



EMC

TEST REPORT

REPORT NO. : F87070309

MODEL NO. : J71C

DATE OF TEST : July 20, 1998

PREPARED FOR: JEAN CO., LTD.

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PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



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1.

CERTIFICATION

Issue Date: July 23, 1998

Product : COLOR MONITOR
Trade Name : JEAN
Model No. : J71C
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 July 20, 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: Jackey Chang, DATE: 7/23/98
(Jackey Chang)

CHECKED BY: Ariel Hsieh, DATE: 7/23/98
(Ariel Hsieh)

APPROVED BY: Mike Su, DATE: 7/23/98
(Mike Su)

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product : COLOR MONITOR
Model No. : J71C
Power Supply Type : Switching
Power Cord : Nonshielded (1.8m)
Data Cable : Shielded (1.2m)

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

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 | VL SERIES 4 5/100 | FCC DoC APPROVED | Nonshielded Power (1.8m) |
| 2 | KEYBOARD | FORWARD | FDA-104GA | F4ZDA-104G | Nonshielded Signal (1.5m) |
| 3 | MOUSE | DEXIN | A2P800A | NIYA2P800A | Nonshielded Signal (1.5m) |
| 4 | PRINTER | HP | C2145A | B94C2145X | Nonshielded Signal (1.2m) Nonshielded Power (1.8m) |
| 5 | MODEM | ACEEX | 1414 | IFAXDM1414 | Nonshielded signal (1.5m) 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 / 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 |
| ROHDE & SCHWARZ TEST RECEIVER | ESVP | 893496/030 | July 15, 1999 |
| 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 15, 1999 |
| ROHDE & SCHWARZ Spectrum Monitor | EZM | 893787/013 | July 16, 1999 |
| ROHDE & SCHWARZ Artificial Mains Network | ESH3-Z5 | 839135/006 | July 14, 1999 |
| EMCO-L.I.S.N. | 3825/2 | 9204-1964 | July 14, 1999 |
| 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 | 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 - 1000 MHz (Radiated Emission)
 Input Voltage : 120 Vac, 60 Hz
 Temperature : 24 °C
 Humidity : 65 %
 Atmospheric Pressure : 991 mbar

| TEST RESULT | Remarks |
|-------------|--|
| PASS | Minimum passing margin of conducted emission: -15.4 dB at 21.689 MHz Minimum passing margin of radiated emission: -3.3 dB at 176.24 MHz |

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

- * 1280x1024 mode (64 kHz),
- * 1024x768 mode (69 kHz),
- * 640x480 mode (31.5 kHz)

The worst emission levels were found under 1280x1024 (64 kHz) and therefore the test data of only this mode is recorded.

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. 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.



4.3 TEST DATA OF CONDUCTED EMISSION

EUT: COLOR MONITOR

MODEL: J71C

MODE: 1280x1024 (64 kHz)

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: *Jacky Chang*

| Freq. [MHz] | L Level | | N Level | | Limit | | Margin [dB (μ V)] | | | |
|----------------|-----------------|----|-----------------|----|-----------------|-------|------------------------|----|-------|----|
| | [dB (μ V)] | | [dB (μ V)] | | [dB (μ V)] | | L | | N | |
| | QP | AV | QP | AV | QP | AV | QP | AV | QP | AV |
| 0.192 | 45.70 | - | 43.30 | - | 63.95 | 53.95 | -18.3 | - | -20.7 | - |
| 0.384 | 35.40 | - | 34.60 | - | 58.19 | 48.19 | -22.8 | - | -23.6 | - |
| 1.218 | 39.40 | - | 39.60 | - | 56.00 | 46.00 | -16.6 | - | -16.4 | - |
| 2.694 | 39.30 | - | 39.50 | - | 56.00 | 46.00 | -16.7 | - | -16.5 | - |
| 5.386 | 42.00 | - | 42.40 | - | 60.00 | 50.00 | -18.0 | - | -17.6 | - |
| 21.689 | 44.60 | - | 43.70 | - | 60.00 | 50.00 | -15.4 | - | -16.3 | - |

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.

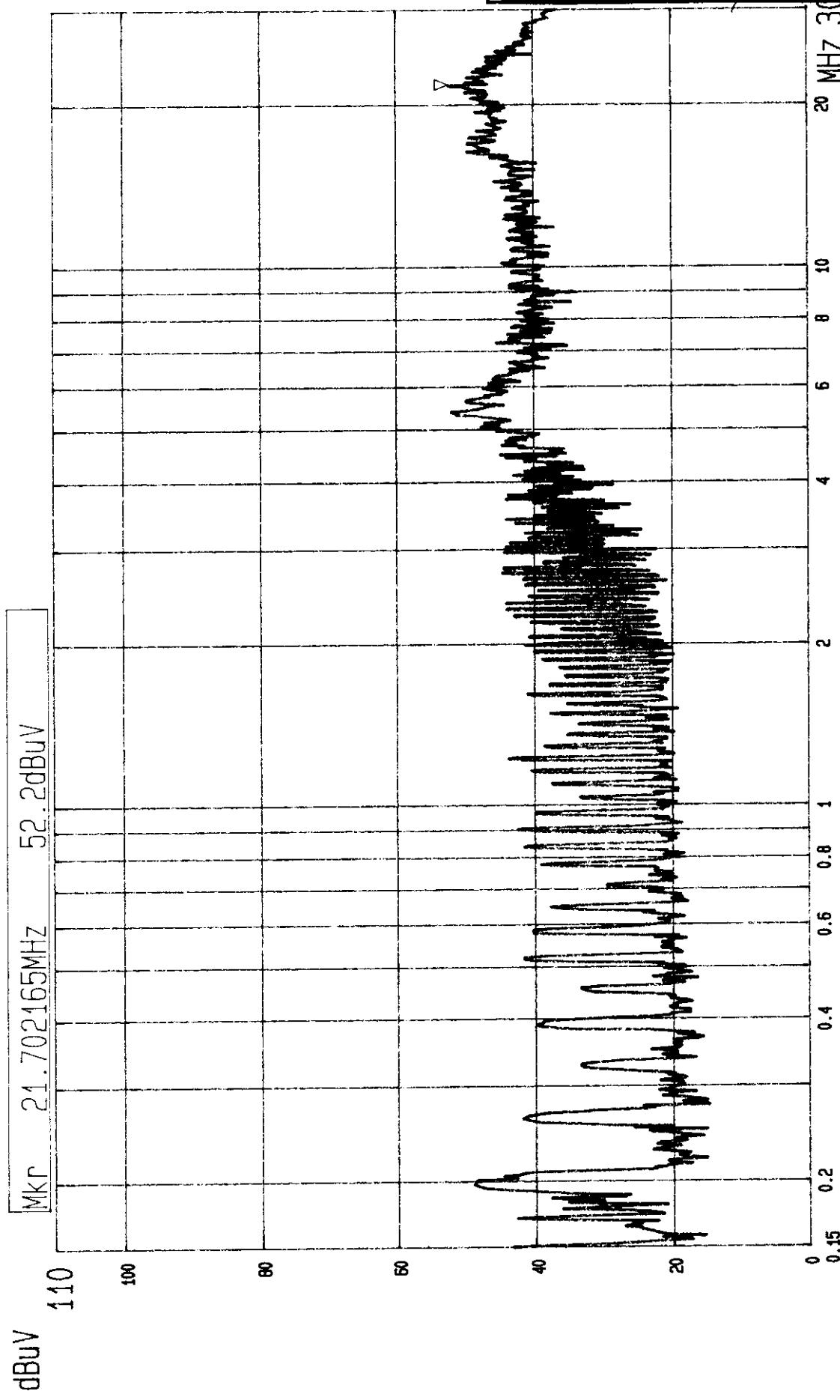
4. The emission levels of other frequencies were very low against the limit.

5. Margin value = Emission level - Limit value

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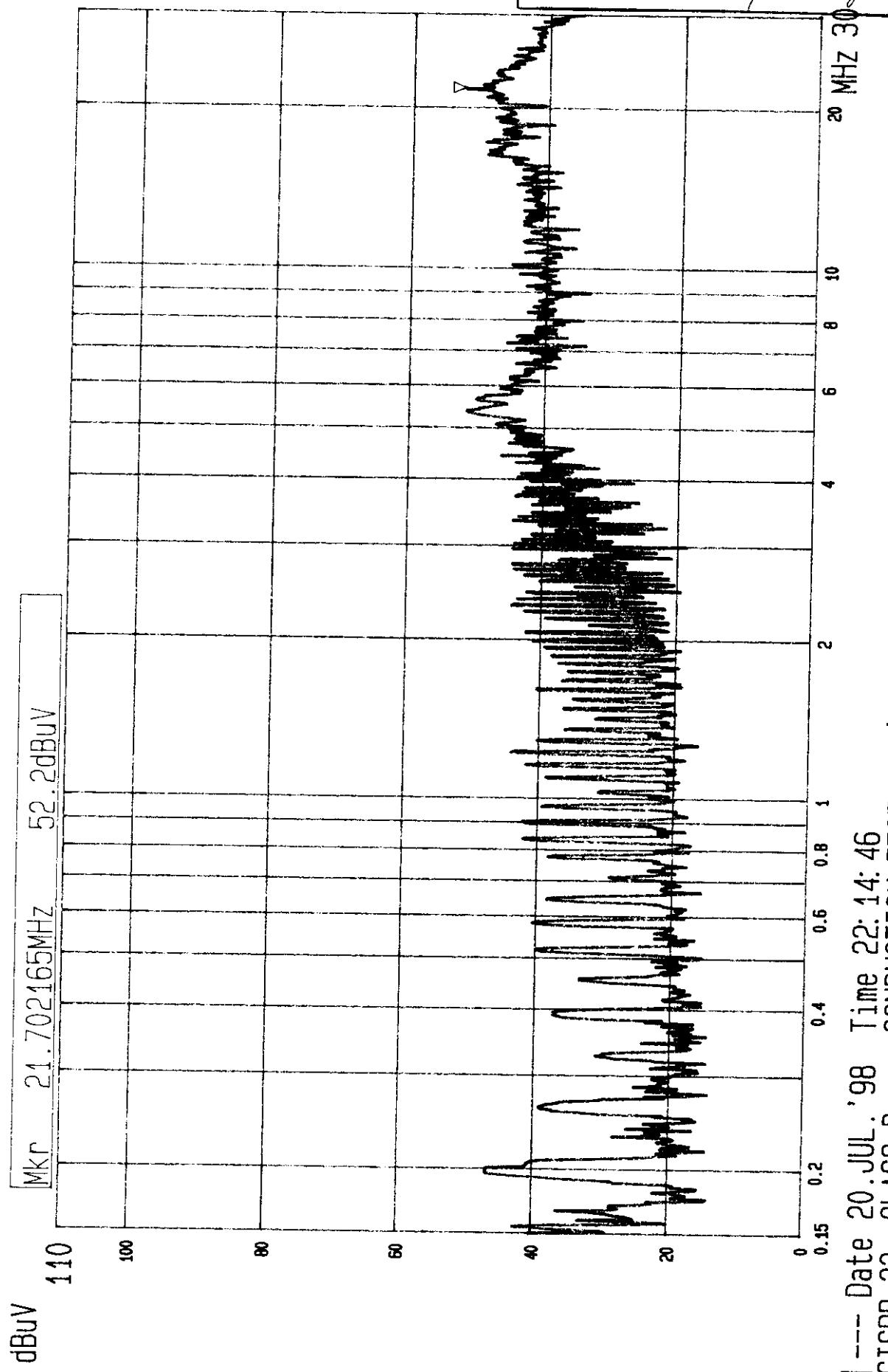
Tested by Jackey Chang



ADT CORP
LISN: L

--- Date 20 JUL '98 Time 22:05:58
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE)
MODEL : J71C 1280X1024 60Hz 64kHz

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Tested by Jacky Chang



--- Date 20:JUL:98 Time 22:14:46
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE)
MODEL : J71C 1280X1024 60Hz 64kHz

ADT CORP
LISN: N



4.4 TEST DATA OF RADIATED EMISSION

EUT: COLOR MONITOR

MODEL: J71C

MODE: 1280x1024 (64 kHz)

ANTENNA: CHASE BILOG CBL6112

POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL:

| Frequency (MHz) | Correction Factor (dB/m) | Reading Data (dBuV) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------------|--------------------------------|---------------------------|-------------------------------|-------------------|----------------|
| 76.00 | 8.5 | 17.2 | 25.7 | 30.0 | -4.3 |
| 84.89 | 9.6 | 12.4 | 22.0 | 30.0 | -8.0 |
| 108.83 | 13.9 | 11.3 | 25.2 | 30.0 | -4.8 |
| 185.00 | 12.4 | 10.7 | 23.1 | 30.0 | -6.9 |
| 195.91 | 13.1 | 5.3 | 18.4 | 30.0 | -11.6 |
| 204.33 | 13.5 | 2.7 | 16.2 | 30.0 | -13.8 |
| 212.72 | 13.9 | 2.5 | 16.4 | 30.0 | -13.6 |

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



TEST DATA OF RADIATED EMISSION

EUT: COLOR MONITOR

MODEL: J71C

MODE: 1280x1024 (64 kHz)

ANTENNA: CHASE BILOG CBL6112

POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL: *Sukkey Cheng*

| Frequency (MHz) | Correction Factor (dB/m) | Reading Data (dBuV) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------------|--------------------------------|---------------------------|-------------------------------|-------------------|----------------|
| 70.41 | 7.1 | 18.2 | 25.3 | 30.0 | -4.7 |
| 76.21 | 7.7 | 18.2 | 25.9 | 30.0 | -4.1 |
| 86.51 | 10.2 | 13.2 | 23.4 | 30.0 | -6.6 |
| 108.83 | 12.9 | 13.5 | 26.4 | 30.0 | -3.6 |
| 176.24 | 12.5 | 14.2 | 26.7 | 30.0 | -3.3 |
| 185.02 | 12.9 | 9.7 | 22.6 | 30.0 | -7.4 |
| 209.43 | 14.0 | 10.0 | 24.0 | 30.0 | -6.0 |

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 1 - TECHNICAL DESCRIPTION OF EUT

Specifications:

| | | |
|-----------------------|-------------------|---|
| * CRT | Size | 17-Inch Diagonal Flat Square Type |
| | Viewable Size | 15.6 Inch (Diagonal) |
| | Dot Pitch | 0.27/ 0.25 mm (optional) |
| | Deflection | 90 ° |
| * Display | Size | 300 mm x 225 mm |
| | Color | Unlimited Colors |
| | Resolution | Up to 1280 x 1024 |
| | Pixel Rate | 110 MHz |
| * Input Signal | Video Signal | RGB Analogue 0.7 Vpp 75 Ohms |
| | Sync. Signal | H/V. Separated, TTL. Level Positive or Negative |
| | Scanning Freq. | 30 KHz to 70 KHz for Horizontal 50 Hz to 120 Hz for Vertical |
| * Power Source | Power Supply | AC 100-240 V, 60 Hz/50 Hz. |
| | Power Consumption | 120W Max. |
| * Dimensions | Monitor | 412 mm (W) x 402 m (H) x 450 mm (D) / Short CRT: 405 mm (W) x 412 mm (H) x 399 mm (D) |
| | Carton | 523 mm (W) x 515 mm (H) x 557 mm (D) Short CRT: 515 mm (W) x 528 mm (H) x 535 mm (D) |
| * Weight | Net Weight | Approx. 16.5 Kgs 17.2 Kgs (Multimedia model) |