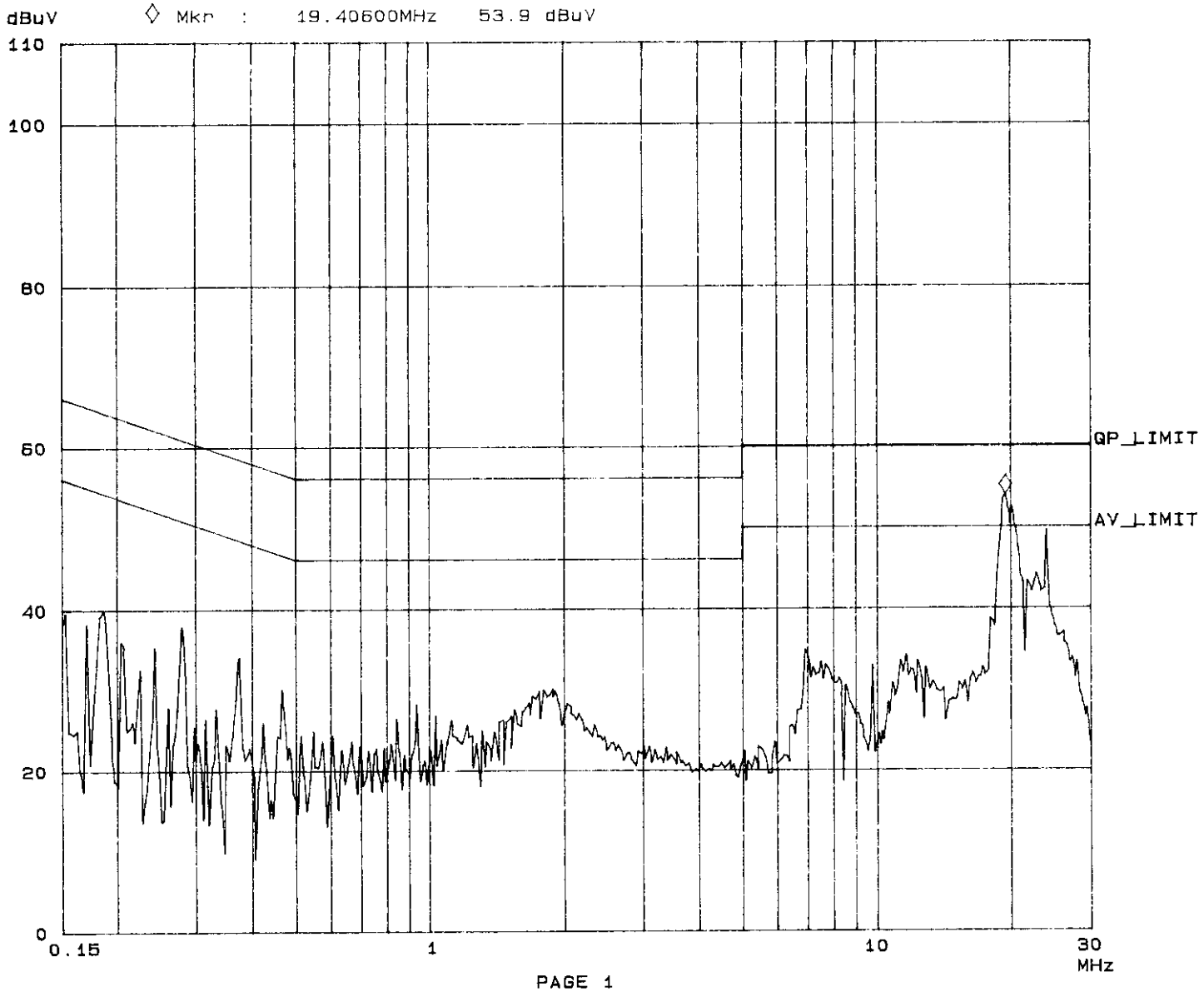
Fast Scan Settings (3 Ranges)

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. SITE 3
CISPR 22 CLASS B

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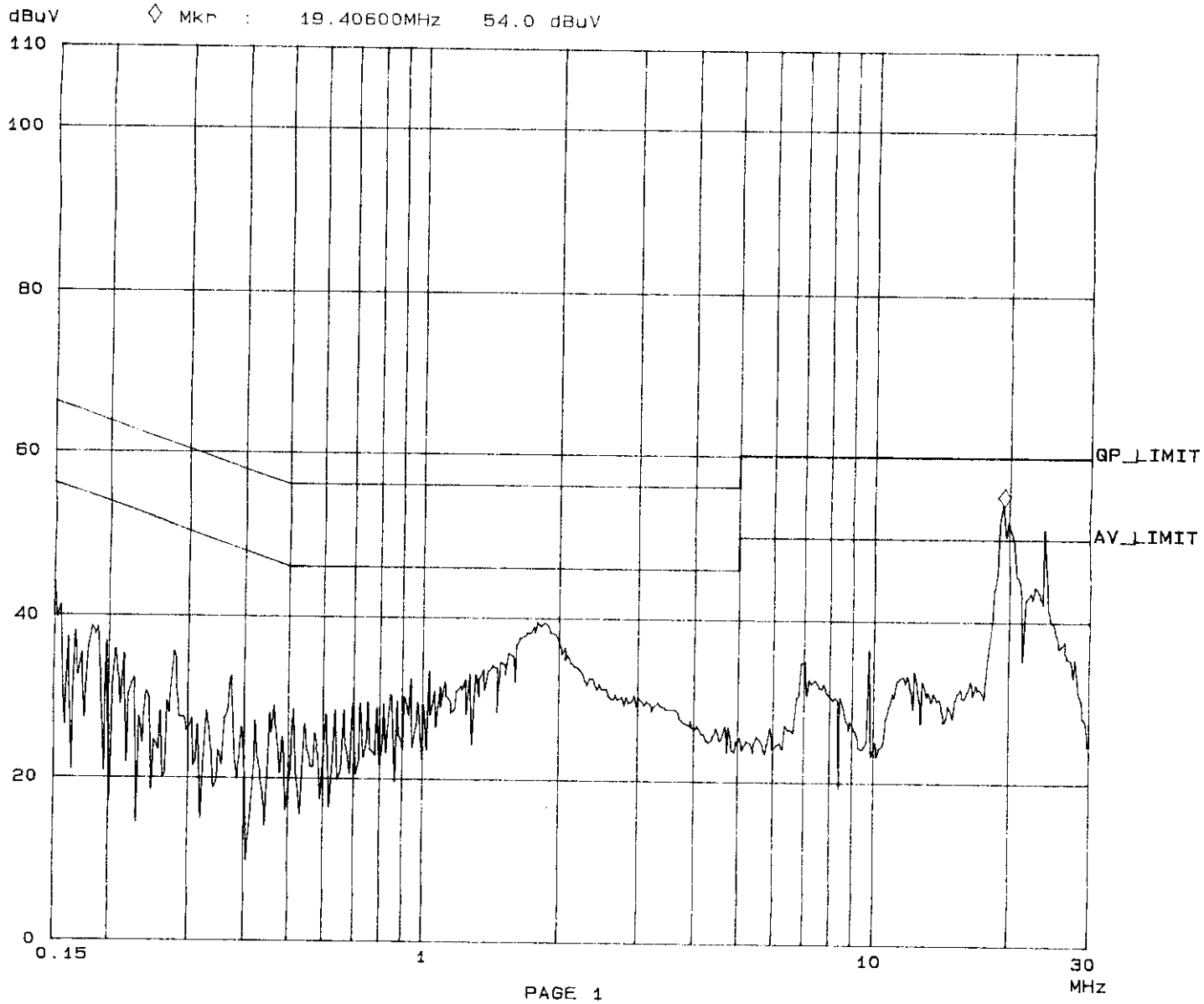
Tested by John Liao

EUT: MODEL: VL710ST
Op Cond: 1600X1200 93.7kHz
Test Spec: LISN : N
Comment: 120V AC / 60Hz
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



4.4 TEST DATA OF RADIATED EMISSION

EUT: **COLOR MONITOR** MODEL: **VL710ST**

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

ANTENNA: CHASE BILOG CBL6111A POLARITY: Horizontal

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)
108.00	12.5	14.6	27.1	30.0	-2.9
118.23	13.7	10.5	24.2	30.0	-5.8
132.00	13.8	9.5	23.3	30.0	-6.7
144.00	13.5	12.4	25.9	30.0	-4.1
156.02	13.0	13.7	26.7	30.0	-3.3
168.00	12.4	13.7	26.1	30.0	-3.9
180.00	11.8	11.6	23.4	30.0	-6.6
192.00	12.7	14.3	27.0	30.0	-3.0
202.54	13.4	12.6	26.0	30.0	-4.0
204.00	13.4	12.7	26.1	30.0	-3.9
216.00	13.9	14.0	27.9	30.0	-2.1
228.00	14.4	13.0	27.4	30.0	-2.6

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: **VL710ST**

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

ANTENNA: CHASE BILOG CBL6111A POLARITY: Vertical

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)
108.00	12.2	13.4	25.6	30.0	-4.4
118.23	15.2	10.3	25.5	30.0	-4.5
120.02	15.8	7.9	23.7	30.0	-6.3
132.00	14.5	13.3	27.8	30.0	-2.2
144.00	13.4	14.0	27.4	30.0	-2.6
156.04	13.0	14.0	27.0	30.0	-3.0
180.00	11.4	13.9	25.3	30.0	-4.7
192.00	12.6	11.7	24.3	30.0	-5.7
202.54	13.3	14.0	27.3	30.0	-2.7
204.00	13.3	13.0	26.3	30.0	-3.7
216.00	13.4	10.3	23.7	30.0	-6.3
228.00	13.6	12.7	26.3	30.0	-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:

*** Picture Tube:**	43.1cm/17 inches (viewable 40cm/15.7"), VL700S/700ST: 0.27 mm Dot Pitch, VL710S/710ST: 0.26 mm Dot Pitch, (Low Radiation/ Anti-Static/ Anti-Magnetic)		
*** Scan Freq:**	VL700S/700ST: 30 ~70 kHz, VL710S/710ST: 30 ~95Hz Horizontal, 50 ~ 160Hz, Vertical, TTL		
*** Resolution:**	VL700S/700ST: 1280x1024 (60Hz), VL710S/710ST: 1600x1200 (75Hz), maximum.		
*** Power Supply:**	AC 100V to 120V, 200V to 240 V, 50/60Hz (Automatic)		
*** Power Consumption:**	VL700S/700ST: 105W, VL710S/710ST: 110W, <6W in power-saving mode 125W, < 8W with USB in power-saving mode.		
*** Plug & Play:**	DDC 1 / DDC 2B		
*** USB:**	Downstream port x 4. Per downstream port support current 500mA (Max.)		
*** Dimension:**	406 (W) x 424 (H) x 395 (D) mm		
*** Weight:**	16Kgs/35.2 lbs		
*** Environmental:**	Operating	Temperature	5°C to 40°C
		Humidity	20% to 80% (no condensing)
	Storage	Temperature	-20°C to 60°C
		Humidity	10% to 90% (no condensing)