



Certification EMI TEST REPORT

Test Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Type of equipment : DVD Player with Video Cassette Recorder
Model number : VRDVD4100BA
FCC ID : A7RM210A
Test standard : FCC Part 15 Subpart B
ICES-003 Issue No.4 Class B
Test result : Complied

Similar model :

Model No.	Brand name	Model No.	Brand name
JDVD3825PCA	CITIZEN	-	-
EH8008PCA	ELECTROHOME	-	-
-	-	-	-
-	-	-	-
-	-	-	-

1. This test report shall not be reproduced except in full or partial, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with above regulation. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this test report are traceable to the national or international standards.
5. This test report does not constitute an endorsement by NIST/NVLAP or U.S. Government.

Date of test : October 20 to November 2, 2005

Tested by:

Tsubasa Takayama
Engineer of EMC Service

Tomoyuki Yamashita
Engineer of EMC Service

Masaya Minami
Engineer of EMC Service

Approved by:

Hiroya Tabata
Leader of EMC Service

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Section 1 : Client information

Company name : Orion Electric Co., Ltd.
Address : 41-1 Iehisa-cho, Echizen-shi, Fukui-ken, 915-8555 JAPAN
Telephone number : +81 778 23 0019
Facsimile number : +81 778 23 7799
Contact person : Yoshimasa Tanikawa

Section 2 : Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of equipment : DVD Player with Video Cassette Recorder
Brand Name : SANSUI
Model number : VRDVD4100BA
FCC ID : A7RM210A
Rating : AC 120 V / 60 Hz
Manufacturer : 1. World Electric (Thailand) Ltd.
236 Moo 2 Nongchark, Banbung, Chonburi 20170, Thailand
2. Korat Denki Ltd.
149 Moo 10 Tambol Chokchai, Amphur Chokchai, Nakhonratchasima
30190, Thailand
228 Moo 3 Tambol Nongbuasala, Amphur Muang, Nakhonratchasima
30000, Thailand
3. Orion America, Inc.
Hwy 41 North, Orion Place, Princeton, Indiana 47670, U.S.A
Receipt Date of Sample : October 20, 2005
Condition of EUT : Production Prototype
(Not for Sale: This sample is equivalent to mass-produced items.)

2.2 Product description

Model: VRDVD4100BA (referred to as the EUT in this report) is a DVD Player with Video Cassette Recorder.
The EUT specifications is as follows.

Tuner type : Quartz PLL frequency synthesized
I / F : 45.75 MHz (Picture), 41.25 MHz (Sound)
Receiving channel : VHF 2 – 13 ch / UHF 14 – 69 ch / CATV 1 – 125 ch
Antenna input : 75 ohm
Video signal : NTSC color
Power source : AC 120 V / 60 Hz, 18W
I / O terminal (Video) : RCA in 1Vp-p 75 ohm, RCA out 1 Vp-p 75 ohm
I / O terminal (Audio) : RCA in –8 dB 47 k ohm, RCA out –8 dB 1 k ohm

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Section 3 : Test specification, procedures and results

3.1 Test specification

Test specification: FCC Part 15 Subpart B
Title : FCC 47 CFR Part 15 Radio Frequency Device
Subpart B Unintentional Radiators

Test Specification : ICES-003 Issue No. 4
Title : Spectrum Management
Interference-Causing Equipment Standard
Digital Apparatus
*ICES-003 (Issue No. 4) is based on FCC Part 15.

3.2 Procedures & results

Item	Test procedure	Limits	Worst margin	Result
Conducted emission	ANSI C63.4:2003	CISPR 22	17.5 dB (0.1550 MHz, L1, AV Input+Rec.)	Complied
Radiated emission	ANSI C63.4:2003 IEEE 187:1990	30–88 MHz: 100 uV/m 88–216 MHz: 150 uV/m 216–960 MHz: 200 uV/m above 960 MHz: 500 uV/m	2.6 dB (202.50 MHz, Horizontal, VCR Playback)	Complied
Antenna terminal voltage	ANSI C63.4:2003	2 nW (at 75 ohm)	27.6 dB (621.71060 MHz, CATV tuning)	Complied
RF output level	ANSI C63.4:2003	Video signal: 3000 uV Aural signal: 671 uV	5.0 dB (3ch, 61.25 MHz, TV Reception + Rec. / AV Input + Rec)	Complied
Spurious emission		94.8 uV	18.5 dB (165.7700 MHz, 3ch, TV Reception + Rec. 25dBmV)	Complied
Transfer switch	ANSI C63.4:2003	9.5 dB	7.5 dB (336.2500 MHz, 4ch, AV Input+Rec.)	Complied
Picture sensitivity	ANSI C63.4:2003	8 dB	3.4 dB	Complied
Noise figure	FCC/OET MP:2:1986	14 dB	6.0 dB (38ch, 615.25 MHz)	Complied

For ICES-003, only the tests, which relate to the digital device of conducted emission and radiated emission, were performed.

3.3 Additions or deviations to standard

No addition, deviation or exclusion has been made from standards.

3.4 Confirmation

UL Apex Co., Ltd. hereby confirms that E.U.T., in the configuration tests, complies with the specifications FCC Part15 Subpart B and ICES-003 Issue No. 4.

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3.5 Uncertainty

Conducted emission (150 kHz – 30 MHz)

The measurement uncertainty (with a 95% confidence level) for this test was ± 2.8 dB.

The data listed in this test report has enough margin, more than site margin.

Radiated emission

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ± 4.5 dB.

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ± 4.2 dB.

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is ± 5.6 dB.

The data listed in this test report meets the limits unless the uncertainty is taken into consideration.

Antenna terminal voltage

The measurement uncertainty (with a 95% confidence level) for this test was ± 2.3 dB.

The data listed in this test report has enough margin, more than site margin.

RF output level test / spurious emission test

The measurement uncertainty (with a 95% confidence level) for this test was ± 3.5 dB.

The data listed in this test report has enough margin, more than site margin.

Antenna transfer switch

The measurement uncertainty (with a 95% confidence level) for this test was ± 3.5 dB.

The data listed in this test report has enough margin, more than site margin.

Picture sensitivity test

The measurement uncertainty (with a 95% confidence level) for this test was ± 1.0 dB.

The data listed in this test report has enough margin, more than site margin.

Noise Figure Test

The measurement uncertainty (with a 95% confidence level) for this test was ± 1.2 dB.

The data listed in this test report has enough margin, more than site margin.

3.6 Test location

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Test room	Width x Depth x Height (m)	Test room	Width x Depth x Height (m)
No.1 shielded room	5.5 x 6.4 x 2.7	No.7 shielded room	9.3 x 3.4 x 2.7
No.2 shielded room	4.5 x 3.6 x 2.7	No.1 EMS lab.	5.0 x 8.0 x 3.5
No.3 shielded room	3.6 x 7.2 x 2.4	(Full-anechoic chamber)	
No.4 shielded room	5.5 x 5.0 x 2.4	No.2 EMS lab.	4.0 x 7.0 x 3.5
No.5 shielded room	5.5 x 4.3 x 2.5	(Full-anechoic chamber)	
No.6 shielded room	5.2 x 3.2 x 2.9		

*NVLAP Lab. code : 200109-0

No.1 and No.3 sites have been fully described in a report submitted to FCC office, and listed on September 25, 2003.
(Registration number: 90412)

No.2 site has been fully described in a report submitted to FCC office, and listed on August 29, 2003.
(Registration number: 90411)

3.7 Test setup, Data of EMI & Test instruments

Please refer to Appendix 1 to 3.

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Section 4 : Operation of E.U.T. during tests

4.1 Operating modes

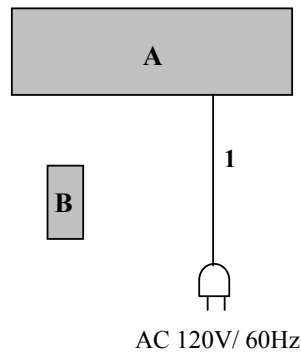
The EUT exercise program used during testing was designed exercise the various system components in a manner similar to typical use.

The sequence in used : * TV Reception + Rec. mode (0 dBmV input / 25 dBmV input)
* AV Input + Rec. mode (1Vp-p / 5Vp-p)
* VCR Play mode
* DVD Play mode

Operation : The EUT was tested at above operation mode.

Justification : The system was configured in typical fashion (as a customer would normally use it) for testing.

4.2 Configuration and peripherals



* Cabling was taken into consideration and test data was taken under worse case conditions.

Description of EUT and support equipment

Sign	Item	Model number	Serial number	Manufacturer	FCC ID	Remark
A	DVD Player with Video Cassette Recorder	VRDVD4100BA	—	Orion Electric Co., Ltd.	A7RM210A	EUT
B	Remote Controller	—	—	Orion Electric Co., Ltd.	-	EUT

List of cable used

No.	Item	Length (m)	Shield
1	AC Power Cable	1.6	Unshielded

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Section 5 : Conducted emission

5.1 Operation environment

The test was carried out No.1 shielded room.

Date : October 21, 2005

Temperature : See data

Humidity : See data

5.2 Test configuration

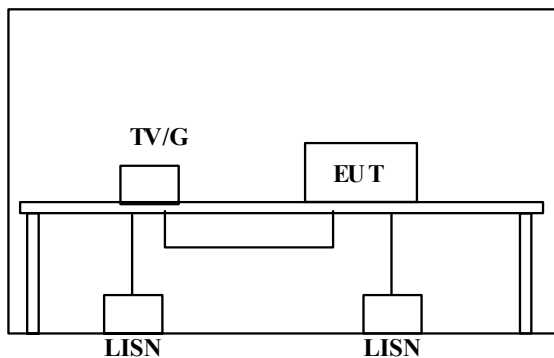
EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of EUT was aligned and flushed with rear of tabletop. All other surfaces of tabletop was at least 80 cm from any other grounded conducting surface. I/O cables and AC cable were bundled in center. I/O cables were hanged at a 40cm height to the ground plane. Each EUT current-carrying power lead, except the ground (safety) lead, were individually connected through a LISN to the input power source. All unused 50 ohm connectors of the LISN were resistively terminated in 50 ohm when not connected to the measuring equipment.

A drawing of the set up is shown in figure 1 and photographs in Appendix 1.

Figure 1. Conducted emission

TV Reception + Rec. mode (0 dBmV input / 25 dBmV input), AV Input + Rec. mode (1Vp-p / 5Vp-p)

Shielded room



RF in: TV signal generator connected
Rear video out: 75 ohm terminated with video cable
Rear audio out: 1 k ohm terminated with audio cable
S-Video out: 75 ohm terminated with S-Video cable
RF output: 75 ohm terminated with RF output cable
Coaxial out: 75 ohm terminated with coaxial cable
Component out: 75 ohm terminated with component cable
Front Video In: 75 ohm terminated
Front Audio In: 47 ohm terminated

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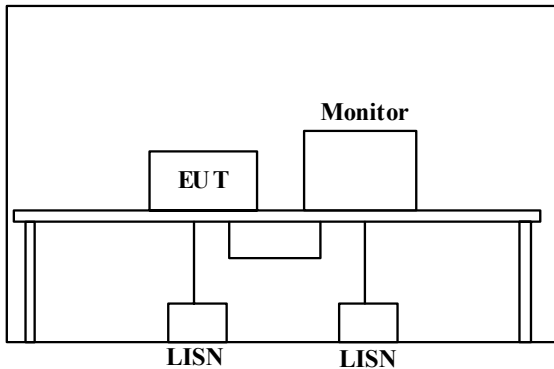
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VCR Play mode / DVD Play mode

Shielded room



RF in: 75 ohm terminated with RF input cable
Rear video out: monitor connected
Rear audio out: monitor connected
S-Video out: 75 ohm terminated with S-Video cable
RF output: 75 ohm terminated with RF output cable
Coaxial out: 75 ohm terminated with coaxial cable
Component out: 75 ohm terminated with component cable
Front Video In: 75 ohm terminated with front video in cable
Front Audio In: 47 ohm terminated with front audio cable

5.3 Test conditions

Frequency range : 0.15 MHz – 30 MHz
EUT position : Table top
EUT operation mode : TV Reception + Rec., AV Input + Rec., VCR Play, DVD Play

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT within a shielded room. The EUT was connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection has been performed. The measurements have been performed with a quasi-peak detector and if required, with an average detector.

The conducted emission measurements were made with the following detector function of the test receiver.

Detector Type : QP
IF Bandwidth : 10 kHz

5.5 Test result

Passed

Please refer to summary of the test results in Appendix 2.

Test engineer: Tomoyuki Yamashita

Section 6 : Radiated emission

6.1 Operation environment

The test was carried out in No.3 open site.

Date : October 20, 21, November 1 and 2, 2005

Temperature : See data

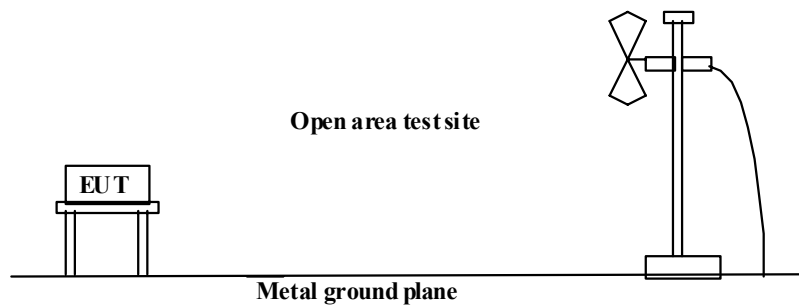
Humidity : See data

6.2 Test configuration

EUT was placed on a platform of nominal size, 1 m by 1.5m or 1.8 m, raised 80 cm above the conducting ground plane. The rear of EUT was aligned and flushed with rear of tabletop. AC cable was bundled in center. I/O cables were hanged 40 cm height to the ground plane. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

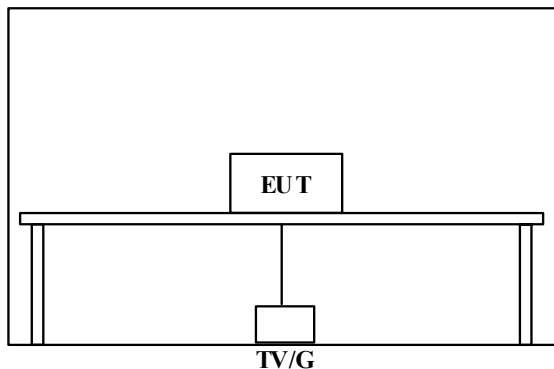
A drawing of the set up is shown in figure 2 and photographs in Appendix 1.

Figure 2. Radiated emission



TV Reception + Rec. mode (0 dBmV input / 25 dBmV input), AV Input + Rec. mode (1Vp-p / 5Vp-p)

Open test site



RF in: TV signal generator connected
Rear video out: 75 ohm terminated with video cable
Rear audio out: 1 k ohm terminated with audio cable
S-Video out: 75 ohm terminated with S-Video cable
RF output: 75 ohm terminated with RF output cable
Coaxial out: 75 ohm terminated with coaxial cable
Component out: 75 ohm terminated with component cable
Front Video In: 75 ohm terminated
Front Audio In: 47 ohm terminated

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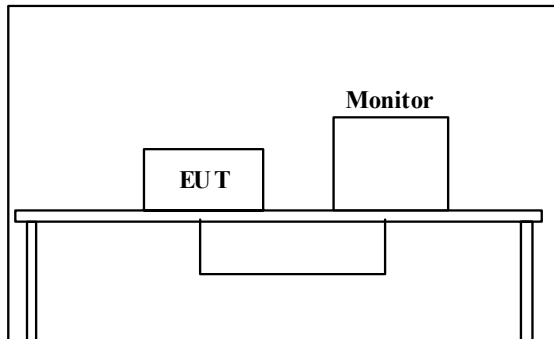
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VCR Play mode / DVD Play mode

Open test site



RF in: 75 ohm terminated with RF input cable
Rear video out: monitor connected
Rear audio out: monitor connected
S-Video out: 75 ohm terminated with S-Video cable
RF output: 75 ohm terminated with RF output cable
Coaxial out: 75 ohm terminated with coaxial cable
Component out: 75 ohm terminated with component cable
Front Video In: 75 ohm terminated with front video in cable
Front Audio In: 47 ohm terminated with front audio cable

6.3 Test conditions

Frequency range : 30 MHz – 5000 MHz
Test distance : 3 m
EUT position : Table top
EUT operation mode : TV Reception + Rec., AV Input + Rec., VCR Play, DVD Play

6.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on an open test site with a ground plane and at a distance of 3 m.

Pre check measurements were performed within a search coil at high level of 30MHz – 1000MHz to distinguish disturbances of EUT from the ambient noise. The measuring antenna height was varied between 1 and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity. The measurements were performed for both vertical and horizontal antenna polarization.

The radiated emission measurements were made with the following detector function of the test receiver and spectrum analyzer.

	<u>30-1000 MHz (Test receiver)</u>	<u>1000-5000 MHz (Spectrum analyzer)</u>
Detector Type	: QP	: PK : AV
IF Bandwidth	: 120kHz	: RBW 1MHz / VBW 1MHz : RBW 1MHz/ VBW 10Hz

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

6.5 Test result

Passed

Please refer to summary of the test results in Appendix 2.

Test engineer: Tsubasa Takayama and Masaya Minami

Section 7 : Antenna terminal voltage

7.1 Operation environment

The test was carried out in No.7 shielded room.

Date : October 20, 2005

Temperature : See data

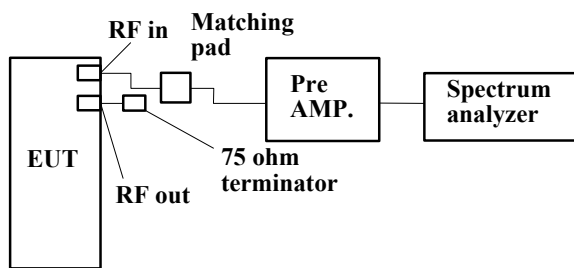
Humidity : See data

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 figure 3 and photographs in Appendix 1.

Figure 3. Antenna terminal voltage



7.3 Test conditions

Frequency range : 30 MHz – 5000 MHz

EUT position : Table top

EUT operation mode : Tuning (TV tuning / CATV tuning)

7.4 Test procedure

Connect EUT and spectrum analyzer through pre-amplifier. Set EUT to CH investigation mode then measure the voltage of local leakage from antenna terminal. Spectrum analyzer should be hold in maximum mode during the measurement.

Detector Type : Peak (30-5000 MHz)

At frequency between 2000 MHz and 5000 MHz, 75/50ohm conversion loss of impedance is used in speculation.

7.5 Test result

Passed

Please refer to summary of the test results in Appendix 2.

Test engineer: Tsubasa Takayama

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Section 8 : RF output level / spurious emission

8.1 Operation environment

The test was carried out in No.7 shielded room.

Date : October 22 and 26, 2005

Temperature : See data

Humidity : See data

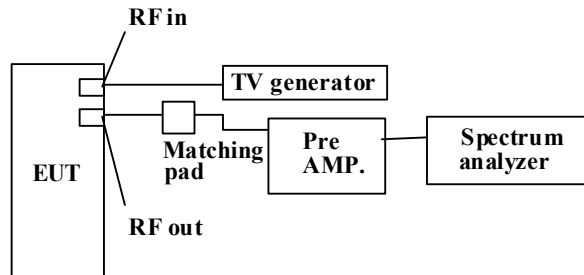
8.2 Test configuration

The EUT was placed on a non-metallic platform 0.8 m above a reference ground plane.

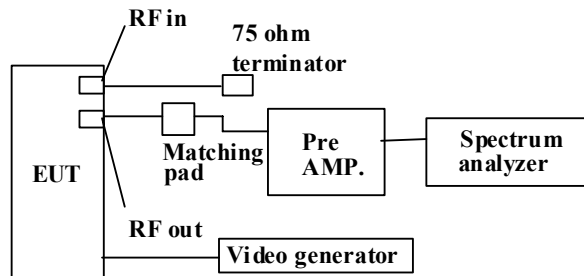
A drawing of the set up is shown in figure 4 and photographs in Appendix 1.

Figure 4. RF output level

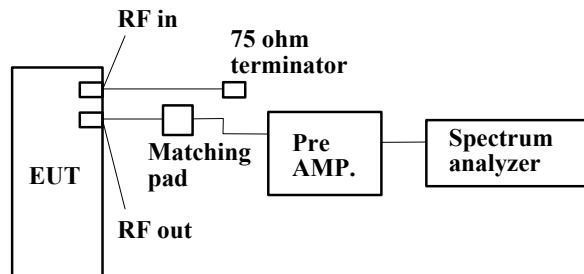
TV Reception + Rec. mode (0dBmV / 25dBmV)



AV Input + Rec. mode (1 Vp-p input / 5 Vp-p input)



VCR Play mode and DVD Play mode



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8.3 Test conditions

EUT position : Table top
EUT operation mode : TV Reception + Rec., AV Input + Rec., VCR Play, DVD Play

8.4 Test procedure

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

Detector Type : Peak

8.5 Test result

Passed

Please refer to summary of the test results in Appendix 2.

Test engineer: Tsubasa Takayama

Section 9 : Antenna transfer switch

9.1 Operation environment

The test was carried out in No.7 shielded room.

Date : October 22, 2005

Temperature : See data

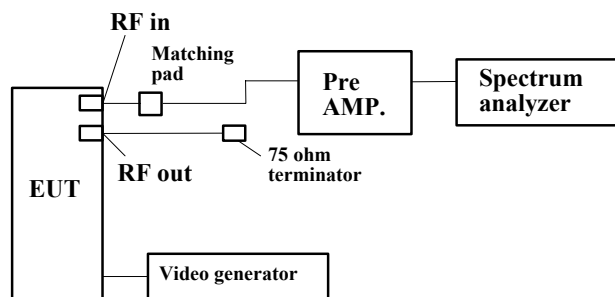
Humidity : See data

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 figure 5 and photographs in Appendix 1.

Figure 5. Transfer switch



9.3 Test conditions

EUT position : Table top

EUT operation mode : AV Input + Rec., VCR Play, DVD Play

9.4 Test procedure

EUT was connected spectrum analyzer through matching pad by accessory cable. RF channel selected 3ch or 4ch. Interference signals were measured from RF input terminal.

Detector Type : Peak

9.5 Test result

Passed

Please refer to summary of the test results in Appendix 2.

Test engineer: Tsubasa Takayama

Section 10 : Picture sensitivity

10.1 Operation environment

The test was carried out in No.7 shielded room.

Date : October 20, 2005

Temperature : See data

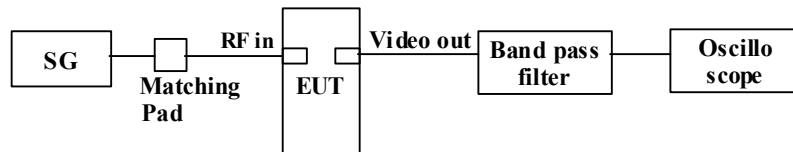
Humidity : See data

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 figure 6 and photographs in Appendix 1.

Figure 6. Picture sensitivity



10.3 Test conditions

EUT position : Table top

EUT operation mode : TV Reception

10.4 Test procedure

Signal generator setup is as follows, (Example: 2ch – 55.25 MHz, AM, 1 kHz, 30 %)

The EUT was tuned to appropriate channel.

Output level of signal generator was adjusted to near the frequency output level of EUT output.

EUT output level was adjusted to maximum output level by frequency adjustment of signal generator.

Signal generator output level was adjusted to reference output level of EUT and output level had read.

10.5 Test result

Passed

Please refer to summary of the test results in Appendix 2.

Test engineer: Tsubasa Takayama

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Section 11 : Noise figure

11.1 Operating environment

The test was carried out in No.7 shielded room.

Date : October 20, 2005

Temperature : See data

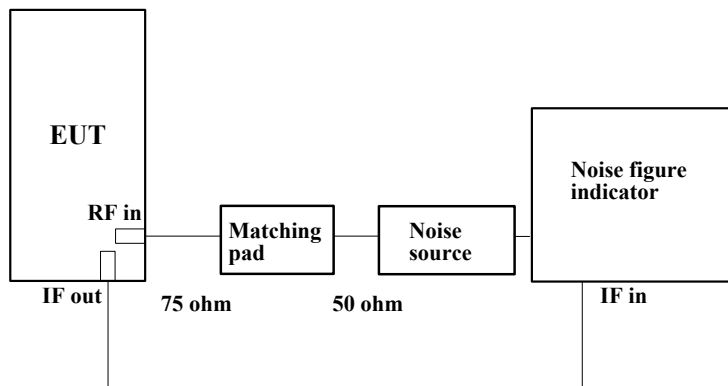
Humidity : See data

11.2 Test configuration

The EUT was placed on a non-metallic table.

A drawing of the set up is shown in figure 7 and photographs in Appendix 1.

Figure 7. Noise figure



11.3 Test condition

EUT position : Table top

EUT operation mode : TV Reception

11.4 Test procedure

This test should be performed in a shielded room or an low noise environment. Connect solid state noise source to antenna input terminal of EUT. Connect IF output terminal of EUT to noise meter. Measurement has been performed for VHF,UHF, Mid-band and Super-band receiver range.

11.5 Test result

Passed

Please refer to summary of the test results in Appendix 2.

Test engineer: Tsubasa Takayama

Appendix 1 : Photographs of test set up

Page 18 :	Test set up of conducted emission
Page 19 :	Test set up of radiated emission
Page 20 :	Test set up of antenna terminal voltage
Page 21 :	Test set up of RF output level / spurious emission
Page 22 :	Test set up of antenna transfer switch
Page 23 :	Test set up of picture sensitivity
Page 24 :	Test set up of noise figure

Appendix 2 : Data of EMI tests

Page 25 - 42 :	Conducted emission
Page 43 - 81 :	Radiated emission
Page 82- 83 :	Antenna terminal voltage
Page 84- 99 :	RF output level / spurious emission
Page 100- 107 :	Antenna transfer switch
Page 108 :	Picture sensitivity
Page 109 :	Noise figure

Appendix 3 : Test instruments

Page 110 :	Test instruments
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Conducted emission



Radiated emission



Antenna terminal voltage



RF output level / spurious emission



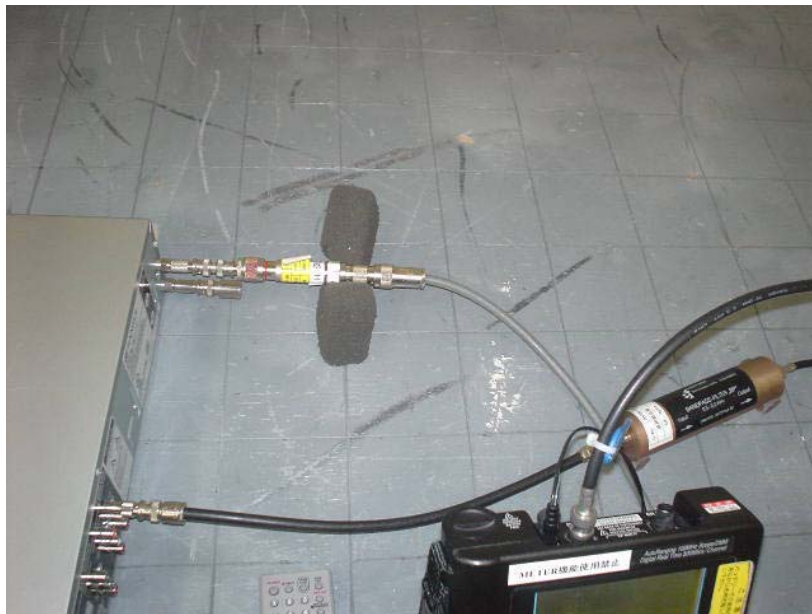
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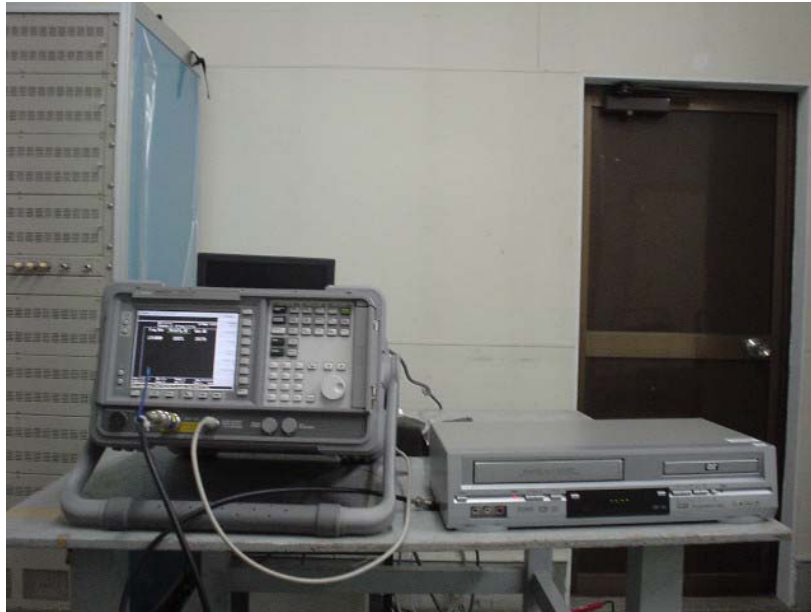
Antenna transfer switch



Picture sensitivity



Noise figure



DATA OF CONDUCTION TEST

UL Apex Co., Ltd.

YOKOWA No.1 OPEN TEST SITE

Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : TV Reception+Rec (0dBmV)
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation : FCC Part15B CLASS B(2003)

Engineer : Tomoyuki Yamashita

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dB μ V]	AV	QP [dB μ V]	AV				QP [dB]	AV [dB μ V]	QP [dB μ V]	AV [dB μ V]	QP [dB]	AV [dB]
1.	0.1550	47.5	-	47.4	-	0.0	0.2	0.0	47.7	-	65.7	55.7	18.0	-
2.	0.2000	42.0	-	42.4	-	0.1	0.2	0.0	42.7	-	63.6	53.6	20.9	-
3.	0.6350	26.3	-	24.2	-	0.1	0.3	0.0	26.7	-	56.0	46.0	29.3	-
4.	0.8446	26.6	-	24.5	-	0.1	0.3	0.0	27.0	-	56.0	46.0	29.0	-
5.	1.5337	23.0	-	24.0	-	0.2	0.3	0.0	24.5	-	56.0	46.0	31.5	-
6.	3.5946	25.7	-	27.4	-	0.4	0.3	0.0	28.1	-	56.0	46.0	27.9	-
7.	18.4337	25.4	-	23.2	-	1.5	0.5	0.0	27.4	-	60.0	50.0	32.6	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

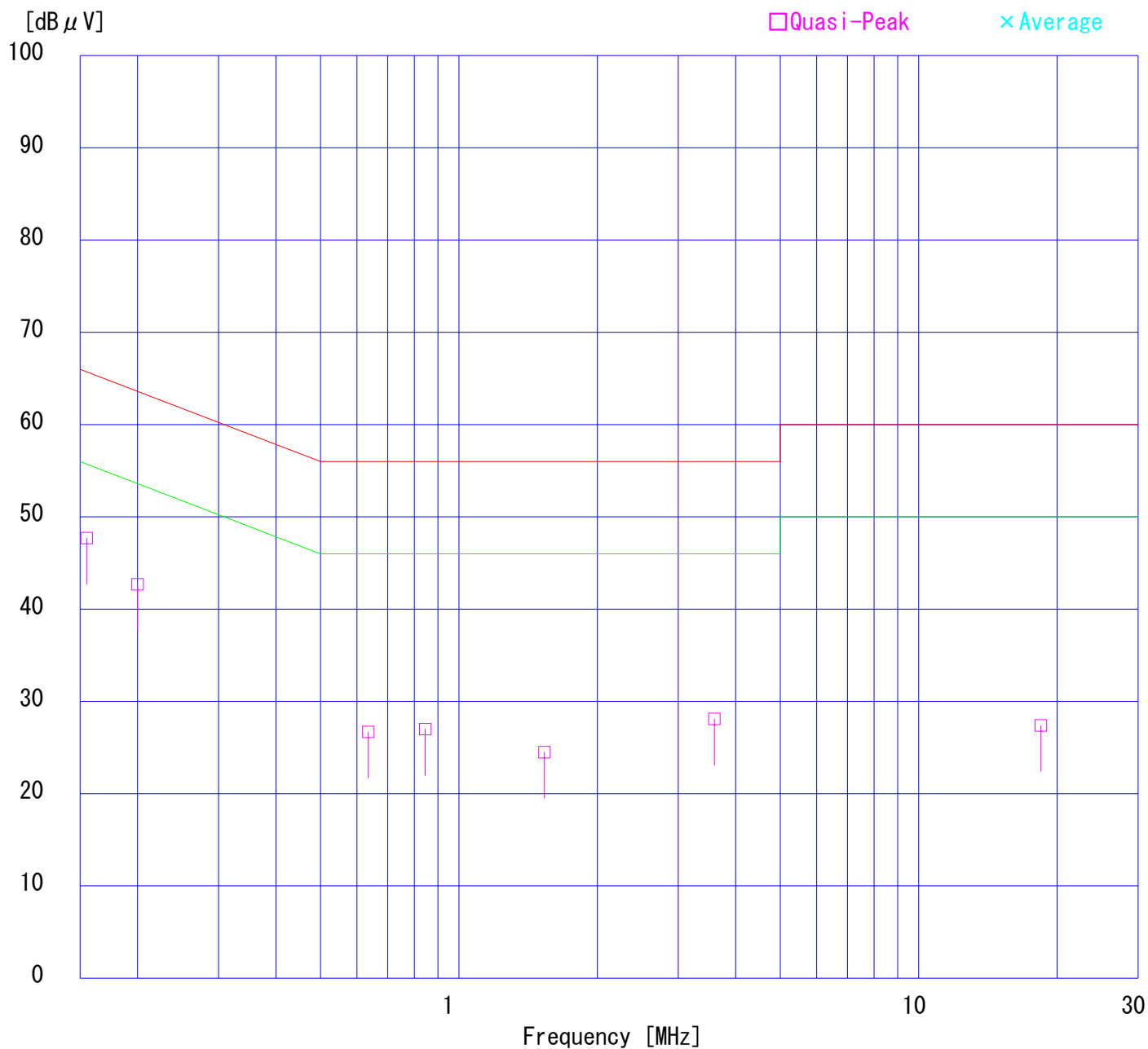
Except for the above table: adequate margin data below the limits.

DATA OF CONDUCTION TEST

UL Apex Co., Ltd.
YOKOWA No.1 OPEN TEST SITE
Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : TV Reception+Rec (0dBmV)
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation : FCC Part15B CLASS B(2003)

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST CHART

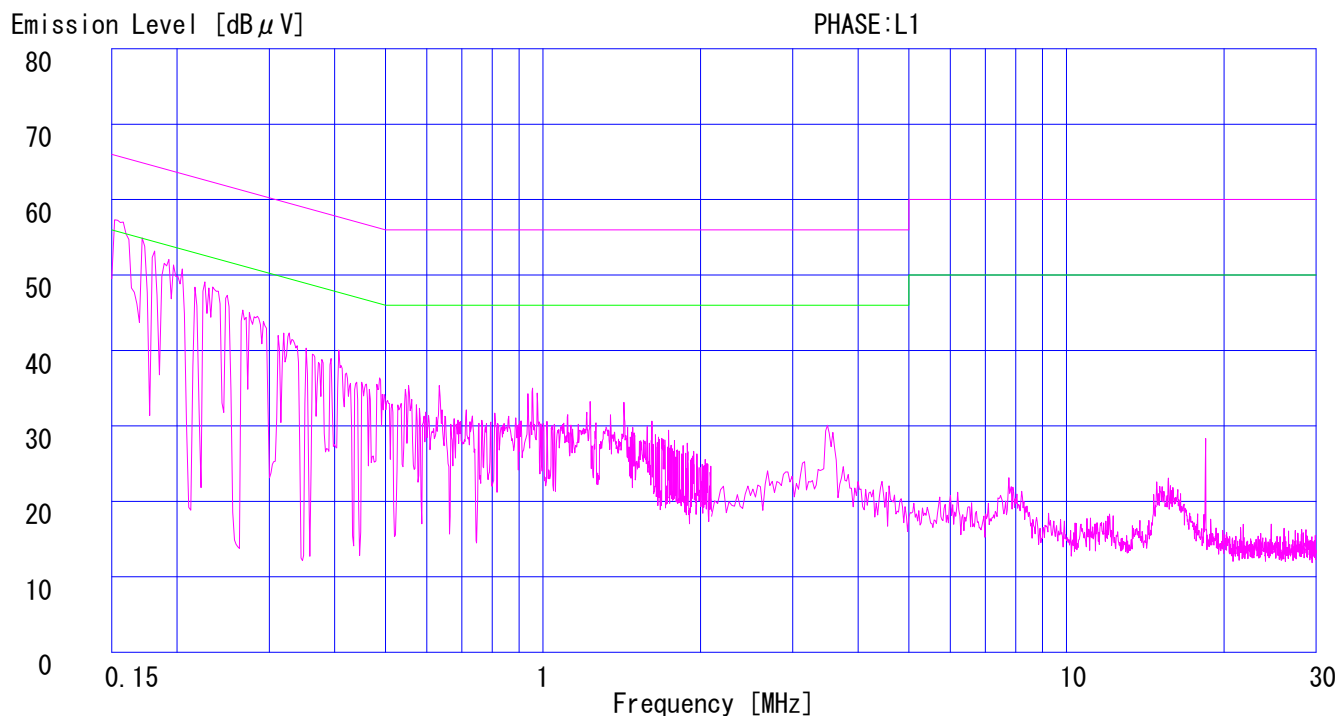
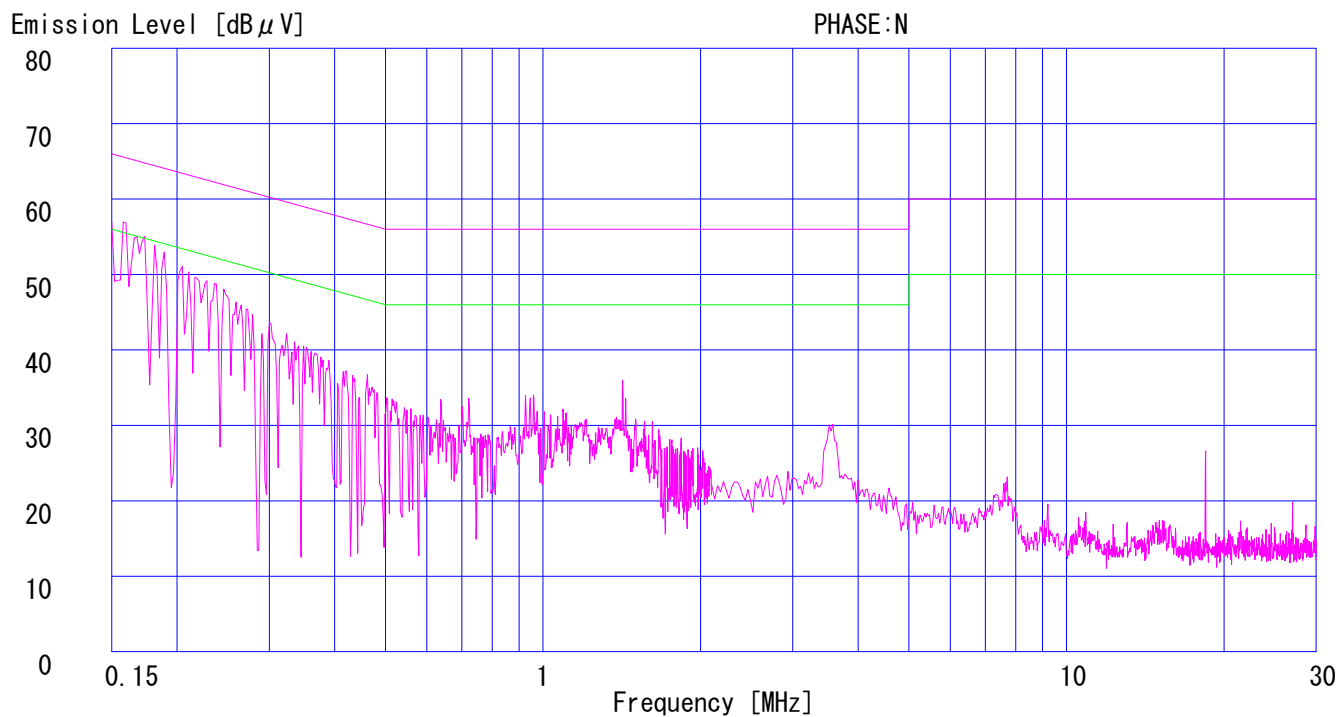
UL Apex Co., Ltd.

YOKOWA No.1 OPEN TEST SITE

Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : TV Reception+Rec (0dBmV)
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation 1 : FCC Part15B CLASS B (2003)
Regulation 2 : None

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST

UL Apex Co., Ltd.
YOKOWA No.1 OPEN TEST SITE
Report No. : 26CE0157-YW-1

Applicant	: Orion Electric Co., Ltd.		
Kind of Equipment	: DVD Player with Video Cassette Recorder		
Model No.	: VRDVD4100BA		
Serial No.	: -		
Power	: AC120V/60Hz		
Mode	: TV Reception+Rec (25dBmV)		
Remarks	:		
Date	: 10/21/2005		
Phase	: Single Phase		
Temperature	: 23 °C	Engineer	: Tomoyuki Yamashita
Humidity	: 43 %		
Regulation	: FCC Part15B CLASS B(2003)		

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dB μ V]	AV	QP [dB μ V]	AV				QP [dB]	AV [dB μ V]	QP [dB μ V]	AV [dB μ V]	QP [dB]	AV [dB]
1.	0.1500	47.2	-	47.7	-	0.0	0.2	0.0	47.9	-	66.0	56.0	18.1	-
2.	0.2000	42.4	-	42.3	-	0.1	0.2	0.0	42.7	-	63.6	53.6	20.9	-
3.	0.6285	23.4	-	26.0	-	0.1	0.3	0.0	26.4	-	56.0	46.0	29.6	-
4.	0.8625	23.5	-	26.0	-	0.1	0.3	0.0	26.4	-	56.0	46.0	29.6	-
5.	1.3400	25.1	-	24.6	-	0.1	0.3	0.0	25.5	-	56.0	46.0	30.5	-
6.	3.5320	28.5	-	24.4	-	0.4	0.3	0.0	29.2	-	56.0	46.0	26.8	-
7.	18.4311	23.0	-	25.0	-	1.5	0.5	0.0	27.0	-	60.0	50.0	33.0	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

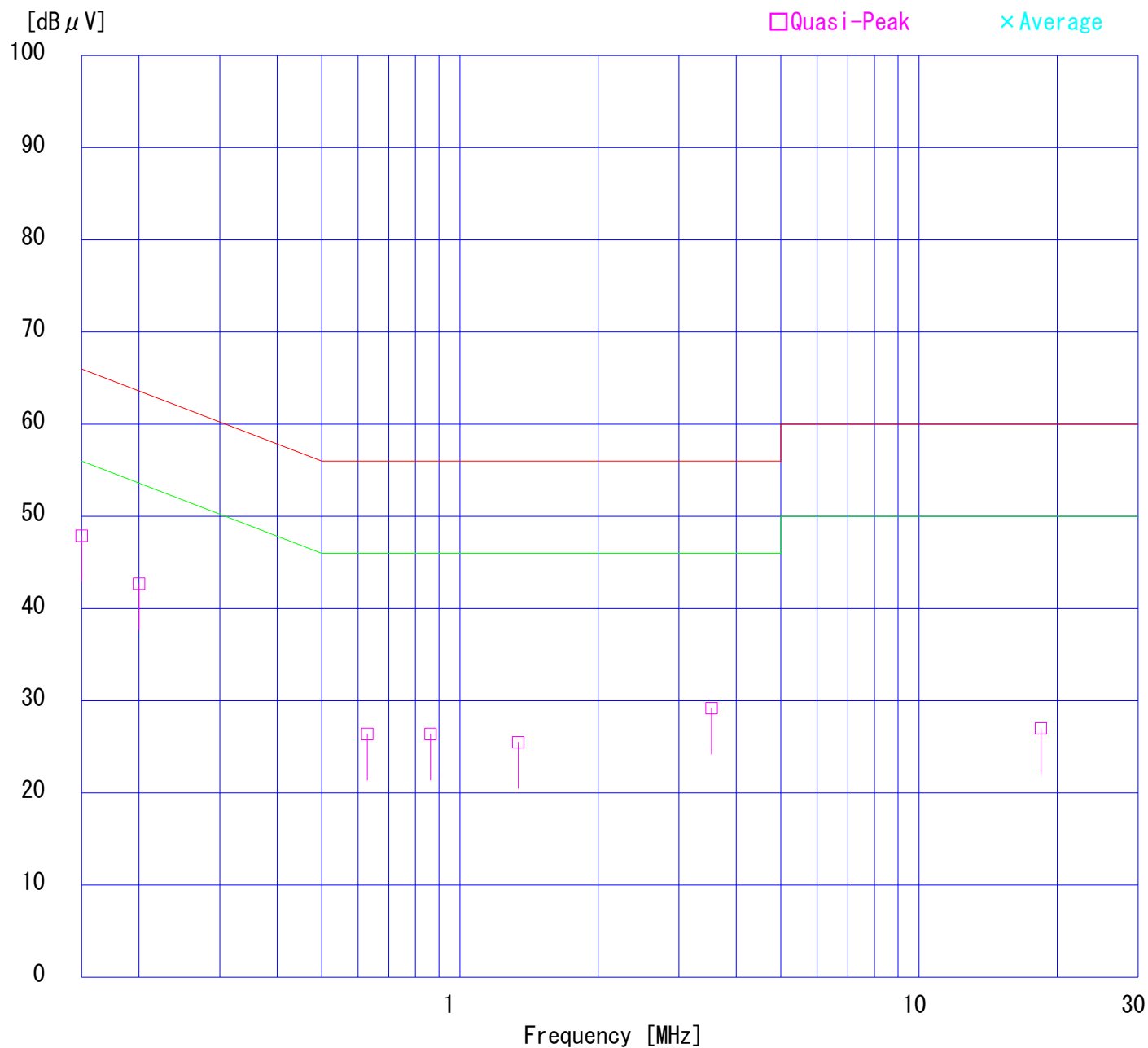
Except for the above table: adequate margin data below the limits.

DATA OF CONDUCTION TEST

UL Apex Co., Ltd.
YOKOWA No.1 OPEN TEST SITE
Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : TV Reception+Rec (25dBmV)
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation : FCC Part15B CLASS B (2003)

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST CHART

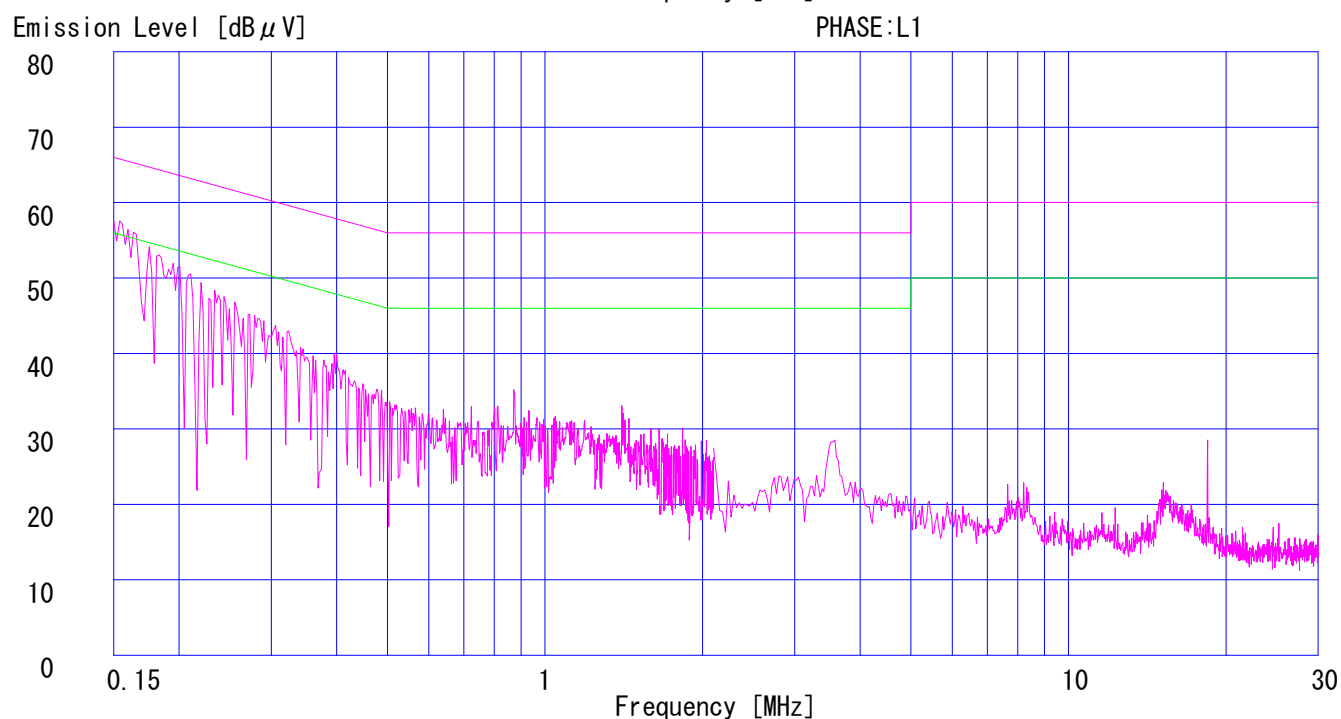
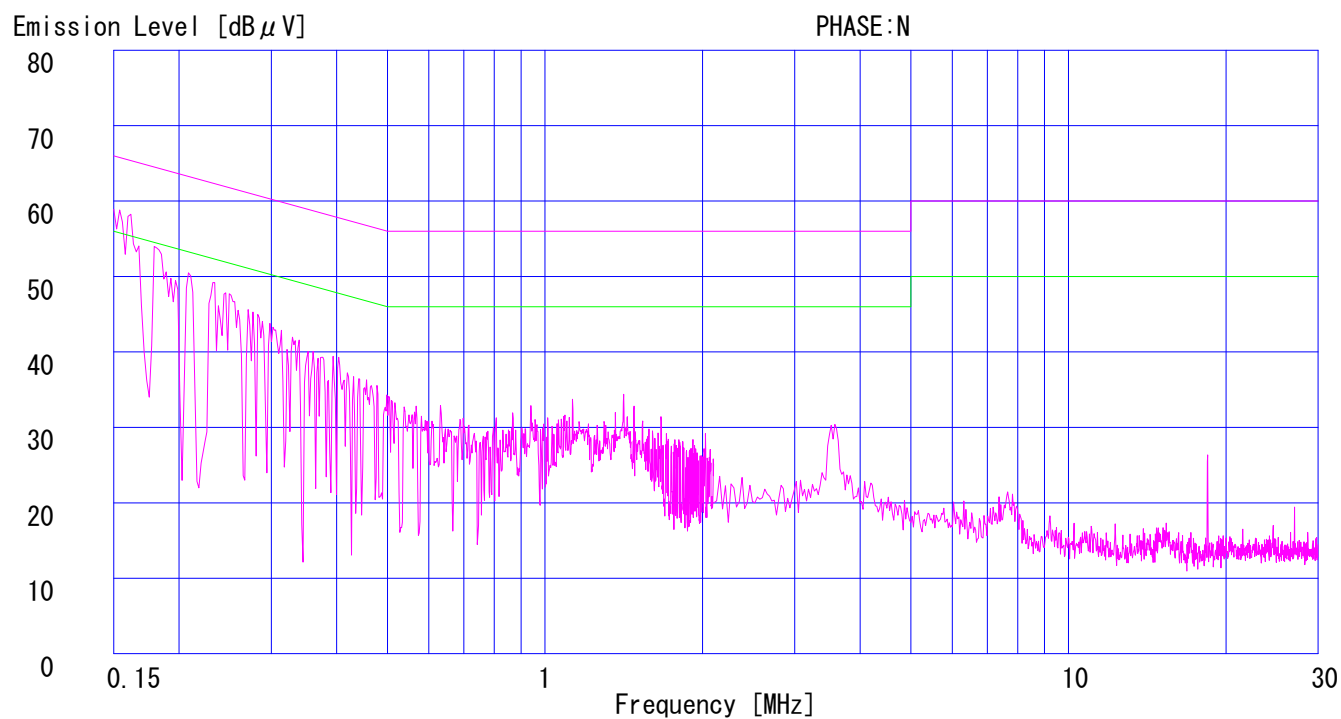
UL Apex Co., Ltd.

YOKOWA No.1 OPEN TEST SITE

Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : TV Reception+Rec (25dBmV)
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation 1 : FCC Part15B CLASS B (2003)
Regulation 2 : None

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST

UL Apex Co., Ltd.

YOKOWA No.1 OPEN TEST SITE

Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : AV Input+Rec (1Vp-p)
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation : FCC Part15B CLASS B (2003)

Engineer : Tomoyuki Yamashita

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dB μ V]	AV	QP [dB μ V]	AV				QP [dB]	AV [dB μ V]	QP [dB μ V]	AV [dB μ V]	QP [dB]	AV [dB]
1.	0.1551	47.5	-	47.5	-	0.0	0.2	0.0	47.7	-	65.7	55.7	18.0	-
2.	0.2000	42.3	-	42.5	-	0.1	0.2	0.0	42.8	-	63.6	53.6	20.8	-
3.	0.6327	26.8	-	25.0	-	0.1	0.3	0.0	27.2	-	56.0	46.0	28.8	-
4.	0.9538	25.3	-	26.3	-	0.1	0.3	0.0	26.7	-	56.0	46.0	29.3	-
5.	1.3300	25.7	-	25.3	-	0.1	0.3	0.0	26.1	-	56.0	46.0	29.9	-
6.	3.5472	27.6	-	28.4	-	0.4	0.3	0.0	29.1	-	56.0	46.0	26.9	-
7.	15.0400	16.4	-	25.5	-	1.3	0.5	0.0	27.3	-	60.0	50.0	32.7	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

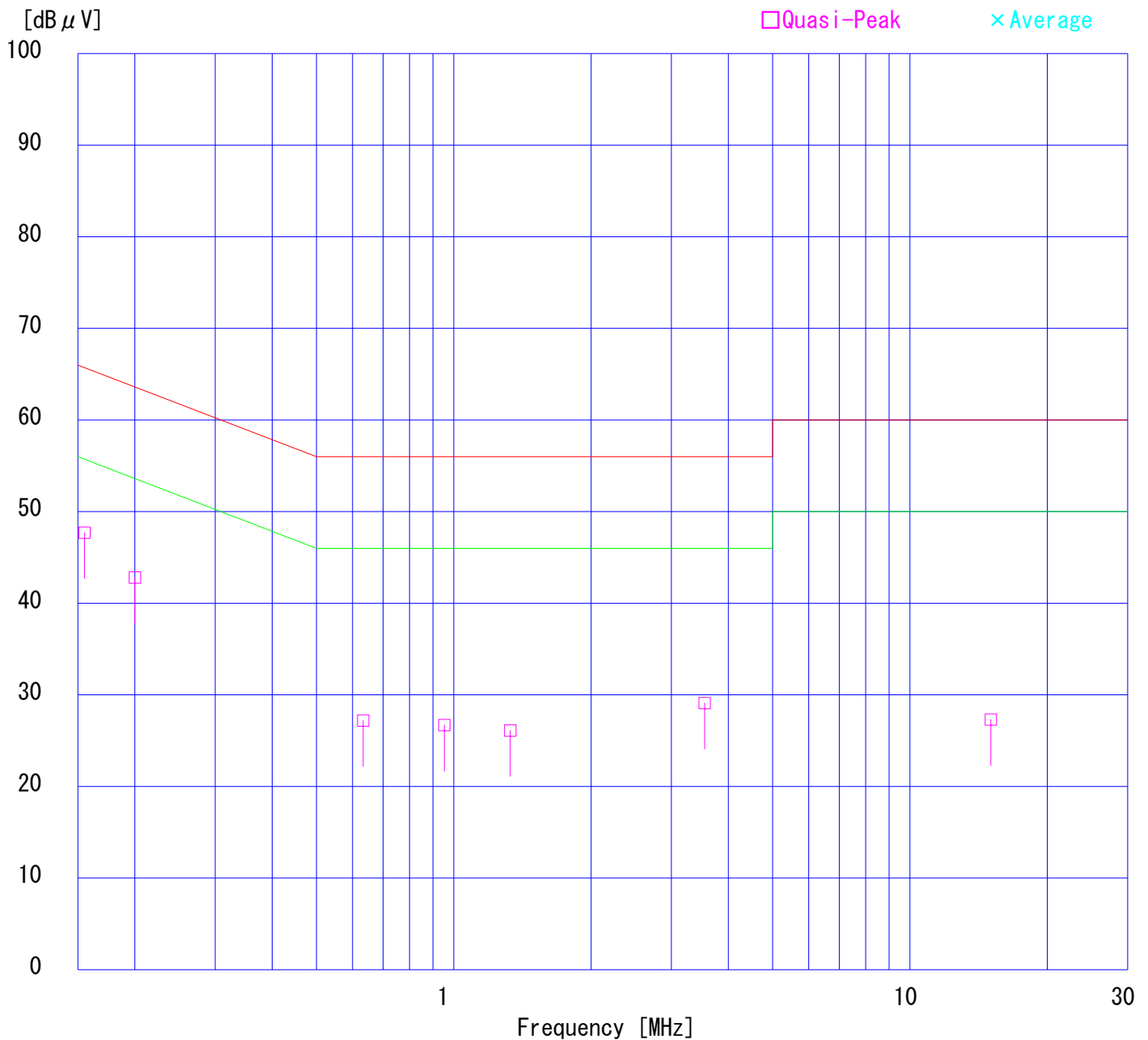
Except for the above table: adequate margin data below the limits.

DATA OF CONDUCTION TEST

UL Apex Co., Ltd.
YOKOWA No.1 OPEN TEST SITE
Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : AV Input+Rec(1Vp-p)
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation : FCC Part15B CLASS B(2003)

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST CHART

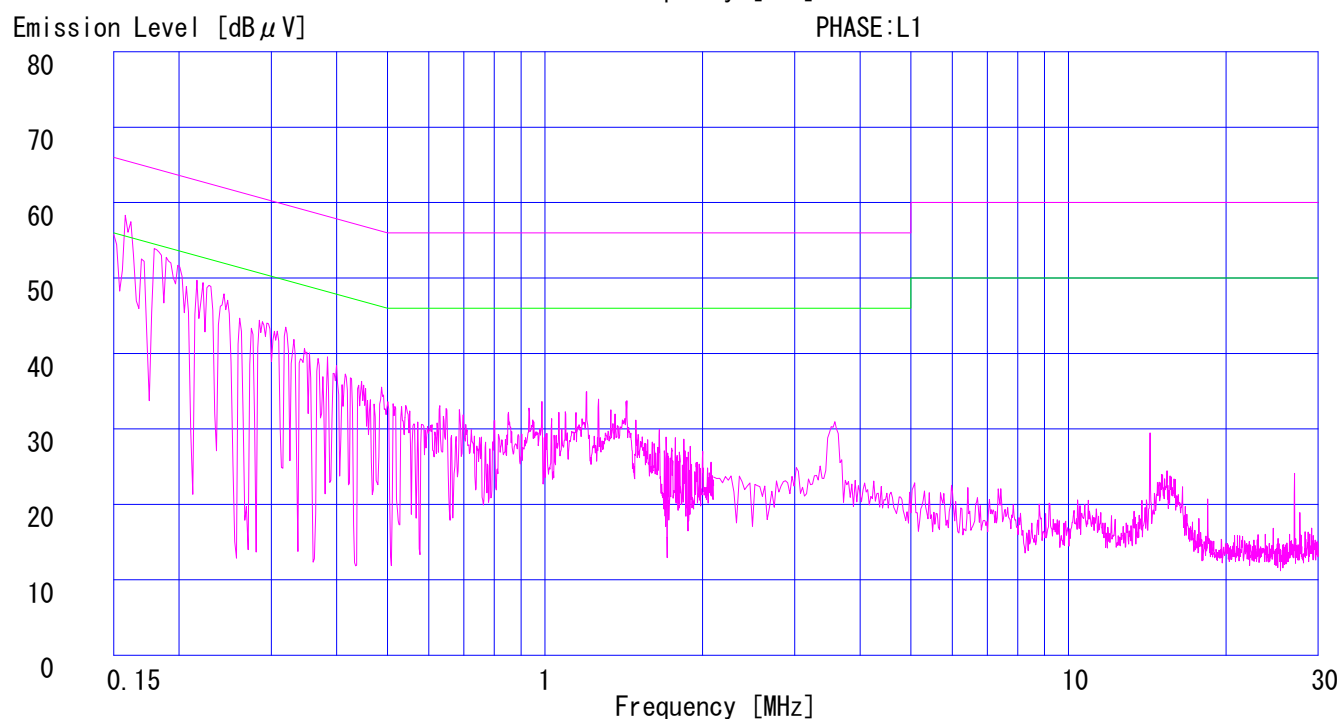
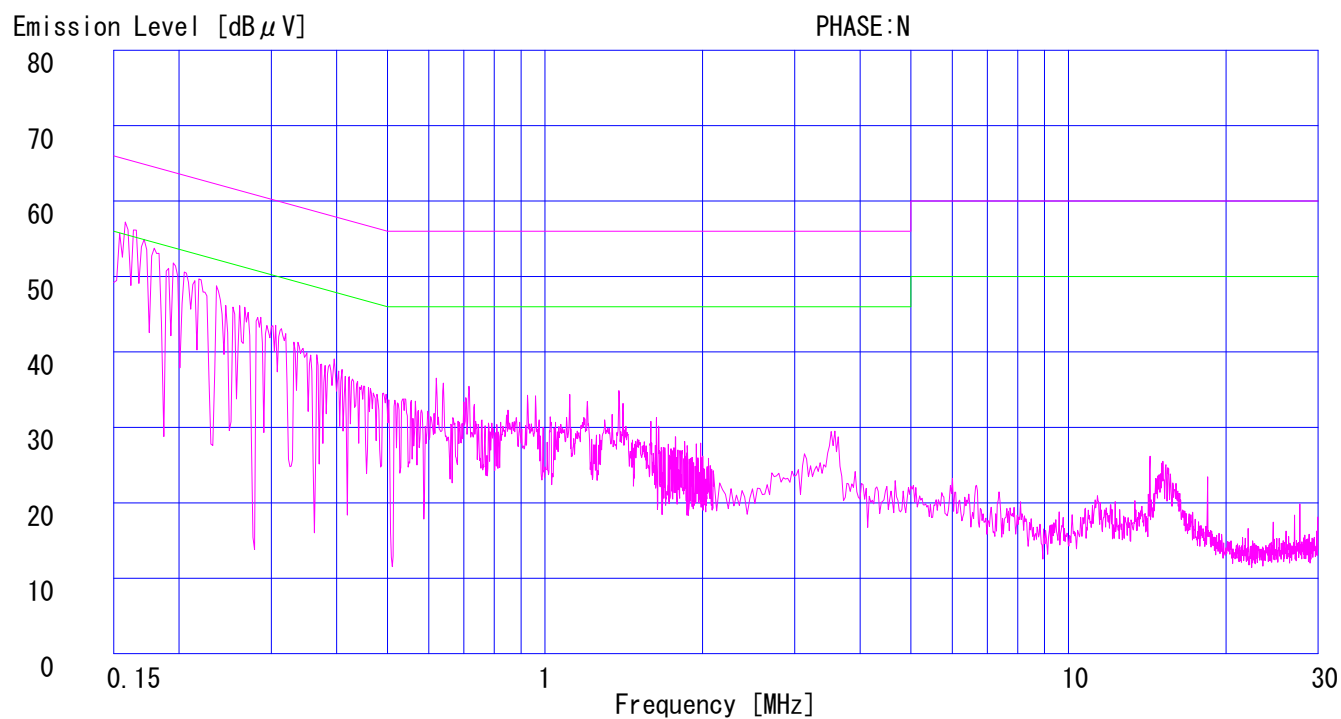
UL Apex Co., Ltd.

YOKOWA No.1 OPEN TEST SITE

Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : AV Input+Rec(1Vp-p)
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation 1 : FCC Part15B CLASS B(2003)
Regulation 2 : None

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST

UL Apex Co., Ltd.
YOKOWA No.1 OPEN TEST SITE
Report No. : 26CE0157-YW-1

Applicant	: Orion Electric Co., Ltd.		
Kind of Equipment	: DVD Player with Video Cassette Recorder		
Model No.	: VRDVD4100BA		
Serial No.	: -		
Power	: AC120V/60Hz		
Mode	: AV Input+Rec (5Vp-p)		
Remarks	:		
Date	: 10/21/2005		
Phase	: Single Phase		
Temperature	: 23 °C	Engineer	: Tomoyuki Yamashita
Humidity	: 43 %		
Regulation	: FCC Part15B CLASS B(2003)		

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dB μ V]	AV	QP [dB μ V]	AV				QP [dB]	AV [dB μ V]	QP [dB μ V]	AV	QP [dB μ V]	AV [dB]
1.	0.1550	47.7	-	48.0	-	0.0	0.2	0.0	48.2	-	65.7	55.7	17.5	-
2.	0.2000	41.8	-	42.4	-	0.1	0.2	0.0	42.7	-	63.6	53.6	20.9	-
3.	0.6250	25.1	-	27.4	-	0.1	0.3	0.0	27.8	-	56.0	46.0	28.2	-
4.	0.8672	25.0	-	27.0	-	0.1	0.3	0.0	27.4	-	56.0	46.0	28.6	-
5.	1.1787	27.4	-	26.6	-	0.1	0.3	0.0	27.8	-	56.0	46.0	28.2	-
6.	3.5490	26.3	-	27.5	-	0.4	0.3	0.0	28.2	-	56.0	46.0	27.8	-
7.	14.3186	27.1	-	27.0	-	1.3	0.5	0.0	28.9	-	60.0	50.0	31.1	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

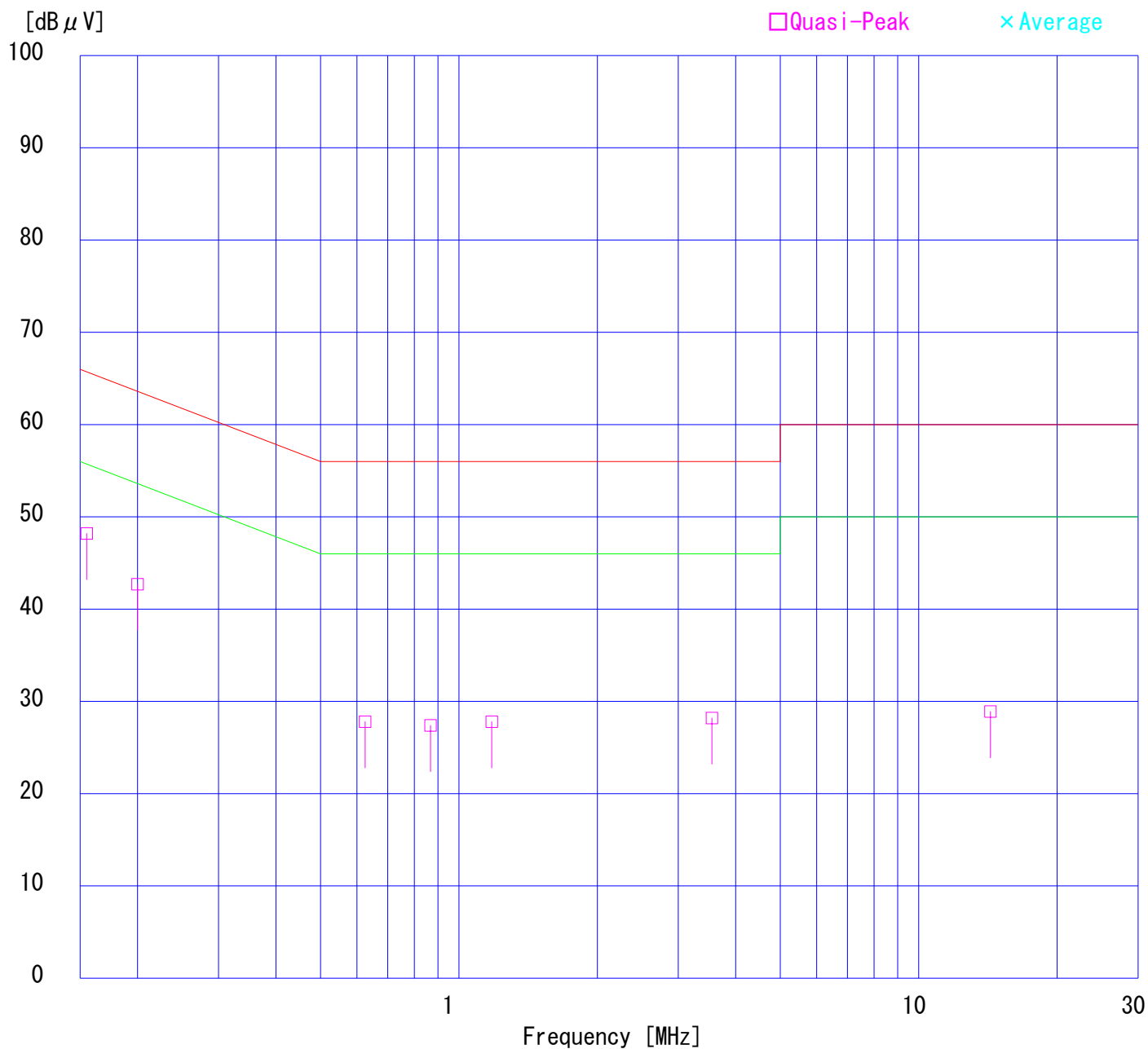
Except for the above table: adequate margin data below the limits.

DATA OF CONDUCTION TEST

UL Apex Co., Ltd.
YOKOWA No.1 OPEN TEST SITE
Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : AV Input+Rec (5Vp-p)
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation : FCC Part15B CLASS B (2003)

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST CHART

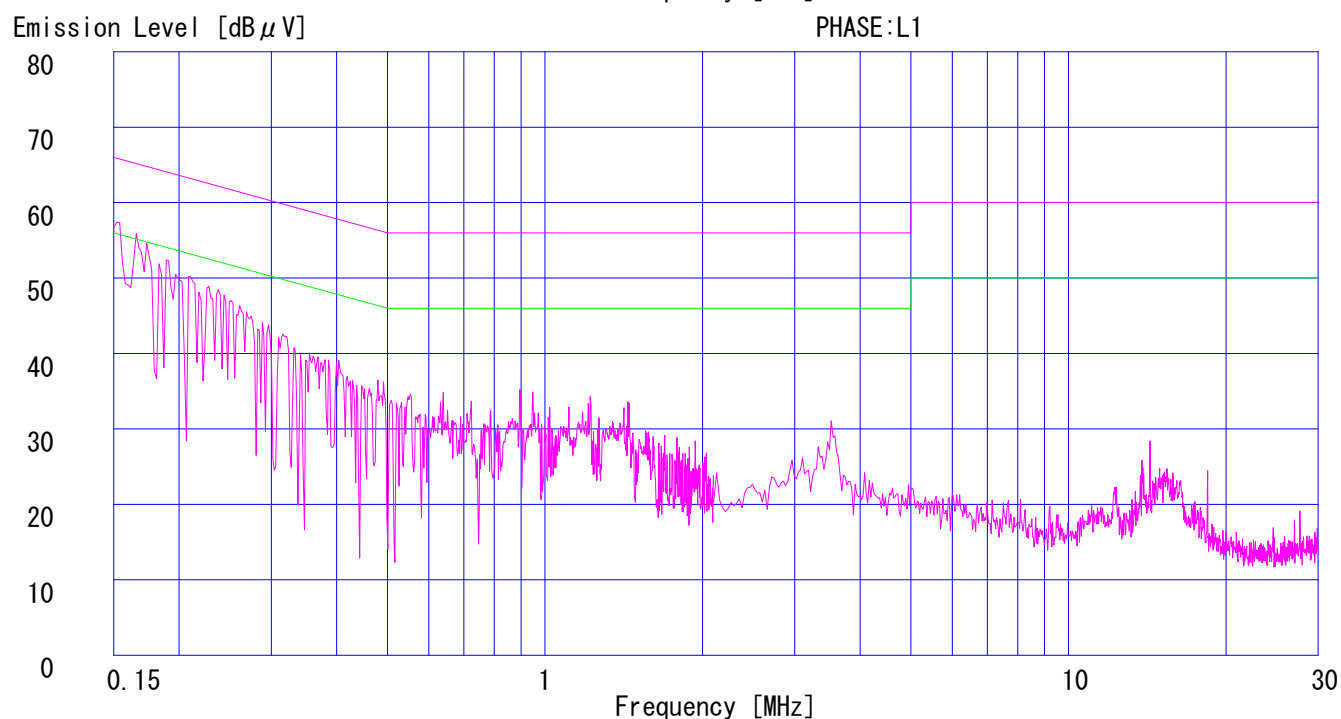
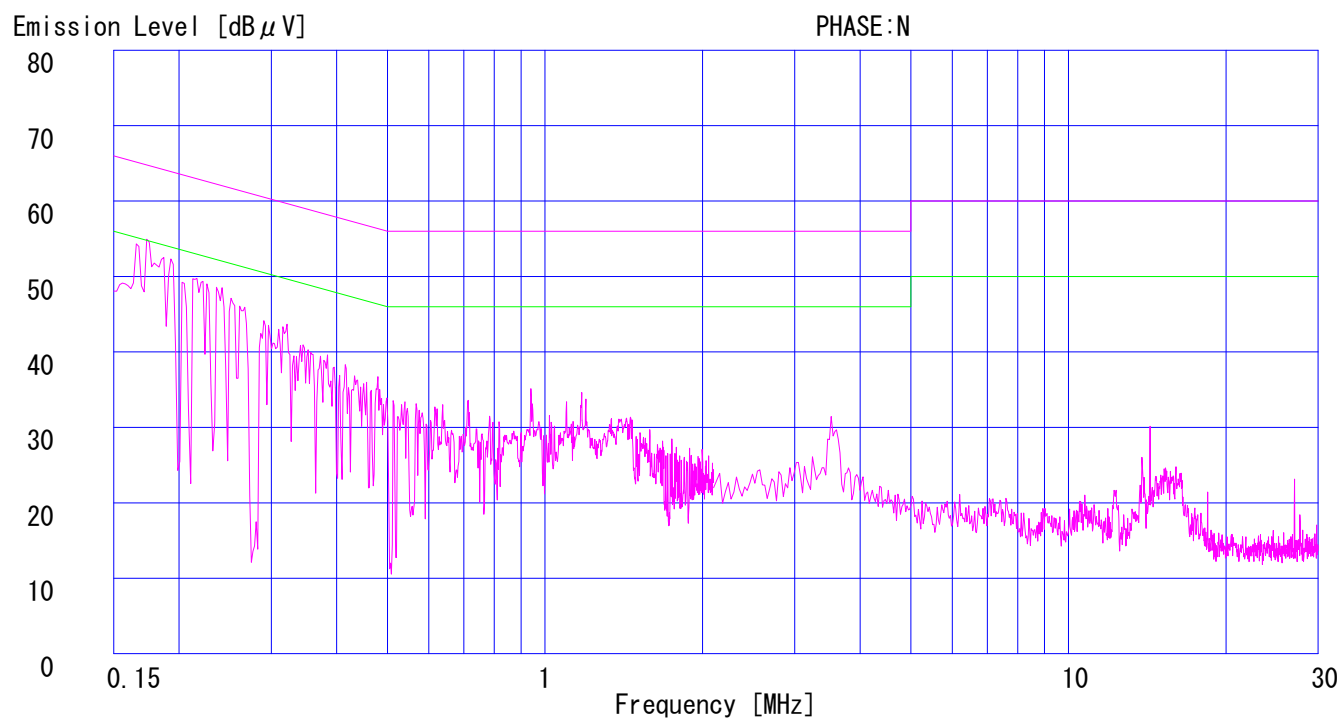
UL Apex Co., Ltd.

YOKOWA No.1 OPEN TEST SITE

Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : AV Input+Rec (5Vp-p)
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation 1 : FCC Part15B CLASS B (2003)
Regulation 2 : None

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST

UL Apex Co., Ltd.

YOKOWA No.1 OPEN TEST SITE

Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : VCR Playback
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation : FCC Part15B CLASS B(2003)

Engineer : Tomoyuki Yamashita

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dB μ V]	AV	QP [dB μ V]	AV				QP [dB]	AV [dB μ V]	QP [dB μ V]	AV [dB μ V]	QP [dB]	AV [dB]
1.	0.1550	46.4	-	47.0	-	0.0	0.2	0.0	47.2	-	65.7	55.7	18.5	-
2.	0.2000	41.4	-	42.5	-	0.1	0.2	0.0	42.8	-	63.6	53.6	20.8	-
3.	0.9926	23.5	-	25.8	-	0.1	0.3	0.0	26.2	-	56.0	46.0	29.8	-
4.	1.5700	20.0	-	21.5	-	0.2	0.3	0.0	22.0	-	56.0	46.0	34.0	-
5.	3.5477	18.6	-	25.1	-	0.4	0.3	0.0	25.8	-	56.0	46.0	30.2	-
6.	17.3770	26.8	-	26.0	-	1.4	0.5	0.0	28.7	-	60.0	50.0	31.3	-
7.	28.6376	28.3	-	28.8	-	1.8	0.7	0.0	31.3	-	60.0	50.0	28.7	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

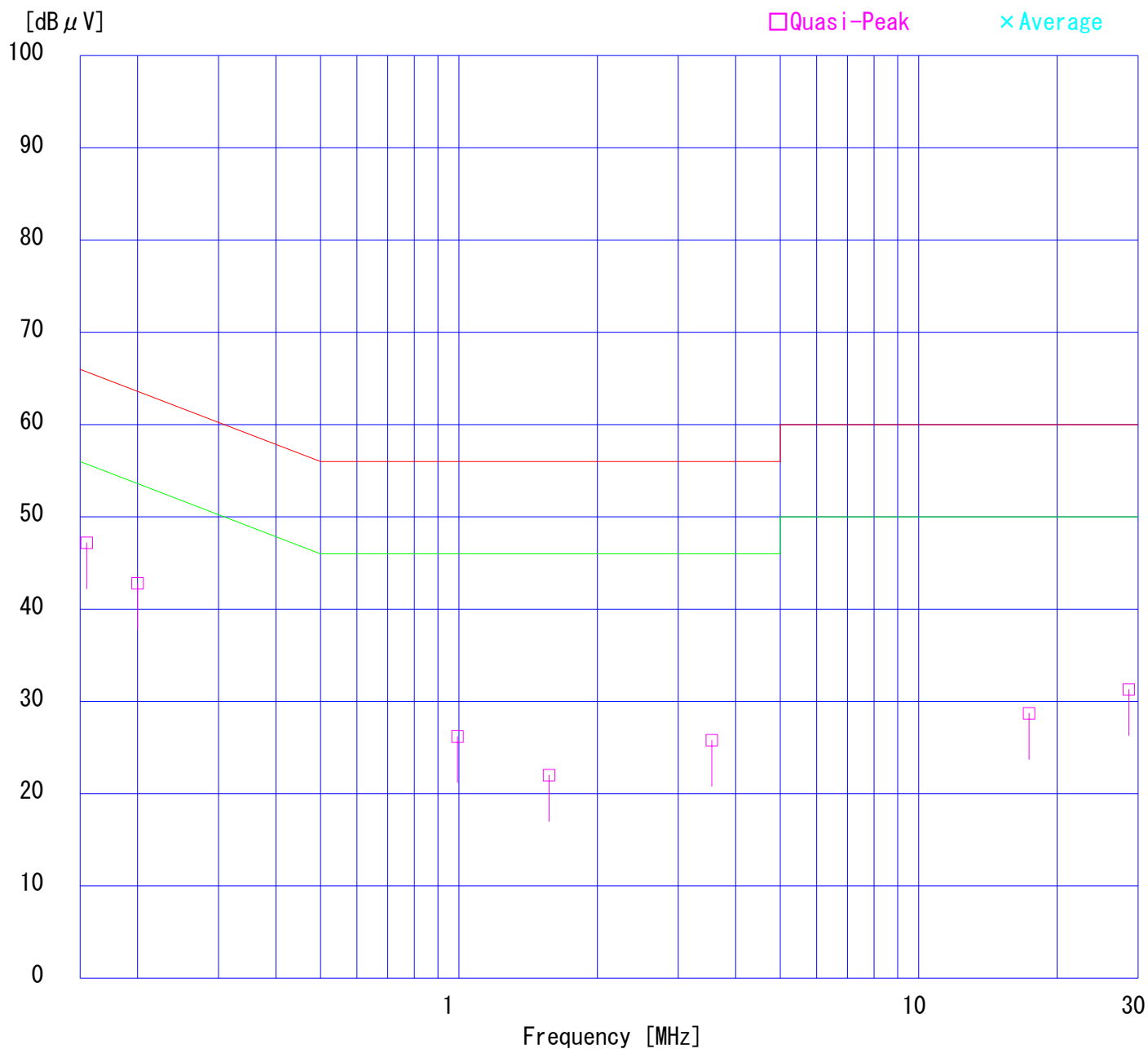
Except for the above table: adequate margin data below the limits.

DATA OF CONDUCTION TEST

UL Apex Co., Ltd.
YOKOWA No.1 OPEN TEST SITE
Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : VCR Playback
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation : FCC Part15B CLASS B(2003)

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST CHART

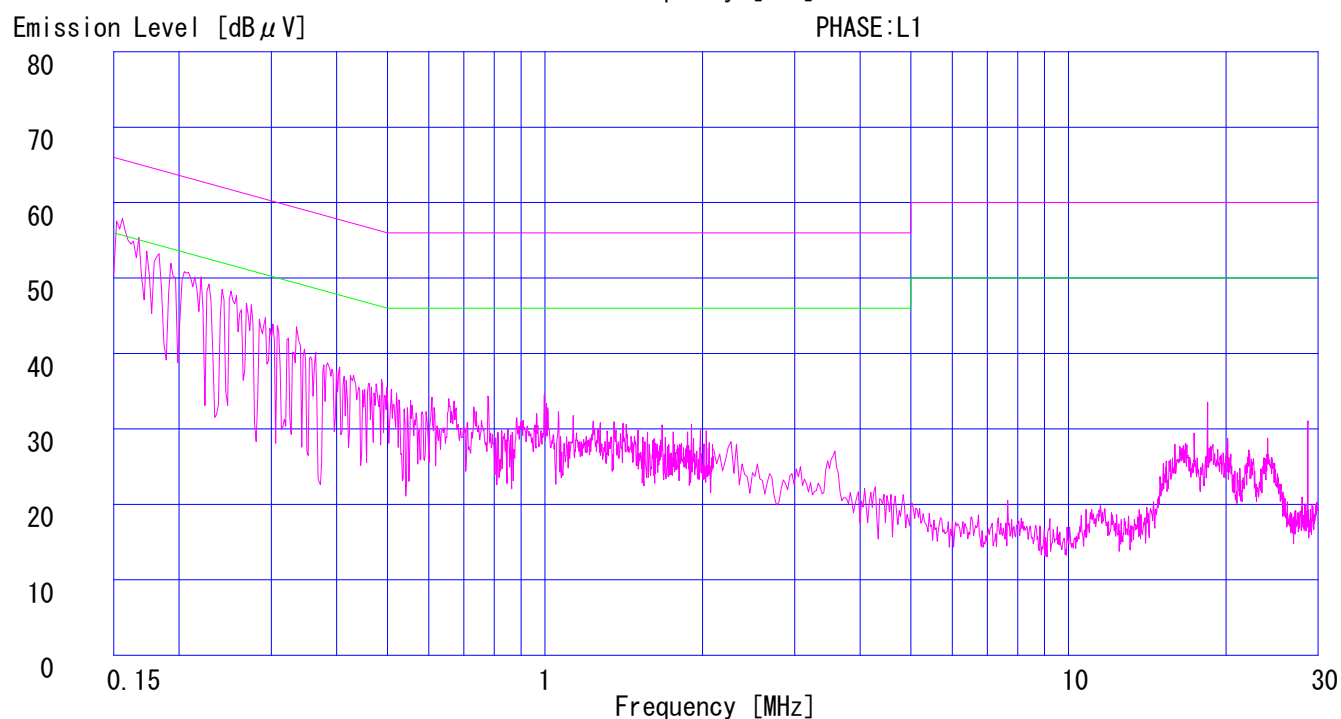
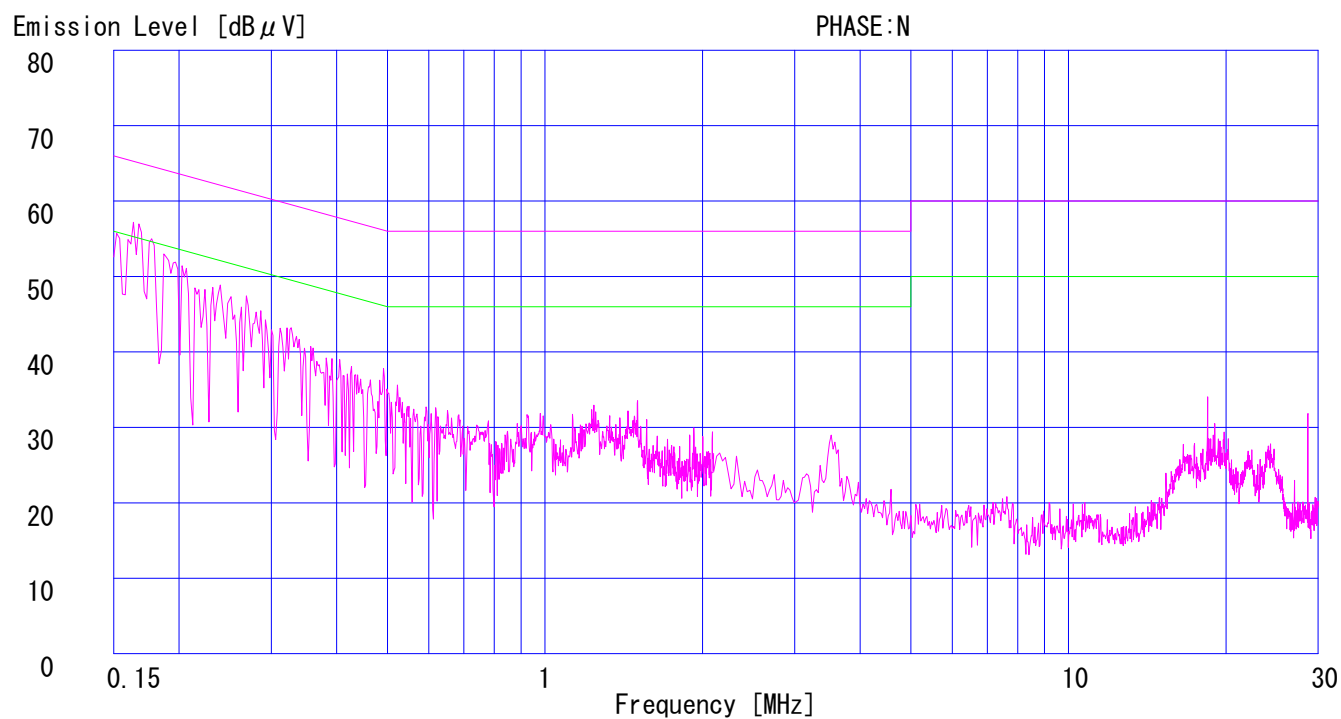
UL Apex Co., Ltd.

YOKOWA No.1 OPEN TEST SITE

Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : VCR Playback
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation 1 : FCC Part15B CLASS B (2003)
Regulation 2 : None

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST

UL Apex Co., Ltd.

YOKOWA No.1 OPEN TEST SITE

Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : DVD Play+Rec
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation : FCC Part15B CLASS B(2003)

Engineer : Tomoyuki Yamashita

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dB μ V]	AV	QP [dB μ V]	AV				QP [dB]	AV [dB μ V]	QP [dB μ V]	AV [dB μ V]	QP [dB]	AV [dB]
1.	0.1550	46.4	-	46.6	-	0.0	0.2	0.0	46.8	-	65.7	55.7	18.9	-
2.	0.2000	41.8	-	42.1	-	0.1	0.2	0.0	42.4	-	63.6	53.6	21.2	-
3.	1.0000	24.0	-	25.5	-	0.1	0.3	0.0	25.9	-	56.0	46.0	30.1	-
4.	1.2498	24.0	-	25.3	-	0.1	0.3	0.0	25.7	-	56.0	46.0	30.3	-
5.	3.5470	26.6	-	24.6	-	0.4	0.3	0.0	27.3	-	56.0	46.0	28.7	-
6.	17.3746	27.0	-	26.1	-	1.4	0.5	0.0	28.9	-	60.0	50.0	31.1	-
7.	28.6353	28.7	-	29.1	-	1.8	0.7	0.0	31.6	-	60.0	50.0	28.4	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

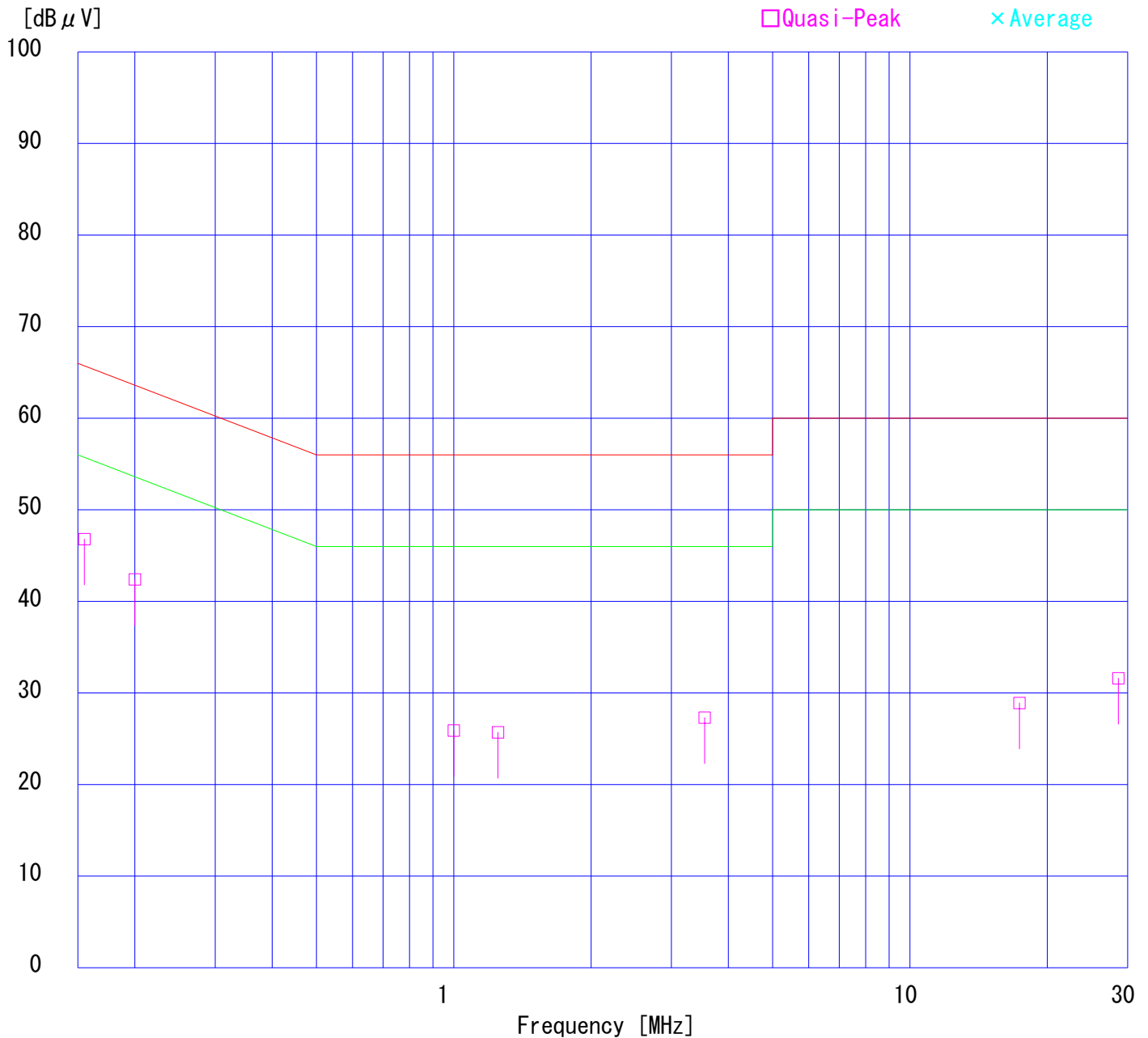
Except for the above table: adequate margin data below the limits.

DATA OF CONDUCTION TEST

UL Apex Co., Ltd.
YOKOWA No.1 OPEN TEST SITE
Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : DVD Play+Rec
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation : FCC Part15B CLASS B(2003)

Engineer : Tomoyuki Yamashita



DATA OF CONDUCTION TEST CHART

UL Apex Co., Ltd.

YOKOWA No.1 OPEN TEST SITE

Report No. : 26CE0157-YW-1

Applicant : Orion Electric Co., Ltd.
Kind of Equipment : DVD Player with Video Cassette Recorder
Model No. : VRDVD4100BA
Serial No. : -
Power : AC120V/60Hz
Mode : DVD Play+Rec
Remarks :
Date : 10/21/2005
Phase : Single Phase
Temperature : 23 °C
Humidity : 43 %
Regulation 1 : FCC Part15B CLASS B (2003)
Regulation 2 : None

Engineer : Tomoyuki Yamashita

