



# EMC

## TEST REPORT

REPORT NO. : F87050401

MODEL NO. : J51E

DATE OF TEST : May 5, 1998

PREPARED FOR: JEAN CO., LTD.

ADDRESS : 5F, 167, FU HSING N. RD.,  
TAIPEI, TAIWAN, R.O.C.

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory

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## **TABLE OF CONTENTS**

|                                                                  |    |
|------------------------------------------------------------------|----|
| 1. CERTIFICATION .....                                           | 3  |
| 2. GENERAL INFORMATION .....                                     | 4  |
| 2.1 GENERAL DESCRIPTION OF EUT .....                             | 4  |
| 2.2 1DESCRIPTION OF SUPPORT UNITS .....                          | 5  |
| 2.3 TEST METHODOLOGY AND CONFIGURATION .....                     | 5  |
| 3. TEST INSTRUMENTS .....                                        | 6  |
| 3.1 TEST INSTRUMENTS (EMISSION) .....                            | 6  |
| 3.2 LIMITS OF CONDUCTED AND RADIATED EMISSION.....               | 7  |
| 4. TEST RESULTS (EMISSION) .....                                 | 8  |
| 4.1 RADIO DISTURBANCE.....                                       | 8  |
| 4.1.1 EUT OPERATION CONDITION .....                              | 8  |
| 4.2 TEST DATA OF CONDUCTED EMISSION .....                        | 9  |
| 4.3 TEST DATA OF RADIATED EMISSION .....                         | 10 |
| 5. PHOTOGRAPHS OF THE TEST CONFIGURATION WITH MINIMUM MARGIN.... | 12 |
| 6. ATTACHMENT I -TECHNICAL DESCRIPTION OF EUT .....              | 14 |

**1. CERTIFICATION**

Issue Date: May 19, 1998

Product : COLOR MONITOR  
Trade Name : JEAN  
Model No. : J51E  
Applicant : JEAN 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 5, 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: J. W. Kuo, DATE: 5/19/98  
( J. W. Kuo )

CHECKED BY: Sharon Hsiung, DATE: 5/19/98  
( Sharon Hsiung )

APPROVED BY: Mike Su, DATE: 5/19/98  
( Mike Su )

**ADVANCE DATA TECHNOLOGY CORPORATION**

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## **2. GENERAL INFORMATION**

### **2.1 GENERAL DESCRIPTION OF EUT**

|                   |   |                    |
|-------------------|---|--------------------|
| Product           | : | COLOR MONITOR      |
| Model No.         | : | J51E               |
| Power Supply Type | : | Switching          |
| Power Cord        | : | Nonshielded (1.8m) |
| Data Cable        | : | Shielded (1.2m)    |

Note: The EUT is a 15" color monitor with resolution upto 1024x768.

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.



## 2.21 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)                             |
| 2   | MOUSE             | LOGITECH    | M-S34     | DZL210472    | Shielded signal (1.8m)                             |
| 3   | PRINTER           | HP          | 2225C+    | DSI6XU2225   | Shielded Signal (1.2m)<br>Nonshielded Power (1.9m) |
| 4   | MODEM             | DATATRONICS | 1200C+    | E2O5OV1200CK | Shielded signal (1.2m)<br>Nonshielded Power (1.9m) |
| 5   | VGA DISPLAY 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 / 3 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<br>UHA 9105 | E101051<br>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<br>(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<br>(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<br>(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 : 25 °C  
Humidity : 60 %  
Atmospheric Pressure : 1060 mbar

| TEST RESULT | Remarks                                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PASS</b> | Minimum passing margin of conducted emission: -18.6 dB at 19.351 MHz<br>Minimum passing margin of radiated emission: -2.4 dB at 50.38 MHz |

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

- \* 1024x768 mode (48 kHz),
- \* 800x600 mode (54 kHz),
- \* 640x480 mode (31.5 kHz)

The worst emission levels were found under 1024x768 (48 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 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

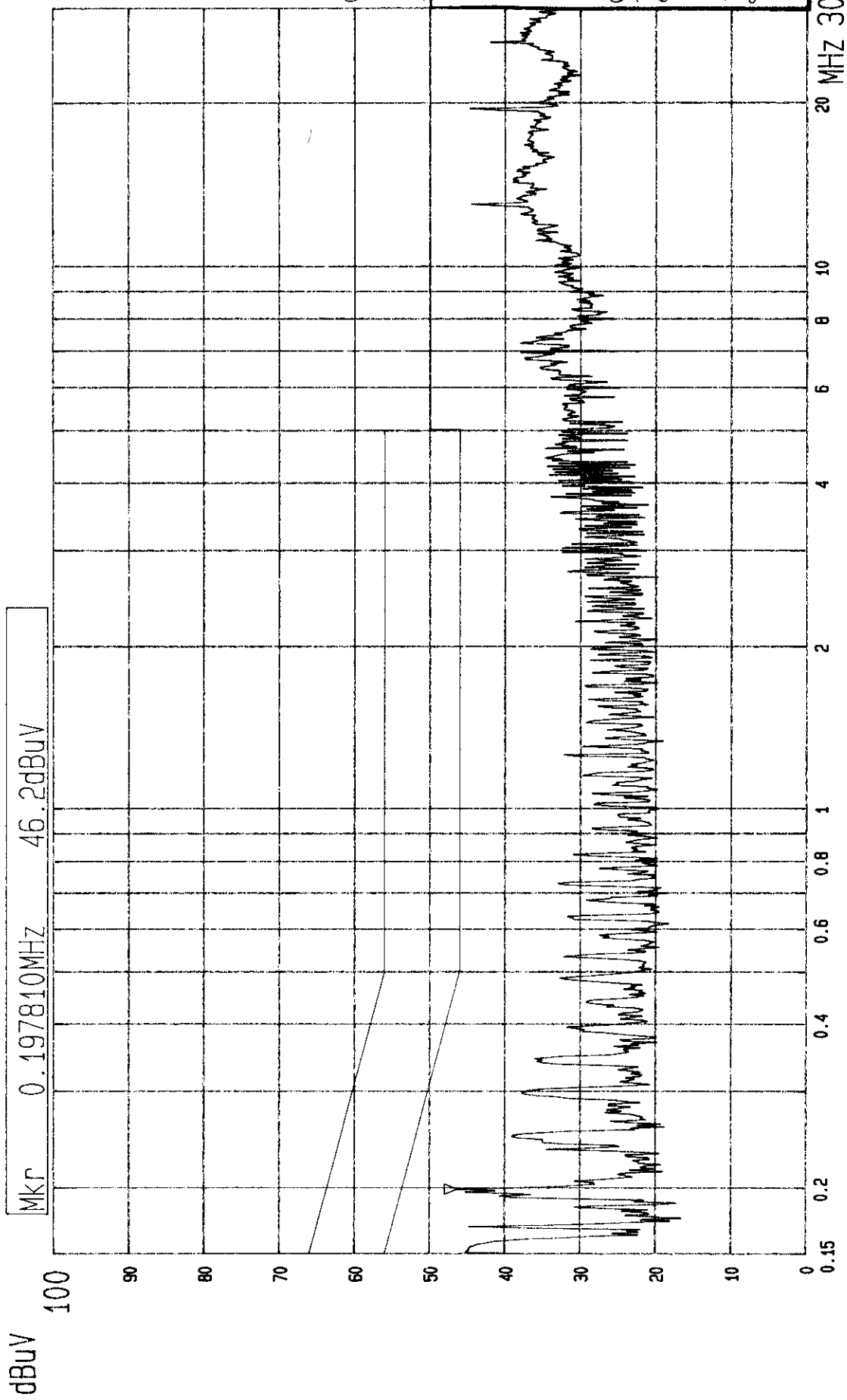
EUT: COLOR MONITORMODEL: J51EMODE: 1024x768 (48 kHz)

6 dB Bandwidth: 10 kHz

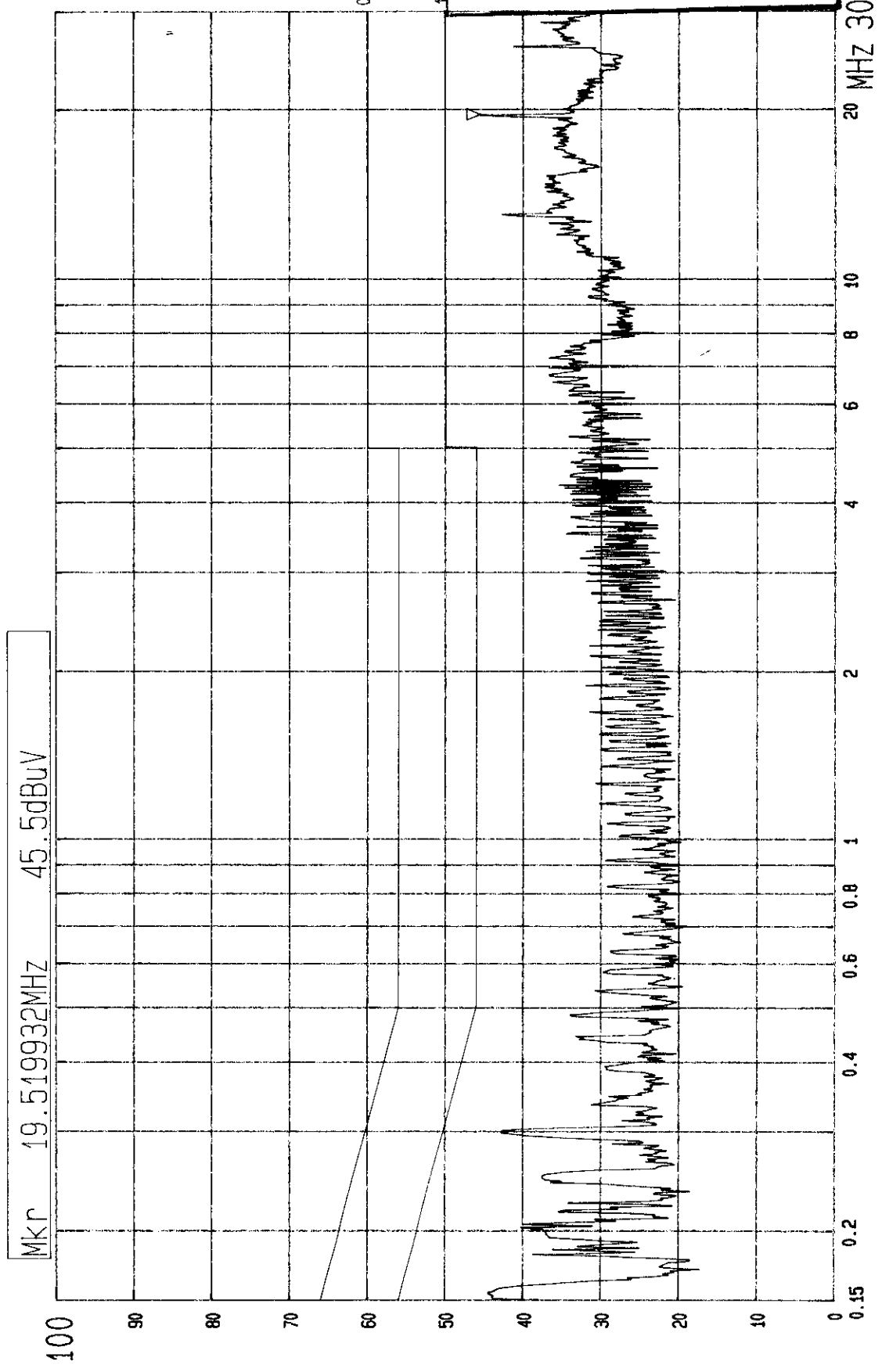
TEST PERSONNEL: J. W. KUO

| 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  | 37.60     | -  | 38.50     | -  | 66.00     | 56.00 | -28.4            | -  | -27.5 | -  |
| 0.334  | 31.00     | -  | 26.90     | -  | 59.35     | 49.35 | -28.4            | -  | -32.5 | -  |
| 4.281  | 30.90     | -  | 30.20     | -  | 56.00     | 46.00 | -25.1            | -  | -25.8 | -  |
| 6.927  | 34.30     | -  | 33.50     | -  | 60.00     | 50.00 | -25.7            | -  | -26.5 | -  |
| 12.989 | 37.80     | -  | 38.20     | -  | 60.00     | 50.00 | -22.2            | -  | -21.8 | -  |
| 19.531 | 41.40     | -  | 40.30     | -  | 60.00     | 50.00 | -18.6            | -  | -19.7 | -  |

- 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 05.MAY.'98 Time 13:15:52  
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE) ADT CORP.  
MODEL: J51E (1024X768 48KHZ) LISN: L



Mkr 19.519932MHz 45.5dBuV

--- Date 05.MAY.'98 Time 13:07:05  
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE) ADT CORP.  
MODEL: J51E (1024X768 48KHZ) LISN: N



### 4.3 TEST DATA OF RADIATED EMISSION

EUT: COLOR MONITORMODEL: J51EMODE: 1024x768 (48 kHz)ANTENNA: CHASE BILOG CBL6112POLARITY: HorizontalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 10 MTEST PERSONNEL: J. W. KUO

| Frequency<br>(MHz) | Correction<br>Factor<br>(dB/m) | Reading<br>Data<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|--------------------|--------------------------------|---------------------------|-------------------------------|-------------------|----------------|
| 45.44              | 12.8                           | 9.2                       | 22.0                          | 30.0              | -8.0           |
| 50.38              | 10.2                           | 17.4                      | 27.6                          | 30.0              | -2.4           |
| 149.61             | 13.3                           | 8.1                       | 21.4                          | 30.0              | -8.6           |
| 162.62             | 12.4                           | 9.7                       | 22.1                          | 30.0              | -7.9           |
| 175.93             | 12.2                           | 8.6                       | 20.8                          | 30.0              | -9.2           |
| 182.44             | 12.3                           | 11.4                      | 23.7                          | 30.0              | -6.3           |
| 215.02             | 14.0                           | 11.9                      | 25.9                          | 30.0              | -4.1           |
| 228.06             | 14.6                           | 10.9                      | 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



## TEST DATA OF RADIATED EMISSION

EUT: COLOR MONITORMODEL: J51EMODE: 1024x 768 (48 kHz)ANTENNA: CHASE BILOG CBL6112POLARITY: HorizontalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 10 MTEST PERSONNEL: J. W. Kuo

| Frequency<br>(MHz) | Correction<br>Factor<br>(dB/m) | Reading<br>Data<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|--------------------|--------------------------------|---------------------------|-------------------------------|-------------------|----------------|
| 45.63              | 11.5                           | 12.0                      | 23.5                          | 30.0              | -6.5           |
| 64.90              | 7.5                            | 19.4                      | 26.9                          | 30.0              | -3.1           |
| 84.70              | 9.6                            | 17.6                      | 27.2                          | 30.0              | -2.8           |
| 110.77             | 13.4                           | 12.1                      | 25.5                          | 30.0              | -4.5           |
| 117.30             | 14.8                           | 11.2                      | 26.0                          | 30.0              | -4.0           |
| 149.86             | 13.6                           | 10.3                      | 23.9                          | 30.0              | -6.1           |
| 175.94             | 12.5                           | 11.6                      | 24.1                          | 30.0              | -5.9           |
| 182.44             | 12.7                           | 12.6                      | 25.3                          | 30.0              | -4.7           |

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:

|                 |                                               |
|-----------------|-----------------------------------------------|
| ✧ CRT Size/Type | 15" (diagonal)                                |
| ✧ Viewable Size | 13.7" (diagonal)                              |
| ✧ CRT Dot Pitch | 0.28mm                                        |
| ✧ Display Area  | 195(H)x260(W)mm (Normal)                      |
| ✧ Video input   | Analog 0.7Vp-p, 75ohms                        |
| ✧ SYNC input    | Hor & Vert. TTL Separate Positive or Negative |
| ✧ Display Color | Unlimited color                               |
| ✧ Resolution    | 1024x768(Non-interlaced)                      |

### SYNC Signals

|              |             |
|--------------|-------------|
| ✧ Horizontal | 30kHz-55kHz |
| ✧ Vertical   | 50Hz-99Hz   |

### Power Supply

|                  |                                                                      |
|------------------|----------------------------------------------------------------------|
| ✧ Input Voltage  | AC100-240 60-50Hz                                                    |
| ✧ Consumption    | 80W(MAX)                                                             |
| ✧ User Controls  | Brightness, Contrast, V-size, V-Center, H-Phase, H-Size, Pincushion. |
| ✧ Dimension      | 488(W)x429(H)x468(D)mm                                               |
| ✧ Wight(N.W/G.W) | 12.5/14.5kgs                                                         |

### Environmental Conditions

|                         |                                 |
|-------------------------|---------------------------------|
| ✧ Operating Temperature | 5 °C - 35 °C (41 °F - 95 °F)    |
| ✧ Operating Humidity    | 10% - 90% (non-condensing)      |
| ✧ Storage temperature   | -30 °C - 60 °C (-22 °F -140 °F) |
| ✧ Storage Humidity      | 50% - 90% (non-condensing)      |