



# EMC

## TEST REPORT

REPORT NO. : F87060303  
MODEL NO. : DA-795KAT, DA-795BAP, DA-795BA  
DATE OF TEST : June 6, 1998

PREPARED FOR: DELTA ELECTRONICS INC.

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PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory

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1.

**CERTIFICATION**

Issue Date: June 16, 1998

Product : COLOR MONITOR  
Trade Name : DELTA  
Model No. : DA-795KAT, DA-795BAP, DA-795BA  
Applicant : DELTA ELECTRONICS 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 6, 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:

Leo Hong  
(Leo Hong)

DATE:

6/16/98

CHECKED BY:

Rita Yi  
(Rita Yi)

DATE:

6/16/98

APPROVED BY:

Mike Su  
(Mike Su)

DATE:

6/16/98

**ADVANCE DATA TECHNOLOGY CORPORATION****NVLAQ<sup>®</sup>**

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## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Product	:	COLOR MONITOR
Model No.	:	DA-795KAT, DA-795BAP, DA-795BA
Power Supply Type	:	Switching
Power Cord	:	Nonshielded (1.8 m)
Data Cable	:	Shielded (1.6 m)

Note: The EUT has three model names which are identical to each other in all aspects except for their outer appearances:

Model: DA-795KAT (without low radiation and TCO 95 CRT)  
Model: DA-795BAP (with low radiation CRT)  
Model: DA-795BA (with low radiation CRT)

From the above model names, model: DA-795KAT was selected as representative model for the test, and its data is recorded in this report.

The EUT is a 17" color monitor with resolution up to 1600x1200.

There is one 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	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 (1.8m)
4	MODEM	ACEEX	1414	IFAXDM1414	Shielded Signal (1.2m) Nonshielded Power (1.8m)
5	MOUSE	DEXIN	A2P800A	NIYA2P800A	Shielded Signal (1.5m)
6	VGA DISPLAY CARD	DIAMOND	STEALTH 64 VIDEO	FTUPCI968524	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	8594A	3144A00308	Sept. 1, 1998
HP Preamplifier	8447D	2944A08119	Aug. 2, 1998
HP Preamplifier	8347A	3307A01088	Sept. 4, 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)	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 - 2000 MHz (Radiated Emission)
Input Voltage	:	120 Vac, 60 Hz
Temperature	:	27 °C
Humidity	:	47 %
Atmospheric Pressure	:	1060 mbar

TEST RESULT	Remarks
<b>PASS</b>	Minimum passing margin of conducted emission: -12.4 dB at 2.717 MHz
	Minimum passing margin of radiated emission: -3.8 dB at 40.51 MHz

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

- \* 1600x1200 mode (93.7 kHz),
- \* 1280x1024 mode (87 kHz),
- \* 640x480 mode (31.5 kHz)

The worst emission levels were found under 1600x1200 mode (93.7 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.





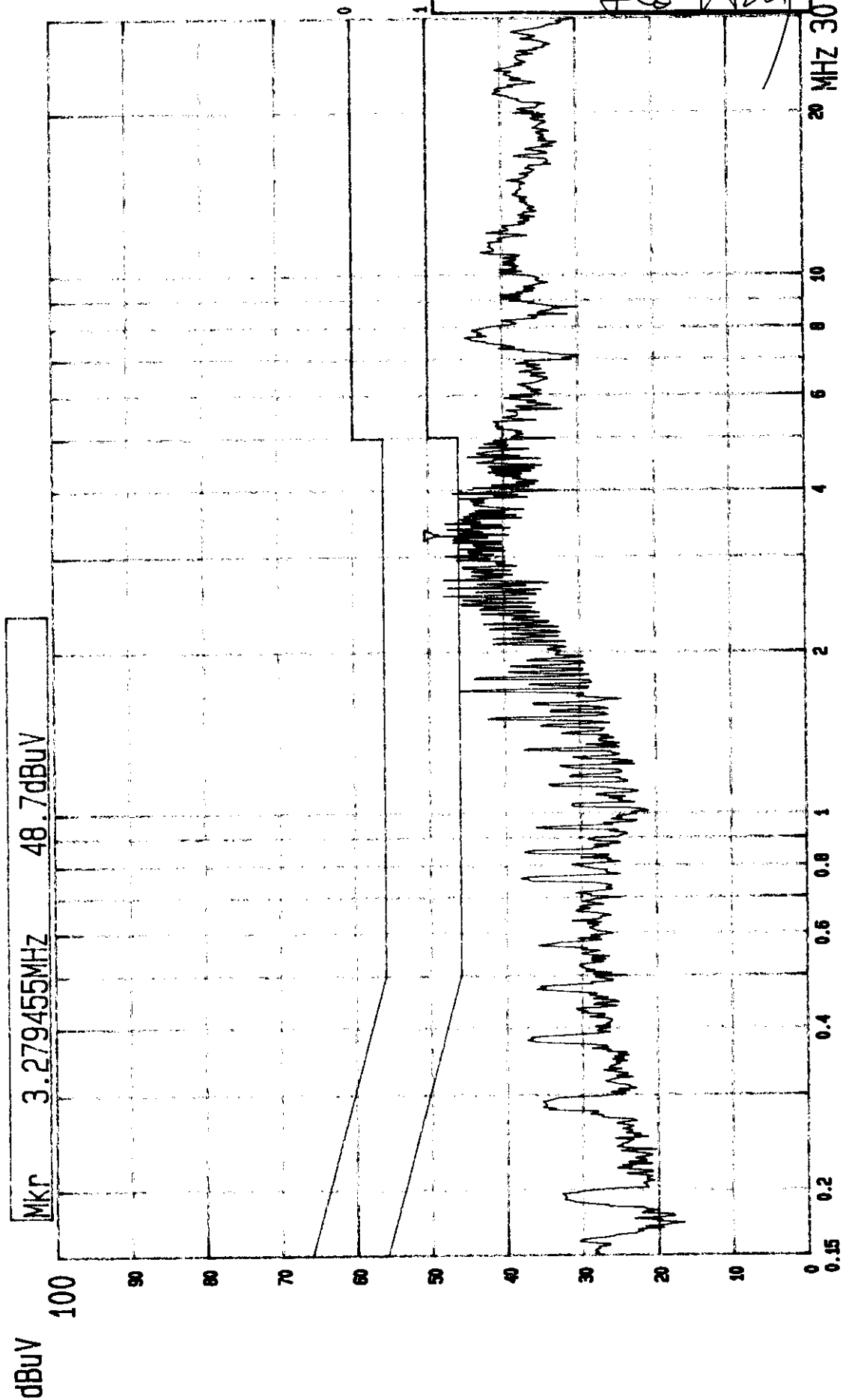
## 4.2 TEST DATA OF CONDUCTED EMISSION

EUT: COLOR MONITORMODEL: DA-795KATMODE: 1600x1200 (93.7 kHz)6 dB Bandwidth: 10 kHz

TEST PERSONNEL:

Freq. [MHz]	L Level		N Level		Limit		Margin [dB (μV)]			
	[dB (μV)]		[dB (μV)]		[dB (μV)]		L		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.372	28.50	-	25.80	-	58.44	48.44	-29.9	-	-32.6	-
0.749	28.90	-	29.40	-	56.00	46.00	-27.1	-	-26.6	-
1.685	41.90	-	42.10	-	56.00	46.00	-14.1	-	-13.9	-
2.717	42.60	-	43.60	-	56.00	46.00	-13.4	-	-12.4	-
7.591	41.20	-	41.70	-	60.00	50.00	-18.8	-	-18.3	-
21.703	36.50	-	36.60	-	60.00	50.00	-23.5	-	-23.4	-

- 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

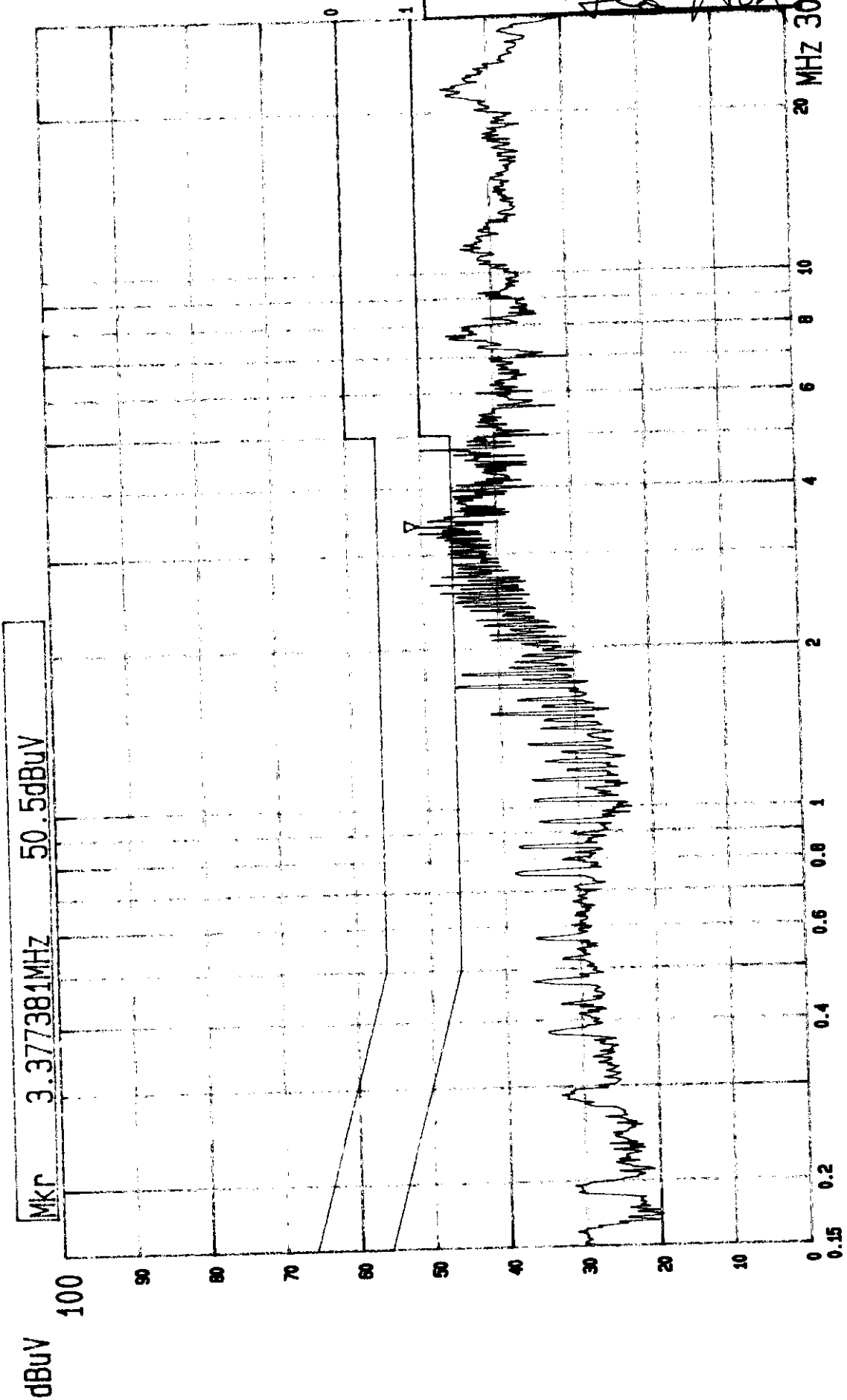


---- Date 06.JUN.'98 Time 15:03:16  
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE)  
MODEL : DA-795KAT  
ADT CORP.  
LISN : L

Report No. J87060303

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Tested by *Lee Aard*



--- Date 06.JUN.'98 Time 14:59:42  
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE)  
MODEL : DA-795KAT

ADT CORP.  
LISN : N



**4.3 TEST DATA OF RADIATED EMISSION**

EUT: **COLOR MONITOR**

MODEL: **DA-795KAT**

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

ANTENNA: **CHASE BILOG CBL6112**

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:

*Leo Hong*

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
40.49	15.2	5.8	21.0	30.0	-9.0
60.78	7.9	13.4	21.3	30.0	-8.7
80.49	8.8	10.0	18.8	30.0	-11.2
141.71	14.0	8.0	22.0	30.0	-8.0
182.27	12.3	12.5	24.8	30.0	-5.2
202.49	13.4	6.7	20.1	30.0	-9.9
222.76	14.4	6.4	20.8	30.0	-9.2

- 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



**TEST DATA OF RADIATED EMISSION**

EUT: **COLOR MONITOR**

MODEL: **DA-795KAT**

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

ANTENNA: **CHASE BILOG CBL6112**

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:

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
40.51	13.7	12.5	26.2	30.0	-3.8
60.76	7.9	15.2	23.1	30.0	-6.9
81.10	8.3	12.4	20.7	30.0	-9.3
121.40	15.4	5.0	20.4	30.0	-9.6
141.65	14.9	5.5	20.4	30.0	-9.6
182.22	12.7	9.4	22.1	30.0	-7.9
222.71	14.5	9.4	23.9	30.0	-6.1

- 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	TSB 17" Flat Square Tube (FST), 90 degree deflection 0.25mm dot pitch, micro Fitter, anti-glare, anti-static, P22 phosphor, medium short persistence.
* Signal Input Interface	Video: RGB analog Sync: H.V. Separate Sync H.V. Composite Sync (TTL Compatible)
* Synchronization	Horizontal: 30 to 95KHz Vertical: 50 to 160Hz (TTL Compatible)
* Maximum Resolution	1600X1200 @70 1280X1024@85
* Video Bandwidth	150 MHz (-3db) nominal
* Nominal Display Size	300x225mm
* Digital Control Menu	4key On-screen display
* Magic Plug & Play	Bi-directional data channel
* Display Timings	See attachment
* Power Input	90-264Vac, 50 or 60Hz