

EMC TEST REPORT

Test Report No. : 19D0031-04-1

Applicant: ORION ELECTRIC CO., LTD.

Type of Equipment: Video Cassette Recorder

Model No.: W501

Test Standard: FCC Part 15 Subpart B

Test Result: Complies

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The results in this report apply only to the sample tested.

Tested by: _____

Hisayuki Kioka

Approved by: _____

Toshihiro Ikegami

Manager of EMC Section

A-PEX INTERNATIONAL CO., LTD.

Date of test: April 18 to May 6, 2000

Issued date: May 18, 2000

A-pex International Co., Ltd.

KANTO OFFICE EMC LAB.

Newstage Yokohama Bldg.3F 1-1-32 Shin-Urashima-cho Kanagawa-ku, Yokohama-shi Kanagawa-ken 221-0031 JAPAN

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CONTENTS

	PAGE
SECTION 1: CLIENT INFORMATION	3
SECTION 2: EQUIPMENT UNDER TEST (E.U.T.)	3
SECTION 3: TEST SPECIFICATION , METHODS & PROCEDURES	5
SECTION 4: OPERATION OF E.U.T. DURING TESTING	6
SECTION 5: SUMMARY OF TEST RESULTS	7
SECTION 6: TEST EQUIPMENT USED	9
SECTION 7: CONDUCTED INTERFERENCE	10
SECTION 8: RADIATED EMISSION	11
SECTION 9: ANTENNA TERMINAL VOLTAGE	13
SECTION 10: RF OUTPUT LEVEL / SPURIOUS EMISSION	15
SECTION 11: TRANSFER SWITCH	16
SECTION 12: INPUT LEVEL CONTROL	17
SECTION 13: PICTURE SENSITIVITY	18
SECTION 14: NOISE FIGURE	19
SECTION 15: ADJACENT CHANNEL INTERFERENCE	20
SECTION 16: IMAGE CHANNEL INTERFERENCE	21
SECTION 17: DIRECT PICK-UP INTERFERENCE	23
SECTION 18: TUNER OVER LOAD	25
APPENDIX 1:TEST CONFIGURATION PHOTOGRAPHS	27
APPENDIX 2:DATA OF EMI TEST	40

SECTION 1: CLIENT INFORMATION

Company Name : ORION ELECTRIC CO., LTD.
Address : 41-1 Iehisa-cho, Takefu-shi, Fukui 951-8555 JAPAN
Telephone Number : +81-778-23-0019
Facsimile Number : +81-778-23-7799
Contact Person : Hiroaki Ozaki
SECTION MANAGER
Engineering Headquarters
Administration Section

SECTION 2: EQUIPMENT UNDER TEST (E.U.T.)

2.1 Identification of E.U.T.

Unique Type Identification : Video Cassette Recorder
Model No. : W501
FCC ID : A7RM4C9H
Serial No. : -
Country of Manufacture : JAPAN

2.2 Product Description

ORION ELECTRIC CO., LTD., Model: W501 (referred to as the EUT in this report) is a Video Cassette Recorder.

The EUT specifications is as follows.

Tuner Type :	181 channel Freq. Synthesized
I/F :	45.75MHz (Picture), 41.25MHz (Sound)
Receiving Channel :	VHF 2-13ch / UHF 14-69ch CATV 14 - 36 (A) - (W) / 37 - 59(AA) - (WW) / 60 - 85 (AAA) - (ZZZ) 86 - 94 (86) - (94) / 95 - 99 (A-5) - (A-1) / 100 - 125 (100) - (125) / 01 (5A)
Antenna Input :	75 ohm
Video Signal :	NTSC Color
Power Source :	AC120V/60Hz, 75W
I/O Terminal (VIDEO) :	RCA IN 1Vp-p 75ohm, RCA OUT 1Vp-p 75ohm
I/O Terminal (AUDIO) :	RCA IN -8dB/50k ohm, RCA OUT -8dB/1k ohm
Clock Frequency :	10 MHz (System Control / Servo Control Microcomputer Clock 3.579545 MHz (Chrominance Subcarrier Oscillator) 150 - 320 kHz (Switching Frequency of Power Supply)
RF Converter :	US 3CH (Visual Carrier 61.25 MHz, Aural Carrier 65.75 MHz) US 4CH (Visual Carrier 67.25 MHz, Aural Carrier 71.75 MHz)

2.3 Similar Apparatus

This EUT has some similar apparatus.

The model name is as follows.

Nothing

SECTION 3: TEST SPECIFICATION, METHODS & PROCEDURES

3.1 Test Specification

Basic standard : FCC Part 15 Subpart B
: Radiated Frequency Devices
- Unintentional Radiators

Test Methods : ANSI C63.4 : 1992
: Methods of Measurement of Radio-Noise Emissions from Low-Voltage
Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

3.2 Methods & Procedures

No.	Item	Test Requirements	Test Procedure	Limits
1	Conducted Interference	FCC Part 15 Subpart B Sec. 15.107 (a)	ANSI C63.4 1992	250uV
2	Radiated Emission	FCC Part 15 Subpart B Sec. 15.109 (a), 15.115 (a) 15.118 (d)	ANSI C63.4 1992	30 -88MHz: 100uV/m 88 - 216MHz: 150uV/m 216 - 960MHz: 200uV/m above 960MHz: 300uV/m
3	Antenna Terminal Voltage	FCC Part 15 Subpart B Sec. 15.111 (a), 15.118 (c)	ANSI C63.4 1992	2nW (at 75 ohm)
4	RF Output Level	FCC Part 15 Subpart B Sec. 15.115 (b)	ANSI C63.4 1992	Video Signal : 3000uV Aural Signal : 671uV
	Spurious Emission			94.8 uV
5	Transfer Switch	FCC Part 15 Subpart B Sec. 15.115 (c)	ANSI C63.4 1992	3uV
6	Input Level Control	FCC Part 15 Subpart B Sec. 15.115 (d)	-	Not change (Modulation)
7	Picture Sensitivity	FCC Part 15 Subpart B Sec. 15.117 (f)	ANSI C63.4 1992	Difference : 8dB
8	Noise Figure	FCC Part 15 Subpart B Sec. 15.117 (g)	ANSI C63.4 1992	14dB
9	Adjacent Channel Interference	FCC Part 15 Subpart B Sec. 15.118 (c)-1	ANSI C63.4 1992	54 - 804 MHz : 55dB
10	Image Channel Interference	FCC Part 15 Subpart B Sec. 15.118 (c)-2	ANSI C63.4 1992	54 - 714 MHz : 60dB 714 - 804 MHz : 50dB
11	Direct Pick-up Interference	FCC Part 15 Subpart B Sec. 15.118 (c)-3	ANSI C63.4 1992	45dB (Ave. 50dB)
12	Tuner Over Load	FCC Part 15 Subpart B Sec. 15.118 (c)-4	ANSI C63.4 1992	54 - 550 MHz : 55dB 550 - 804 MHz : 51 dB

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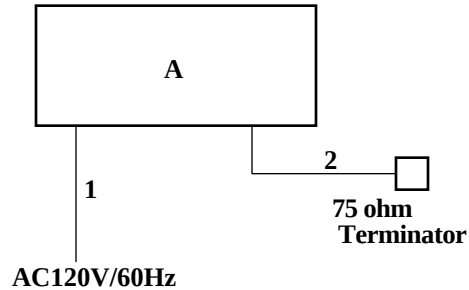
Newstage Yokohama Bldg.3F 1-1-32 Shin-Urushima-cho Kanagawa-ku, Yokohama-shi Kanagawa-ken 221-0031 JAPAN
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SECTION 4: OPERATION OF E.U.T. DURING TESTING

4.1 Operating Modes

TV Reception mode
Recording mode
Playback mode

4.2 Configuration and peripherals



Description of EUT and Support Equipment

No.	Item	Model number	FCC ID	Manufacturer	Backshell Material
A	Video Cassette Recorder	W501	A7RM4C9H	ORION ELECTRIC CO., LTD.	P.V.C

List of cables used

No.	Name	Length (m)	Shield / Unshielded	Remark
1	AC Power Cable	1.75	Unshielded	-
2	RF Output Cable	1.00	Shielded	Supplies accessory

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SECTION 5: SUMMARY OF TEST RESULTS

5.1 Test results

No.	Item	Test Requirements	Limits	Results
1	Conducted Interference	FCC Part 15 Subpart B Sec. 15.107 (a)	250uV	Complies
2	Radiated Emission	FCC Part 15 Subpart B Sec. 15.109 (a), 15.118 (d)	30 – 88MHz: 100uV/m 88 – 216MHz: 150uV/m 216 - 960MHz: 200uV/m above 960MHz: 300uV/m	Complies
3	Antenna Terminal Voltage	FCC Part 15 Subpart B Sec. 15.111 (f)	2nW (at 75 ohm)	Complies
4	RF Output Level	FCC Part 15 Subpart B Sec. 15.115 (b)	Difference : 8dB	Complies
	Spurious Emission		94.8uV	Complies
5	Transfer Switch	FCC Part 15 Subpart B Sec. 15.115 (c)	14dB	Complies
6	Input Level Control	FCC Part 15 Subpart B Sec. 15.115 (d)	Not change (Modulation)	Complies
7	Picture Sensitivity	FCC Part 15 Subpart B Sec. 15.117 (f)	8dB	Complies
8	Noise Figure	FCC Part 15 Subpart B Sec. 15.117 (g)	14dB	Complies
9	Adjacent Channel Interference	FCC Part 15 Subpart B Sec. 15.118 (c)-1	54 – 804 MHz : 55dB	Complies
10	Image Channel Interference	FCC Part 15 Subpart B Sec. 15.118 (c)-2	54 – 714 MHz : 60dB 714 - 804 MHz : 50dB	Complies
11	Direct Pick-up Interference	FCC Part 15 Subpart B Sec. 15.118 (c)-3	45dB (Ave. 50dB)	Complies
12	Tuner Over Load	FCC Part 15 Subpart B Sec. 15.118 (c)-4	54 – 550MHz : 55dB 550 - 804 MHz : 51dB	Complies

A-PEX INTERNATIONAL hereby confirms that E.U.T. , in the configuration tested, complies with the specifications FCC Part 15 Subpart B.

A-pex International Co., Ltd.

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5.2 Test equipment used

See SECTION 6: TEST EQUIPMENT USED

5.3 Test Location

A-PEX International Co.,Ltd. Kanto office EMC Lab.
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Kanagawa-ku, Yokohama-shi Kanagawa-ken 221-0031 JAPAN
Telephone number : +81-45-450-1515
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A-PEX International Co.,Ltd. Yokowa Lab.
108 Yokowa-cho, Ise-shi, Mie-ken 516-1106 JAPAN
Telephone number : +81-465-77-1011
Facsimile number : +81-465-77-2122

5.4 Registration number of test facility

A-PEX International Co.,Ltd. Kanto office EMC Lab.
Registration number : 95967
Date of Listing : Dec. 22, 1999

A-PEX International Co.,Ltd. Yokowa Lab.
Registration number : 90412
Date of Listing : Sep. 16, 1997

5.5 Test Configuration Photographs

See Appendix 1.

SECTION 6: TEST EQUIPMENT USED

TEST EQUIPMENT

Instruments	Mftr.	Model No.	Control No.	Calibration Term
Spectrum analyzer	Advantest	R3365	YTSPA01	1 Year
Test Receiver	Rohde & Schwarz	ESHS10	APRCV01	1 Year
Test Receiver	Rohde & Schwarz	ESVS10	APRCV02	1 Year
Test Receiver	Rohde & Schwarz	ESCS30	KTR-02	1 Year
Pre Amplifier	H.P	8449B	APPRA05	1 Year
Pre Amplifier	Anritsu	MH648A	APPRA01	1 Year
Pre Amplifier	H.P	8447D	AF-01	1 Year
Variable Attenuator	TME	TRA-603	KVA-01	1 Year
Biconical Antenna	Schwarzbeck	BBA9106	BA-03	1 Year
Biconical Antenna	Reven	96002	YTANT01	Pre Check
Logperiodic Antenna	Schwarzbeck	USLP9143	KLA-01	1 Year
Horn Antenna	A.H systems	SAS-200/571	YTANT03	1 Year
TV Generator	Leader	408 NPS	APTVG01	Pre Check
Signal Generator	Rohde & Schwarz	SMY02	APSSG02	1 Year
Oscilloscope	Tektronix	TD 40A	APOSC01	1 Year
Matching Pad	TME	ZT-130	APMAT05	1 Year
Power Combiner	Mini-circuit	ZFRSC-2075	APCMB03	1 Year
Low-pass Filter (15kHz)	Erika Fidler	D-65396	APLPF01	Pre check
Band-pass Filter (0.5kHz-3kHz)	Erika Fidler	BP	APBPF01	Pre Check
Noise Figure Indicator	Elena	ENF-2005	APNFI01	1 Year
All Channel Converter	Rohde & Schwarz	SFM	APSFM01	1 Year
Muti Carrier Generator	Eiden	3109A	-	1 Year

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SECTION 7 : CONDUCTED INTERFERENCE

7.1 Operation environment

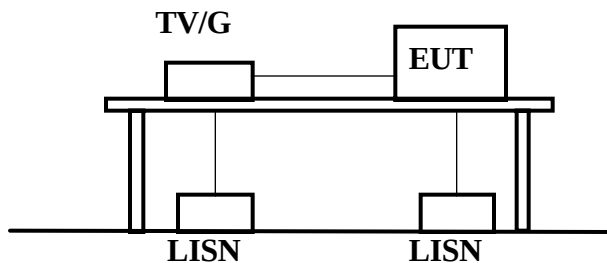
The test was carried out in a screened room the size of 6 X 7 X 2.4 m.

Date: 2000-05-01	Date: 2000-05-03
Temperature : 23 °C	Temperature : 24 °C
Humidity : 39 %	Humidity : 42 %

7.2 Test configuration

The EUT was placed on a non-metallic platform 0.8 m above a reference ground plane. A drawing of the set-up is shown in Fig. 1 and the photo on Appendix 1.

**Figure 1. Drawing of the test set up, conducted interference
Screened room**



7.3 Test conditions

Frequency range : 0.45 MHz - 30 MHz

EUT position : Table top

7.4 Test procedure

- 1) The EUT are placed on the non-metalic table.
- 2) The EUT was connected LISN and the conduction noise had measured from RF output terminal of LISN. (Receiver detection: QP detection)

7.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-01, 03 Tested by: H. Kioka

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SECTION 8 : RADIATED EMISSION

8.1 Operation environment

The test was carried out in a open area test site the size of 20 X 10 m..

Date: 2000-04-23

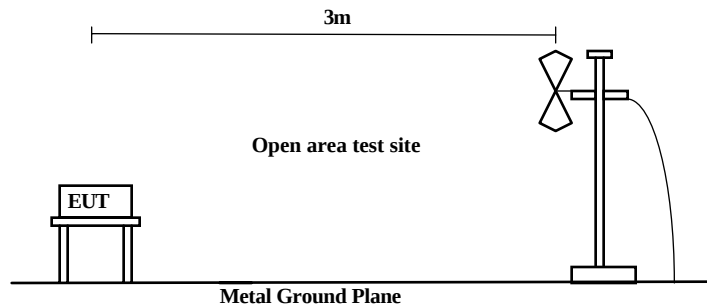
Temperature: 22 °C

Humidity: 45 %

8.2 Test configuration

The EUT was placed on a non-metallic platform 0.8 m above a reference ground plane.
A drawing of the set-up is shown in Fig. 2 and the photo on Appendix 1.

Figure 2. Drawing of the test set up, radiated emission



8.3 Test conditions

Frequency range : 30 MHz - 2GHz

EUT position : Table top

8.4 Test procedure

- 1) Radiated emission test had performed at semi anechoic chamber and test distance 3 m between EUT to measurement antenna.
- 2) The EUT was placed on the non-metalic table and EUT's antenna terminal was terminated with 75 ohm terminator. (Recording mode / Playback mode)
- 3) The EUT was tuned TV signal generator.(VHF / UHF / CATV)
- 4) The EUT was turned by turn table and measurement antenna was serched between 1 m to 4 m for maximum noise measurement.

8.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-04-23

Tested by: H. Kioka

SECTION 9 : ANTENNA TERMINAL VOLTAGE

9.1 Operation environment

The test was carried out in a screened room the size of 6 X 4 X 2.7 m.

Date: 2000-05-01

Temperature: 24 °C

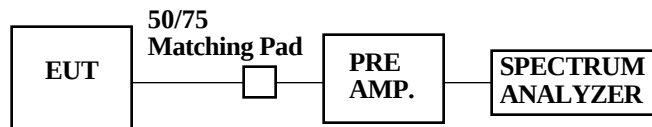
Humidity: 41 %

9.2 Test configuration

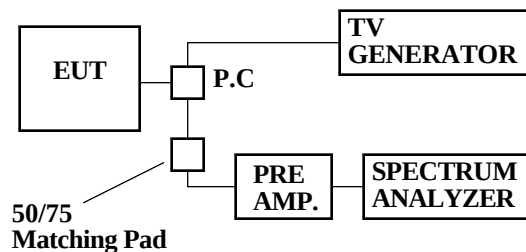
The EUT was placed on a non-metallic platform 0.8 m above a reference ground plane.
A drawing of the set-up is shown in Fig. 3 and the photo on Appendix 2.

Figure 3. Drawing of the test set up, antenna terminal voltage

A case of sec. 15.111



A case of sec. 15.118 (c)



9.3 Test conditions

Frequency range : 30 MHz - 2000 MHz

EUT position : Table top

9.4 Test procedure

- 1) Measured of Antenna terminal voltage was performed at screened room that EUT was placed on the non-metallic table.
- 2) The EUT's antenna terminal was connected matching pad (impedance transformer) and the interference voltage was measured from EUT's antenna terminal.
- 3) A case of sec. 15.118 (c)-1, the EUT was connected measurement system and TV generator by power combiner.
- 4) Fundamental frequency was measured from 30MHz to 2GHz.

9.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-01

Tested by: H. Kioka

SECTION 10 : RF OUTPUT LEVEL

10.1 Operation environment

The test was carried out in a screened room the size of 6 X 4 X 2.7 m.

Date: 2000-05-02

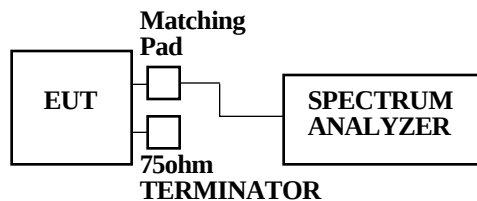
Temperature: 24 °C

Humidity: 42 %

10.2 Test configuration

The EUT was placed on a non-metallic platform 0.8 m above a reference ground plane.
A drawing of the set-up is shown in Fig. 4 and the photo on Appendix 1.

Figure 4. Drawing of the test set up, rf output level



10.3 Test conditions

EUT position : Table top

10.4 Test procedure

- 1) EUT was connected spectrum analyzer through matching pad by accessory cable.
- 2) RF channel selected 3ch or 4ch.
- 3) Picture carrier, sound carrier and spurious levels are measured.
- 4) Both sound carrier levels (upper and lower side bands) of the modulator output are measured.

10.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-06

Tested by: H. Kioka

SECTION 11 : TRANSFER SWITCH

11.1 Operation environment

The test was carried out in a screened room the size of 6 X 4 X 2.7 m.

Date: 2000-05-02

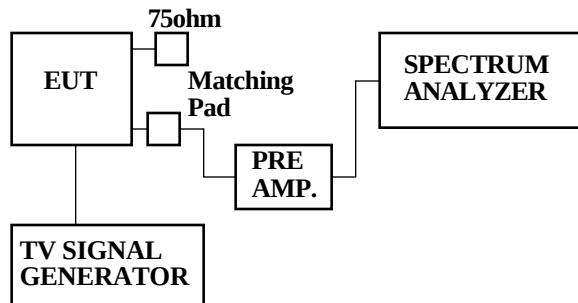
Temperature: 23 °C

Humidity: 45 %

11.2 Test configuration

The EUT was placed on a non-metallic platform 0.8 m above a reference ground plane. A drawing of the set-up is shown in Fig. 5 and the photo on Appendix 1.

Figure 5. Drawing of the test set up, transfer switch



11.3 Test conditions

EUT position : Table top

11.4 Test procedure

- 1) EUT was connected spectrum analyzer through matching pad by accessory cable. (RF In)
- 2) RF channel selected 3ch or 4ch.
- 3) EUT was exercised "Playback mode" and "Rec mode" during the test and interference signal was measured from RF input terminal.

11.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-02

Tested by: H.

Kioka

SECTION 12 : INPUT LEVEL CONTROL

12.1 Operation environment

The test was carried out in a screened room the size of 6 X 4 X 2.7 m.

Date: 2000-05-02

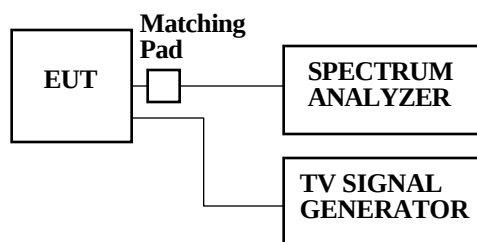
Temperature: 23 °C

Humidity: 45 %

12.2 Test configuration

The EUT was placed on a non-metallic platform 0.8 m above a reference ground plane.
A drawing of the set-up is shown in Fig. 6 and the photo on Appendix 1.

Figure 6. Drawing of the test set up, input level control



12.3 Test conditions

EUT position : Table top

12.4 Test procedure

- 1) EUT was connected spectrum analyzer through matching pad by accessory cable. (RF In)
- 2) RF channel selected 3ch or 4ch.
- 3) TV signal generator output level was adjusted to 1 Vp-p and 5 Vp-p when checked EUT's function.

12.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-06

Tested by: H. Kioka

SECTION 13 : PICTURE SENSITIVITY

13.1 Operation environment

The test was carried out in a screened room the size of 6 X 4 X 2.7 m.

Date: 2000-05-06

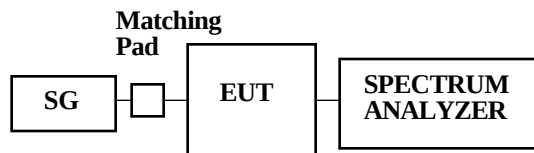
Temperature: 24 °C

Humidity: 42 %

13.2 Test configuration

The EUT was placed on a non-metallic platform 0.8 m above a reference ground plane.
A drawing of the set-up is shown in Fig. 7 and the photo on Appendix 1.

Figure 7. Drawing of the test set up, picture sensitivity



13.3 Test conditions

EUT position : Table top

13.4 Test procedure

- 1) The fed from the VHF signal generator is connected to the receiver's 75 ohm input via the RF attenuator.
- 2) The signal input levels reduced so as to operate the AGC in a maximum gain mode.
- 3) The IF level is then measured at the IF detector point. (reference level)
- 4) The VHF sigal generator is then adjusted to the image frequency and fine tuned to reference level at the IF detector point.
- 5) The generator output level is adjusted so as to match the IF detector point amplitude level measured in (3) above.
- 6) The above procedure is applied to all channels. (below 300MHz)

13.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-06

Tested by: H. Kioka

SECTION 14: NOISE FIGURE

14.1 Operating environment

The test was carried out in a screened room the size of 6 X 4 X 2.7 m.

Date: 2000-05-06

Temperature: 23 °C

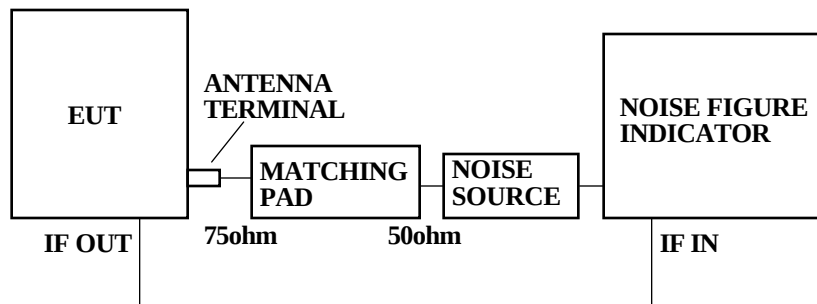
Humidity: 45 %

14.2 Test configuration

The EUT was placed on a non-metallic table.

A drawing of the set up is shown in fig. 8 and the photos of Appendix 1.

Figure 8. Drawing of the test set up, noise figure



14.3 Test procedure

- 1) The EUT was tested and the equipment associated with the measurements of noise figures are placed in a shielded room.
- 2) A solid state noise source is connected to the EUT's antenna terminal.
- 3) Automatic gain control bias, preceding the noise output measurement point, is maintained at the level existing when there is no input signal with the receiver's 75 ohm input terminated in its nominal impedance. The receiver is otherwise operated so that the noise figure data are actually those inherent to it.
- 4) The above measurements are repeated for an adequate number of channels.

14.4 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-06

Tested by: H. Kioka

SECTION 15 : ADJACENT CHANNEL INTERFERENCE

15.1 Operation environment

The test was carried out in a screened room the size of 6 X 4 X 2.7 m.

Date: 2000-05-06

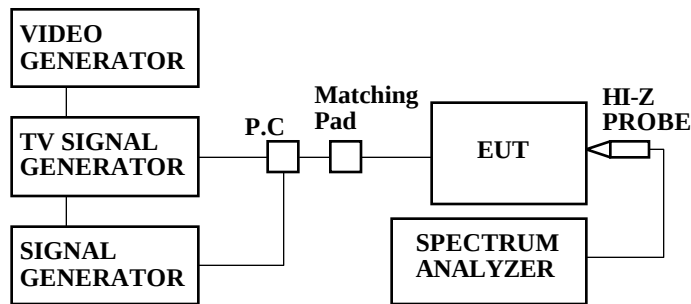
Temperature: 24 °C

Humidity: 40 %

15.2 Test configuration

The EUT was placed on a non-metallic platform 0.8 m above a reference ground plane. A drawing of the set-up is shown in Fig. 9 and the photo on Appendix 1.

Figure 9. Drawing of the test set up, Adjacent Channel Interference



15.3 Test conditions

EUT position : Table top

15.4 Test procedure

- 1) TV signal generatorb was tuned to receiving frequency.
- 2) Undesired frequency was adjusted bellow the 1.5 MHz from receiving frequency.
- 3) Undesired signal level was adjusted to regurations level.
- 4) Inteferece signals appeard in the IF band from the adjacent channel.

15.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-06

Tested by: H. Kioka

SECTION 16: IMAGE CHANNEL INTERFERENCE

16.1 Operating Environment

The test was carried out in a screened room the size of 6 X 4 X 2.7 m.

Date: 2000-05-06

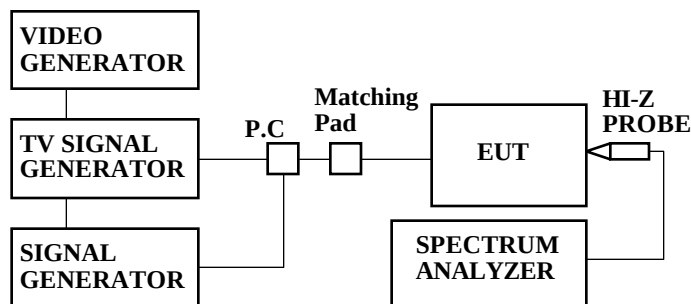
Temperature: 24 °C

Humidity: 41 %

16.2 Test configuration

The EUT was placed on a non-metallic table height of 0.8m and pallet height of 0.1m the reference ground plane. A drawing of the set up is shown in fig. 10 and the photos of Appendix 1.

Figure 10. Drawing of test set-up, image channel interference



16.3 Test condition

Frequency range : below 300MHz

Test level : at least 60dB

EUT position : Table top

16.4 Test procedure

- 1) The fed from the VHF signal generator is connected to the receiver's 75 ohm input via the RF attenuator.
- 2) The signal input levels reduced so as to operate the AGC in a maximum gain mode.
- 3) The IF level is then measured at the IF detector point. (reference level)
- 4) The VHF sigal generator is then adjusted to the image frequency and fine tuned to reference level at the IF detector point.
- 5) The generator output level is adjusted so as to match the IF detector point amplitude level measured in (3) above.
- 6) The image rejection is then determined from the difference in the generator output levels of (3) and (5) above.
- 7) The above procedure is applied to all channels whose image frequency falls below 300MHz.

16.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-06

Tested by: H. Kioka

A-pex International Co., Ltd.

KANTO OFFICE EMC LAB.

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SECTION 17: DIRECT PICK-UP INTERFERENCE

17.1 Operating environment

The test was carried out in a full-anechoic chamber the size of 5 X 8 X 3.3 m.

Date: 2000-05-04

Temperature: 24.0 °C

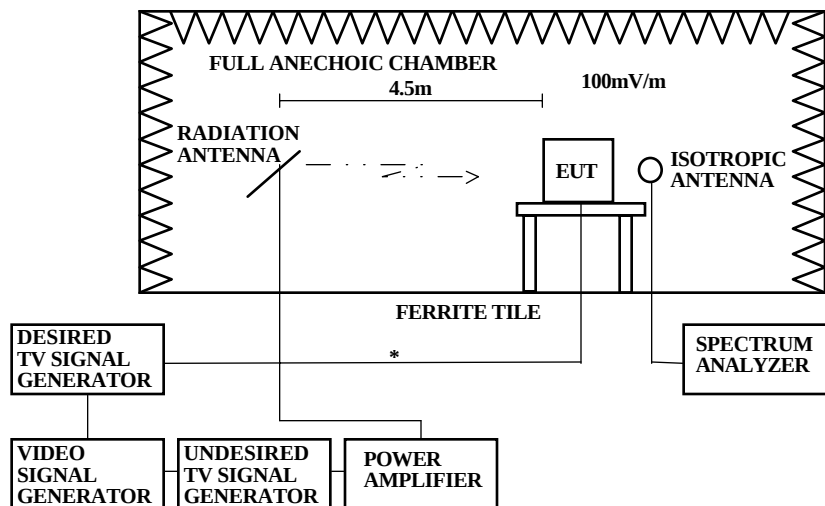
Humidity: 42 %

17.2 Test configuration

The EUT was placed on a non-metallic table height of 0.8m.

A drawing of the test setup is found in fig. 11 and the photos of Appendix 1.

Figure 11 Drawing of the test set up, direct pick-up interference



* : Cable between ANT IN and Desired TV Signal generator : SUCOFLEX100, SUHNER, 4m
Screening Effectiveness : More than 120dB in the frequency range of 50MHz to 1GHz

17.3 Test condition

- 1) Frequency range : 54MHz-804MHz
Test level : 100mV/m
Polarization : Horizontal
Antenna distance : 3.0 m
Antenna height : 1.5 m
EUT position : Table top

17.4 Test procedure

- 1) The signal from the antenna is input to a broadband RF amplifier.
- 2) The amplifier output signal is connected to the broad band antenna in order to permit re-radiation of the broadcast signal.
- 3) The receiver under test is placed in the 100mV/m field such that the antenna panel occupies the field. (The receiver must not block the antenna panel from the transmitted signal.)
- 4) The feed from the multi-channel RF generator or local cable system is connected to the spectrum analyzer.
- 5) Ensure that the receiver is operating normally and that all customer switchies and controls are adjusted for cable reception and normal viewing for the channel of interest.
- 6) The above measurements are repeated for an adequate number (6 point) of channels to ensure that the measurements are significant.

17.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-04

Tested by: H. Kioka

SECTION 18: TUNER OVER LOAD

18.1 Operating environment

The test was carried out in a measurement the size of 7 X 8 X 3 m.

Date: 2000-05-09

Temperature: 24 °C

Humidity: 46 %

18.2 Test configuration

The EUT was placed a non-metallic platform height of 0.8m above the reference ground plane. A drawing of the set up is shown in fig. 12 and the photo of Appendix 1.

Figure 13. Drawing of the test set up, signal over load

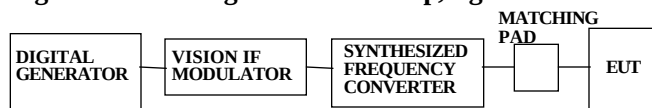
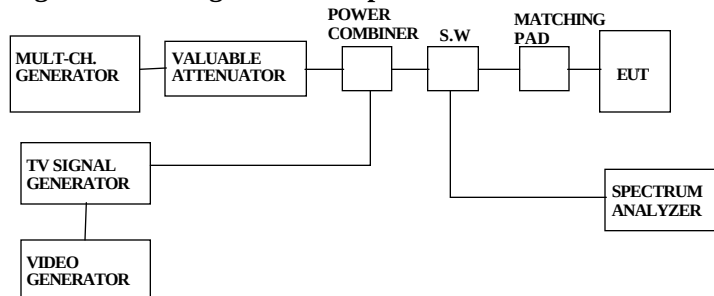
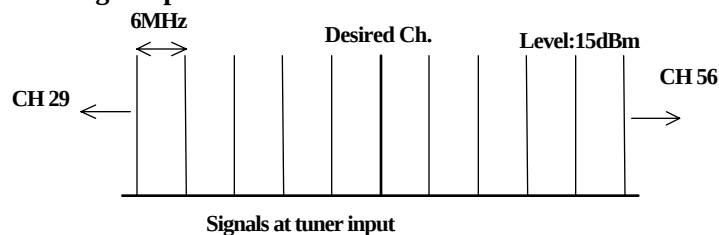


Figure 4. Drawing of test set-up , tuner over load



Drawing of Spectrum distribution



Desired signal :

Video Carrier Level : +15dBmV

Modulation : Full field color bar

Aural Carrier Level : +5dBmV

Modulation : Unmodulated

Undesired Signal Level : +15dBmV

18.3 Test condition

Frequency range : 54MHz-804MHz
Test level : 15dBmV
EUT position : Table top

18.4 Test procedure

- 1) The feed from the multichannel RF generator or local cable system is connected to the spectrum analyzer (via a suitable matching network if required).
- 2) The spectrum analyzer is tuned to channel 2 and the input signal amplified (if required) to produce a level of 14dBmV at the frequency of interest.
- 3) The adjusted signal feed is then connected to the receiver's 75 ohm input and the receiver tuned to channel 2.
- 4) Ensure that the receiver is operating normally and that all customer's switches and controls are adjusted for cable reception and normal viewing.
- 5) The receiver's picture display is then observed for any evidence of overload.
- 6) The above procedure is repeated for all available channels.

18.5 Results

Test results : **Pass**

Summary of the test results : see appendix 2.

Date: 2000-05-09

Tested by: H. Kioka

APPENDIX 1: TEST CONFIGURATION PHOTOGRAPHS

This section contains the following photographs:

Page 28 : Test Configuration for measurement of conducted interference.

Page 29 : Test Configuration for measurement of radiated emission.

Page 30 : Test Configuration for measurement of antenna terminal.

Page 31 : Test Configuration for measurement of rf output level / spurious emission.

Page 32 : Test Configuration for measurement of transfer switch.

Page 33 : Test Configuration for measurement of input level control.

Page 34 : Test Configuration for measurement of picture sensitivity.

Page 35 : Test Configuration for measurement of noise figure.

Page 36 : Test Configuration for measurement of adjacent channel interference.

Page 37 : Test Configuration for measurement of image channel interference.

Page 38 : Test Configuration for measurement of direct pick-up interference.

Page 39 : Test Configuration for measurement of tuner over load.

Measurement of conducted interference

Measurement of radiated emission

Measurement of antenna terminal voltage

Measurement of rf output level / spurious emission

Measurement of transfer switch

Measurement of input level control

Measurement of picture sensitivity

Measurement of noise figure

Measurement of adjacent channel interference

Measurement of image channel interference

Measurement of immunity to direct pick-up interference

Measurement of tuner over load

APPENDIX 2: DATA OF EMI TEST

This section contains the following data

Data of conducted interference :	: <u>A2-1 to A2-6</u>
Data of radiated emission :	: <u>A2-7 to A2-15</u>
Data of antenna terminal voltage :	: <u>A2-16 to A2-18</u>
Data of rf output level / spurious emission :	: <u>A2-19 to A2-26</u>
Data of transfer switch :	: <u>A2-27 to A2-32</u>
Data of input level control :	: <u>A2-33 to A2-34</u>
Data of picture sensitivity :	: <u>A2-35</u>
Data of noise figure :	: <u>A2-36</u>
Data of adjacent channel interference :	: <u>A2-37</u>
Data of image channel interference :	: <u>A2-38</u>
Data of direct pick-up interference :	: <u>A2-39</u>
Data of tuner over load :	: <u>A2-40</u>