

Designated by Ministry of international Trade and industry

**KANSAI ELECTRONIC INDUSTRY DEVELOPMENT CENTER**

HEAD OFFICE

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KITA-KU OSAKA 530-0047 JAPAN



IKOMA TESTING LABORATORY

12128 TAKAYAMA-CHO

IKOMA-CITY NARA 630-0101 JAPAN

Corporate Juridical Person

**TEST REPORT****Report No.A-023-02-A****Date: 30 April 2002**

This test report is to certify that the tested device properly complies with the requirements of:

FCC Rules and Regulations Part 15 Subpart B Unintentional Radiators.

All the tests necessary to show compliance to the requirements were performed and these results met the specifications of requirement. The results of this report should not be construed to imply compliance of equipment other than that, which was tested. Unless the laboratory permission, this report should not be copied in part.

**1. Applicant**

Company Name : MITSUBISHI ELECTRIC CORP.  
Kyoto Works Imaging Storage Products Department

Mailing Address : 1 Baba-Zusyo Nagaokakyo-City Kyoto 617-8550 Japan

**2. Identification of Tested Device**

Type of Device : Digital Device  
Kind of Equipment Authorization : ☐: DoC ☒: Certification ☐: Verification  
FCC ID : BGB485  
Device Name : Continuous Video Cassette Recorder  
Trade Name : Ultrak  
Model Number : SR40CTCN-A  
Serial Number : M001 ☒: Prototype ☐: Pre-production ☐: Production  
Date of Manufacture : March 2002

**3. Test Items and Procedure**

☒: AC Power Line Conducted Emission Measurement  
☒: Radiated Emission Measurement

Above all tests were performed under: ANSI C63.4 – 1992

☒: without deviation, ☐: with deviation(details are found inside of this report)

**4. Date of Test**

Receipt of Test Sample : 9 April 2002  
Test Completed on : 22 April 2002

Seiichi Izumi

General Manager / Ikoma Testing Laboratory

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## 0. LABORATORY ACCREDITATION AND MEASUREMENT UNCERTAINTY

### 0.1. Laboratory Accreditation

KEC is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for the specific scope of accreditation under Lab Code: 200207-0.

When the test report concerns with the NVLAP accreditation test, the first page of the test report is signed by NVLAP Approved Signatory accompanied by the NVLAP logo.

The report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

### 0.2. Measurement Uncertainty

The result of a measurement is only an approximation or estimate of the value of a specific quantity. And thus the measurand is complete only when a statement of uncertainty is given.

KEC quotes Measurement Uncertainty (U) of +/- 4.9 dB for Radiated Emissions and  
of +/- 2.2 dB for AC Power Line Conducted  
Emissions.

## 1. CERTIFICATION OF THE COMPLIANCE

This test report is to certify that the tested device properly complies with the requirements of FCC Rules and Regulations Part 15 Subpart B Unintentional Radiators.

KEC evaluation criteria for compliance:

The Product complies, if

the measured results are below the specification limit by a margin more than or equal

1/2 U (2.5 dB) for Radiated Emissions and

U (2.2 dB) for AC Power Line Conducted Emissions.

## 2. GENERAL INFORMATION

### 2.1. Product Description

The Ultrak Model No. SR40CTCN-A (referred to as the EUT in this report) is a Continuous Video Cassette Recorders. It is possible to control the EUT from the control device or by using the RS485.

#### (1) Technical Specification

|                  |                    |
|------------------|--------------------|
| Video tape       | : VHS              |
| RS485 bound Rate | : 1200 – 19200 bps |

#### (2) Used Oscillating Frequencies

|                  |                                            |
|------------------|--------------------------------------------|
| 0.032768 MHz     | : Microcomputer clock                      |
| 0.07 ~ 0.130 MHz | : Switching Frequency                      |
| 0.072 MHz        | : Audio oscillator                         |
| 3.579545 MHz     | : Y/C/A clock                              |
| 7.3728 MHz       | : Microcomputer clock (RS485-REMO circuit) |
| 12.0 MHz         | : Microcomputer clock                      |

#### (3) Equipped Interface terminals

|                          |                                                                                                        |
|--------------------------|--------------------------------------------------------------------------------------------------------|
| RS485 IN                 | : RJ-45 female connector                                                                               |
| RS485 OUT                | : RJ-45 female connector                                                                               |
| VIDEO IN terminal        | : BNC 75Ω type                                                                                         |
| VIDEO OUT terminal       | : BNC 75Ω type                                                                                         |
| AUDIO IN terminal        | : RCA type                                                                                             |
| AUDIO OUT terminal       | : RCA type                                                                                             |
| ALM IN terminal          | : Input terminal for alarm recording.                                                                  |
| RST IN terminal          | : Input terminal to stop alarm recording when the "ALARM REC DURATION" of MAIN MENU is set to "MAN 1". |
| REC IN terminal          | : Input terminal to start/stop recording.                                                              |
| GND(GROUND) terminal     | : When a lead connected to other terminals requires a ground, connect the ground lead here.            |
| ALM (ALARM) OUT terminal | : Output terminal to relay alarm recording to an outside alarm                                         |
| MODE OUT terminal        | : Output terminal to relay the VCR mode selected by the "MODE OUT" of MAIN MENU.                       |
| CLK(CLOCK)OUT terminal   | : Output terminal for the camera switching time.                                                       |
| CALL OUT terminal        | : Output terminal to relay tape finishing and/or internal abnormality during recording.                |

#### (4) Rated Power Supply : AC 100 ~ 230 V, 50/60 Hz

## 2.2. Description for Equipment Authorization

- (1) Category : ☐ Class A ☒ Class B
- (2) Reference Rule and Specification : FCC Rule Part 15  
☒ Section 15.107 (a), 15.109 (a) and (c)  
☐ Section 15.107 (b), 15.109 (b) and (c)
- (3) Type of device : ☒ Personal Computer & Peripherals  
☐ Other Digital Device
- (4) Kind of Equipment Authorization : ☐ DoC ☒ Certification ☐ Verification
- (5) Procedure of Application : ☒ Original Equipment ☐ Modification
- (6) Highest Frequency used in the Device : 12.0 MHz
- (7) Upper Frequency of Radiated Emission Measurement Range : ☒ 1000 MHz ☐ 2000 MHz ☐ 5000 MHz

## 2.3. Test Facility

All tests described in this report were performed by:

Name: KANSAI ELECTRONIC INDUSTRY DEVELOPMENT CENTER (KEC)  
 IKOMA TESTING LABORATORY

Open Area Test Site ☐ No.1 ☐ No.3 ☐ No.4  
 Anechoic Chamber ☒ No.1 ☐ No.3  
 Shielded Room ☐ No.1 ☒ No.2 ☐ No.4 ☐ No.5

Address: 12128, Takayama-cho Ikoma-city, Nara, 630-0101 Japan

These test facilities have been filed with the FCC under the criteria of ANSI C63.4-1992. The KEC has been accredited by the NVLAP (Lab. Code: 200207-0) based on ISO17025. Also the laboratory has been authorized by TUV Product Service (GER) and TUV Rheinland (GER) based on their criteria for testing laboratory (EN45001).

### 3. TESTED SYSTEM

#### 3.1. Operation of EUT System

- (1) Set the recording and playback speed mode of EUT to “6H”.
- (2) RS485 of the EUT port setting is set as following by menu display  
RATE : 19200bps
- (3) Insert the VHS video cassette (120 minutes type ) to the EUT.
- (4) Execute the test program(\*1) on floppy disk
- (5) Execute “WIZARD.EXE”(\*2) and Test 1.bat (\*3).

Then following operations (a) – (l) were repeated and parallel.

- (a) The EUT was operated forwarding the video cassette for 3 seconds.
- (b) The EUT was operated stopping the video cassette.
- (c) The EUT was operated recording both of a visual and aural on the video cassette by using the color CCD camera for 15 seconds, its condition were appeared on the color video monitor.
- (d) The EUT was operated stopping the video cassette.
- (e) The EUT was operated rewinding the video cassette for 4 seconds.
- (f) The EUT was operated playback the video cassette for 10 seconds, ant its condition were appeared on the color video monitor.
- (g) The EUT was operated stopping the video cassette.
- (h) The EUT was operated the video tape rewinding for 3 seconds.
- (i) “H” pattern, one line 80 characters were printed by printer.
- (j) FDD of personal computer was operated (Read/write/delete).
- (k) HDD of personal computer was operated (Read/write/delete).
- (l) “H” pattern (Font size:14, Font name : Arial, 800×600 dot true color 24 bit) were appeared at full screen and scrolled on the LCD display of personal computer.

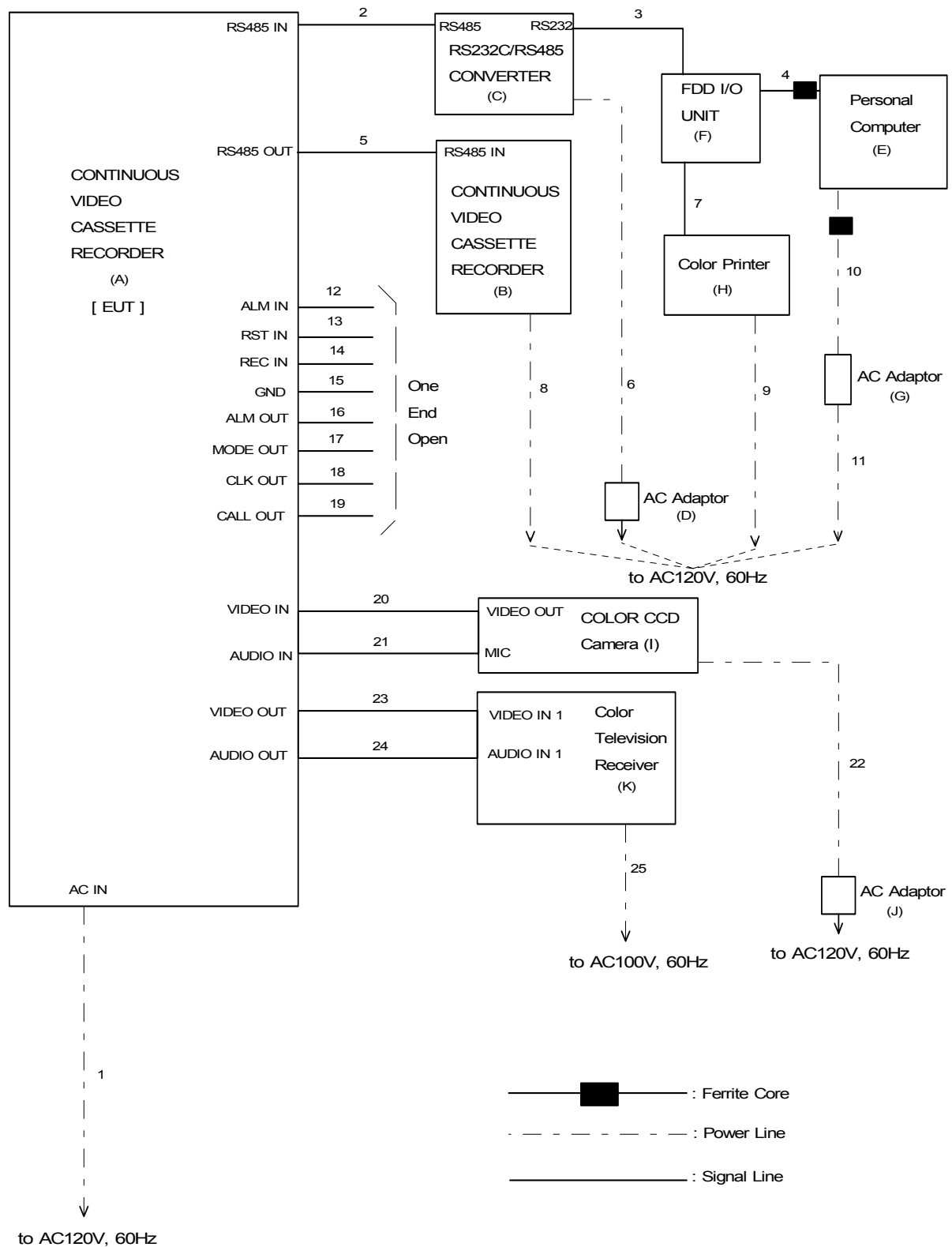
#### [ Note ]

- 1) EUT operations were controlled by using the personal computer via the serial interface cable.
- 2) (\*1) : this test program was prepared by the applicant, and it is the EUT control program.
- 3) (\*2) : this test program was displaying the “H” pattern on LCD monitor.
- 4) (\*3) : this test program was FDD, HDD of personal computer and printer operation.
- 5) OS : Windows98

#### 3.2. Characterization and Condition of EUT System

☒ : normal , ☐ : not normal (that is )

### 3.3 Block Diagram of EUT System



[ Note ]

See 3.4 List of EUT System and 3.5 List of Cables.

## 3.4 List of EUT System

| No | Device Name<br>(Interface)                       | Model Number<br>(Serial Number) | FCC ID<br>(Trade Name)   | Note                                     | Remark |
|----|--------------------------------------------------|---------------------------------|--------------------------|------------------------------------------|--------|
| A  | Continuous Video<br>Cassette Recorder<br>(RS485) | SR40CTCN-A<br>(M001)            | BGB485<br>(Ultrak)       |                                          | (1)    |
| B  | Continuous Video<br>Cassette Recorder<br>(RS485) | SR40CTCN-A<br>(M002)            | BGB485<br>(Ultrak)       |                                          |        |
| C  | RS232C/RS485<br>Converter<br>(Serial)            | RSFC24W<br>( - )                | N/A<br>(R.E.SMITH)       |                                          |        |
| D  | AC Adaptor of<br>RS232C/RS485<br>Converter (C)   | DV-9300S<br>(0201)              | N/A<br>(CONDOR)          | Input 120VAC, 60Hz<br>Output 9VDC, 300mA |        |
| E  | Personal Computer                                | PC-A150<br>(89019990)           | N/A<br>(SHARP)           | FCC : Declaration of<br>Conformity       |        |
| F  | FDD I/O Unit                                     | CE-FD02<br>( - )                | N/A<br>(SHARP)           |                                          | (2)    |
| G  | AC Adaptor of<br>Personal Computer (E)           | EA-J01V<br>(C980705264A)        | N/A<br>(SHARP)           |                                          | (2)    |
| H  | Color Printer<br>(Parallel)                      | C6429A<br>(MY04Q150VR)          | N/A<br>(Hewlett Packard) | FCC : Declaration of<br>Conformity       |        |
| I  | Color CCD Camera                                 | YH-7B67<br>(000091)             | N/A<br>(SHARP)           |                                          |        |
| J  | AC Adaptor of<br>Color CCD Camera (I)            | RADP-A015SDEO<br>( - )          | N/A<br>(SHARP)           |                                          |        |
| K  | Color Television<br>Receiver                     | KV-14PS1<br>(2009233)           | N/A<br>(SONY)            |                                          |        |

[Attention]

N/A: Not Applicable

[Remark]

(1): EUT

(2): Accessory of Personal Computer (E)

## 3.5 List of Cables

| No | Cable Name                                              | Shielded<br>(Y/N) | Length<br>(m) | Note                                                                    | Remark |
|----|---------------------------------------------------------|-------------------|---------------|-------------------------------------------------------------------------|--------|
| 1  | AC Power Cord of EUT                                    | Y                 | 1.9           | 3-wires type                                                            | (1)    |
| 2  | RS485 Interface Cable                                   | N                 | 2.55          |                                                                         |        |
| 3  | RS232C Interface Cable                                  | N                 | 2.15          |                                                                         |        |
| 4  | FDD I/O Unit Cable                                      | Y                 | 0.1           | with one ferrite core                                                   | (2)    |
| 5  | RS485 Interface Cable                                   | N                 | 4.95          |                                                                         |        |
| 6  | DC Output Cord of AC Adaptor (D)                        | N                 | 1.9           | 2-wires type                                                            | (2)    |
| 7  | Parallel Interface Cable                                | Y                 | 2.0           |                                                                         |        |
| 8  | AC Power Cord of Continuous Video Cassette Recorder (B) | Y                 | 1.9           | 3-wires type, Accessory Cable of Continuous Video Cassette Recorder (B) |        |
| 9  | AC Power Cord of Color Printer (H)                      | N                 | 1.8           | 2-wires type                                                            |        |
| 10 | DC Output Cord of AC Adaptor (G)                        | N                 | 2.0           | with one ferrite core                                                   | (2)    |
| 11 | AC Input Cord of AC Adaptor (G)                         | N                 | 2.0           | 2-wires type                                                            | (2)    |
| 12 | Lead for ALM IN terminal                                | N                 | 2.1           | one end open                                                            |        |
| 13 | Lead for RST IN terminal                                | N                 | 2.1           | one end open                                                            |        |
| 14 | Lead for REC IN terminal                                | N                 | 2.1           | one end open                                                            |        |
| 15 | Lead for GND terminal                                   | N                 | 2.1           | one end open                                                            |        |
| 16 | Lead for ALM OUT terminal                               | N                 | 2.1           | one end open                                                            |        |
| 17 | Lead for MODE OUT terminal                              | N                 | 2.1           | one end open                                                            |        |
| 18 | Lead for CLK OUT terminal                               | N                 | 2.1           | one end open                                                            |        |
| 19 | Lead for CALL OUT terminal                              | N                 | 2.1           | one end open                                                            |        |
| 20 | Video Signal Cable                                      | Y                 | 1.7           | RCA type                                                                | (3)    |
| 21 | Audio Signal Cable                                      | Y                 | 1.7           | RCA type                                                                | (3)    |
| 22 | DC Output Cord of AC Adaptor (J)                        | N                 | 1.9           | 2-wires type                                                            | (2)    |
| 23 | Video Signal Cable                                      | Y                 | 2.0           | 3C-2V type                                                              |        |
| 24 | Audio Signal Cable                                      | Y                 | 1.4           |                                                                         |        |

[Remark]

(1): Accessory of EUT

(2): Permanently attached to each peripheral device

(3): Accessory of Color CCD Camera (I)

## 4 AC POWER LINE CONDUCTED EMISSION MEASUREMENT

### 4.1 Test Procedure

|      |                                                                                                                                                                                                                                                                                                     |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1)  | Configure the EUT System in accordance with ANSI C63.4-1992 section 7.<br><input checked="" type="checkbox"/> : without deviation, <input type="checkbox"/> : with deviation(details are found below)<br>See also the block diagram and the photographs of EUT System configuration in this report. |
| (2)  | Connect the EUT's AC power cord to one Line Impedance Stabilization Network (LISN).                                                                                                                                                                                                                 |
| (3)  | Any other power cord of other equipment is connected to a LISN different from the LISN used for the EUT.                                                                                                                                                                                            |
| (4)  | Warm up the EUT System.                                                                                                                                                                                                                                                                             |
| (5)  | Activate the EUT System and run the software prepared for the test, if necessary.                                                                                                                                                                                                                   |
| (6)  | Connect the spectrum analyzer (*1) to the measuring port of the LISN for the EUT, using a calibrated coaxial cable.                                                                                                                                                                                 |
| (7)  | To find out an EUT System condition, which produces the maximum emission, the configuration of EUT System, the position of the cables, and the operation mode, are changed under normal usage of the EUT.                                                                                           |
| (8)  | The spectrums are scanned from 450 kHz to 30 MHz and collect the six highest emissions minimum on the spectrum analyzer relative to the limits in the whole range.                                                                                                                                  |
| (9)  | The test receiver (*2) is connected to the LISN for the EUT, and the six highest emissions minimum recorded above are measured.                                                                                                                                                                     |
|      | [Note]                                                                                                                                                                                                                                                                                              |
| (*1) | Spectrum Analyzer Set Up Conditions<br>Frequency range                 : 450 kHz - 30 MHz<br>Resolution bandwidth         : 10 kHz<br>Video bandwidth               : 1 MHz<br>Detector function : Peak mode                                                                                        |
| (*2) | Test Receiver Set Up Conditions<br>Detector function               : Quasi-Peak/ Average (if necessary)<br>IF bandwidth                    : 10 kHz                                                                                                                                                 |

## 4.2 Test Results

| Measured Frequency<br>( MHz ) | LISN Factor<br>( dB ) | Meter Reading  |                | Maximum RF Voltage<br>( dBuV ) | Limit<br>( dBuV ) | Margin for Limit<br>( dB ) |
|-------------------------------|-----------------------|----------------|----------------|--------------------------------|-------------------|----------------------------|
|                               |                       | Va<br>( dBuV ) | Vb<br>( dBuV ) |                                |                   |                            |
| 0.611                         | 0.1                   | 37.5           | 36.8           | 37.6                           | 48.0              | 10.4                       |
| 1.121                         | 0.1                   | 38.2           | 37.8           | 38.3                           | 48.0              | 9.7                        |
| 1.140                         | 0.1                   | 40.0           | 38.5           | 40.1                           | 48.0              | 7.9                        |
| 1.375                         | 0.1                   | 38.6           | 38.0           | 38.7                           | 48.0              | 9.3                        |
| 1.685                         | 0.1                   | 38.4           | 38.6           | 38.7                           | 48.0              | 9.3                        |
| 10.739                        | 0.6                   | 36.0           | 36.2           | 36.8                           | 48.0              | 11.2                       |

[Note]

LISN Correction Factor includes the cable loss.

[Calculation method]

Maximum RF Voltage (dBμV)

= Meter Reading ( at maximum level of Va or Vb ) + LISN Factor (dB)

[Environment]

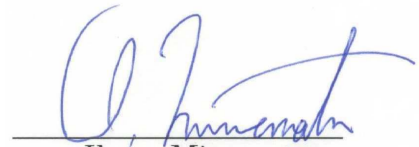
Temperature: 24°C

Humidity: 44%

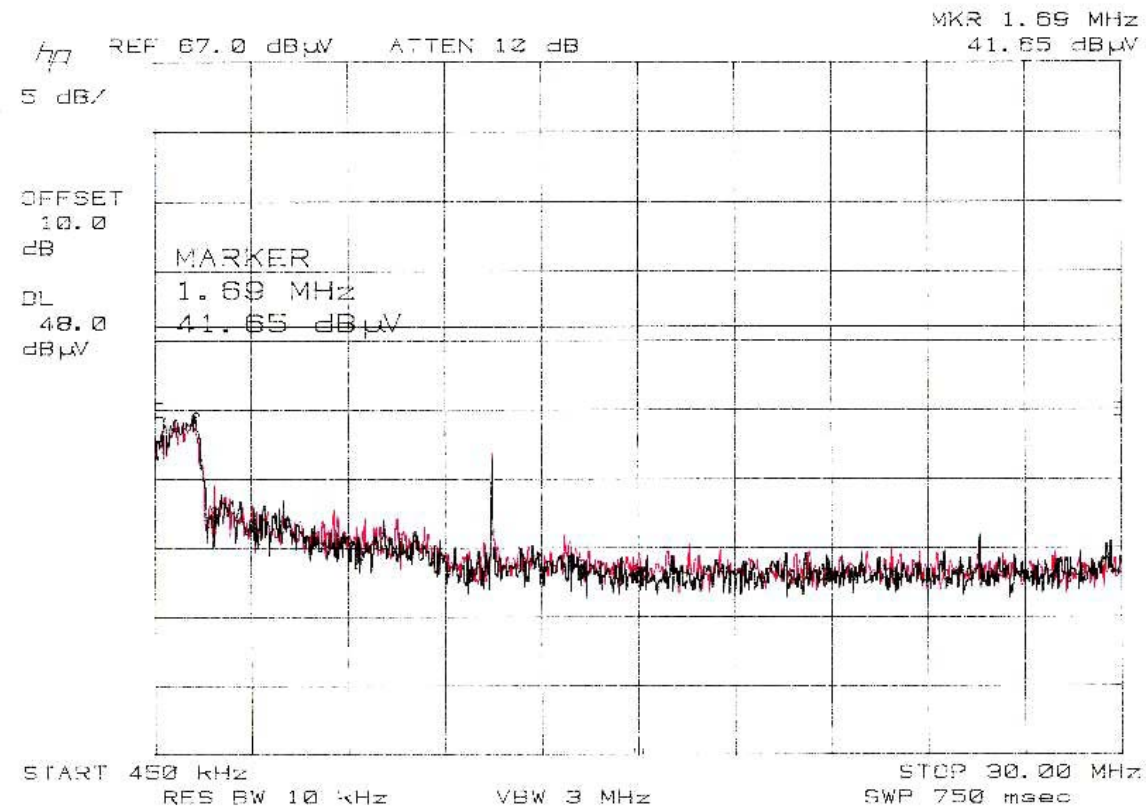
[Tested Date/ Tester]

22 April 2002

Signature

  
 Ikuya Minematsu

Test Results in Graph



## 5 RADIATED EMISSION MEASUREMENT

### 5.1 Test Procedure

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1) | Configure the EUT System in accordance with ANSI C63.4-1992 section 8.<br><input checked="" type="checkbox"/> : without deviation, <input type="checkbox"/> : with deviation(details are found below)<br>See also the block diagram and the photographs of EUT System configuration in this report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| (2) | If the EUT system is connected to a public power network, all power cords for the EUT System are connected the receptacle on the turntable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (3) | Warm up the EUT System.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| (4) | Activate the EUT System and run the prepared software for the test, if necessary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (5) | To find out the emissions of the EUT System, preliminary radiated measurement are performed at a closer distance than that specified for final radiated measurement using the spectrum analyzer (*1) and the broad band antenna.<br>In the frequency above 1 GHz, it is performed using the spectrum analyzer (*2) and the horn antenna.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| (6) | To find out an EUT System condition, which produces the maximum emission, the configuration of EUT System, the position of the cables, and the operation mode, are changed under normal usage of the EUT.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| (7) | The spectrums are scanned from 30 MHz to the upper frequency of measurement range, and collect the six highest emissions minimum on the spectrum analyzer relative to the limits in the whole range.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (8) | In final compliance test, the six highest emissions minimum, recorded above, are measured at the specified distance using the broad band antenna or the tuned dipole antenna and the test receiver (*3).<br>In the frequency above 1 GHz, the measurements are performed by the horn antenna and<br><input type="checkbox"/> the test receiver (*4).<br><input type="checkbox"/> the spectrum analyzer(*2) with pre-amplifier.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|     | <div data-bbox="347 1238 427 1272">[Note]</div> <div data-bbox="252 1272 300 1305">(*1)</div> <div data-bbox="347 1272 938 1395">           Spectrum Analyzer Set Up Conditions<br/>               Frequency range : 30 - 1000 MHz<br/>               Resolution bandwidth : 100 kHz<br/>               Detector function : Peak mode         </div> <div data-bbox="252 1400 300 1433">(*2)</div> <div data-bbox="347 1400 1310 1585">           Spectrum Analyzer Set Up Conditions<br/>               Frequency range : 1 GHz - Upper frequency of measurement range<br/>               Resolution bandwidth : 1 MHz<br/>               Video bandwidth : 1 MHz<br/>               Attenuator : 10 dB<br/>               Detector function : Peak mode         </div> <div data-bbox="252 1590 300 1624">(*3)</div> <div data-bbox="347 1590 895 1686">           Test Receiver Set Up Conditions<br/>               Detector function : Quasi-Peak<br/>               IF bandwidth : 120 kHz         </div> <div data-bbox="252 1691 300 1724">(*4)</div> <div data-bbox="347 1691 858 1774">           Test Receiver Set Up Conditions<br/>               Detector function : Average<br/>               IF bandwidth : 1 MHz         </div> |

## 5.2 Test Results

Measurement Distance ☒: 3m ☐: 10m

| Measured Frequency | Antenna Factor | Meter Reading           |                       | Maximum Field Strength | Limit      | Margin for Limit |
|--------------------|----------------|-------------------------|-----------------------|------------------------|------------|------------------|
|                    |                | Horizontal Polarization | Vertical Polarization |                        |            |                  |
| ( MHz )            | ( dB/m )       | ( dBuV )                | ( dBuV )              | ( dBuV/m )             | ( dBuV/m ) | ( dB )           |
| 38.20              | 16.8           | 4.3                     | 8.9                   | 25.7                   | 40.0       | 14.3             |
| 57.27              | 10.2           | 8.0                     | 20.2                  | 30.4                   | 40.0       | 9.6              |
| 72.00              | 8.4            | 12.4                    | 24.1                  | 32.5                   | 40.0       | 7.5              |
| 85.93              | 10.3           | 15.8                    | 23.8                  | 34.1                   | 40.0       | 5.9              |
| 116.24             | 15.1           | 18.1                    | 15.6                  | 33.2                   | 43.5       | 10.3             |
| 120.00             | 15.6           | 14.8                    | 17.0                  | 32.6                   | 43.5       | 10.9             |
| 176.56             | 19.3           | 10.0                    | 13.9                  | 33.2                   | 43.5       | 10.3             |
| 211.89             | 20.3           | 14.5                    | 12.7                  | 34.8                   | 43.5       | 8.7              |
| 229.09             | 20.9           | 11.8                    | 13.4                  | 34.3                   | 46.0       | 11.7             |
| 458.18             | 23.3           | 15.0                    | 9.0                   | 38.3                   | 46.0       | 7.7              |
| 467.76             | 23.6           | 6.7                     | 5.4                   | 30.3                   | 46.0       | 15.7             |
| 540.00             | 25.1           | 9.0                     | 6.0                   | 34.1                   | 46.0       | 11.9             |
| 579.20             | 25.8           | 8.8                     | 7.2                   | 34.6                   | 46.0       | 11.4             |

## [Note]

(1) Antenna Factor includes the cable loss.

(2) \* mark in Measured Frequency : Measured with the tuned dipole antenna.  
no mark in Measured Frequency : Measured with the broadband antenna.

## [Calculation method]

Maximum Field Strength (dBμV/m)

= Meter Reading (at maximum level of Horizontal or Vertical) (dBμV) + Antenna Factor (dB/m)

## [Environment]

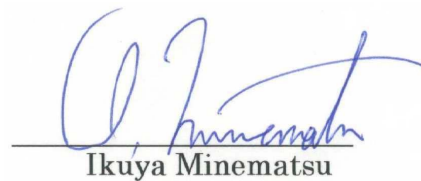
Temperature: 20°C

Humidity: 35%

## [Tested Date/ Tester]

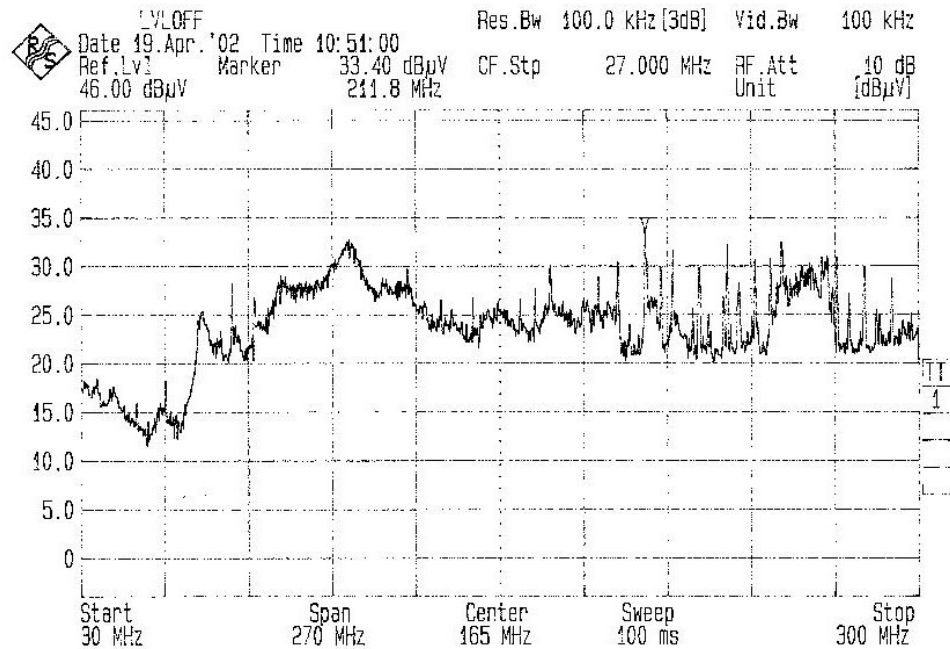
19 April 2002

Signature

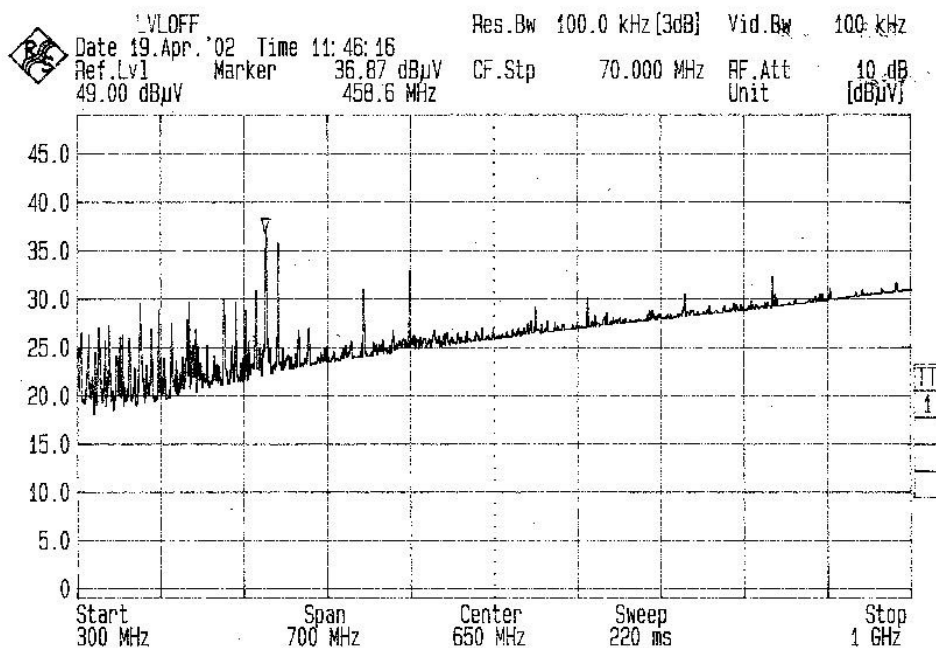

  
Ikuya Minematsu

## Test Results in Graph

## Horizontal Polarization

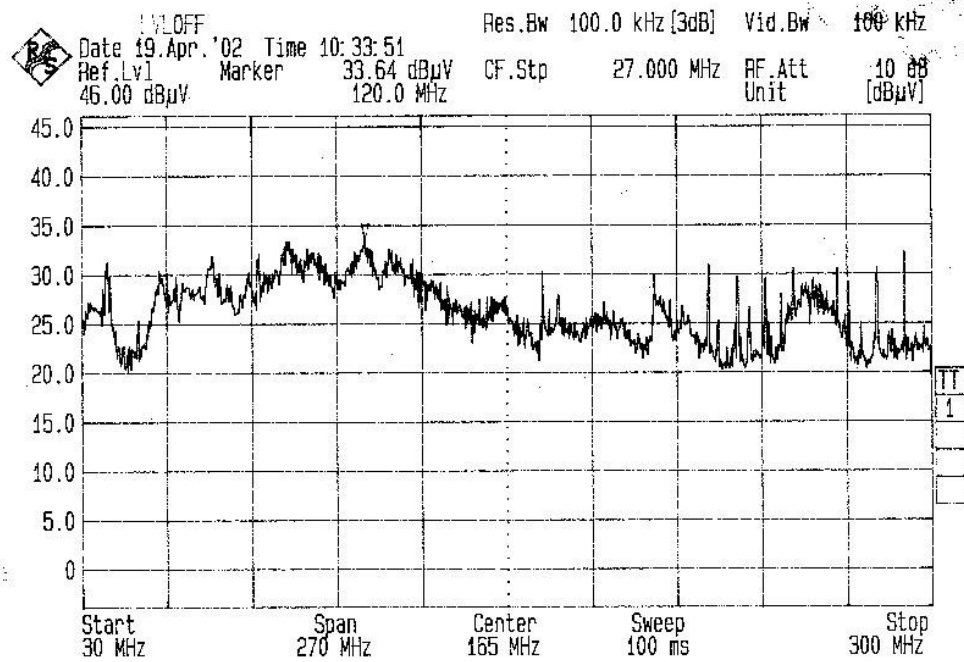


30 MHz – 300 MHz

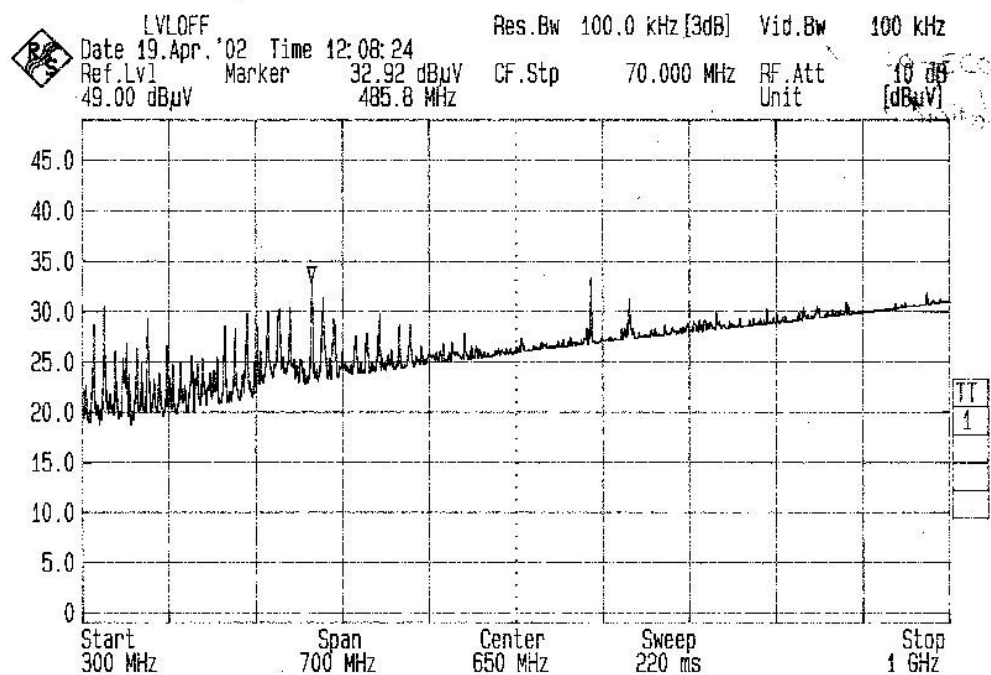


300 MHz – 1000 MHz

## Vertical Polarization



30 MHz – 300 MHz



300 MHz – 1000 MHz

## 6 USED EQUIPMENTS AND CALIBRATION STATUS

| Equipment            | Manufacturer    | Model No.  | Specifications                | KEC Control No. | Test Item (*) | Last Cal. | Next Cal. |
|----------------------|-----------------|------------|-------------------------------|-----------------|---------------|-----------|-----------|
| Test Receiver        | Rohde & Schwarz | ESHS10     | Frequency Range 9kHz-30MHz    | FS-67           | 1             | 2001/12   | 2002/12   |
|                      |                 | ESVS10     | Frequency Range 20MHz-1GHz    | FS-60           | 2             | 2001/6    | 2002/6    |
| Spectrum Analyzer    | Rohde & Schwarz | FSA        | Frequency Range 100Hz-1.8GHz  | SA-35           | 2             | 2002/4    | 2003/4    |
|                      | Hewlett Packard | 8568B      | Frequency Range 100Hz-1.5 GHz | SA-16           | 1             | 2001/5    | 2002/5    |
| Pre-Amprifier        | Hewlett Packard | 8449B      | Frequency Range 1GHz-26.5GHz  | AM-52           | N/A           | 2002/2    | 2003/2    |
| Biconical Antenna    | Schwarzbeck     | BBA9106    | Frequency Range 30MHz-300MHz  | AN-218          | 2             | 2002/3    | 2003/3    |
| Log-Periodic Antenna | Schwarzbeck     | UHALP9108A | Frequency Range 300MHz-1GHz   | AN-219          | 2             | 2002/3    | 2003/3    |
| Tuned Dipole Antenna | Kyoritsu        | KBA-511AS  | Frequency Range 25MHz-500MHz  | AN-132          | N/A           | 2002/4    | 2003/4    |
|                      |                 | KBA-611S   | Frequency Range 500MHz-1GHz   | AN-115          | N/A           | 2002/4    | 2003/4    |
| Horn Antenna         | Raven           | 91888-2    | Frequency Range 1GHz-2GHz     | AN-168          | N/A           | 2001/4    | 2003/4    |
| LISN for EUT         | Kyoritsu        | KNW-407    | Frequency Range 150kHz-30MHz  | FL-106          | 1             | 2001/4    | 2002/4    |
| LISN For Peripherals | Kyoritsu        | KNW-242    | Frequency Range 10kHz-30MHz   | FL-110          | 1             | 2001/4    | 2002/4    |
|                      |                 | KNW-407    | Frequency Range 150kHz-30MHz  | FL-72           | 1             | 2001/4    | 2002/4    |
| RF Switch            | Rohde & Schwarz | PSU-S      | Frequency Range 30MHz-1GHz    | MM-123          | 2             | 2002/3    | 2003/3    |

## [Note]

Test Item (\*):    1:        Conducted Emission Measurement  
                              2:        Radiated Emission Measurement (30 MHz – 1 GHz)  
                              3:        Radiated Emission Measurement (1 GHz < )  
                              N/A:      Not Applicable

The overall program of calibration and verification of equipment is designed and operated so as to ensure that measurements made by KEC are traceable to national standards of measurement or equivalent abroad.