

TDK Corporation EMC Center
2-15-7 Higashi-Owada, Ichikawa-shi, Chiba-ken, 272-8558 Japan
Phone : 81-47-378-9483 Fax : 81-47-378-9178

Test Report

Date of issued : May 21, 2012
Issued in : TDK Corporation EMC Center

TDK Test Report No. : TDJ - 12 - 0502 - 01

1. Applicant : Creative Network Business Group, AVC Networks Company, Panasonic Corporation
1-15, Matsuo-cho, Kadoma City, Osaka, 571-8504, Japan
2. Description of Equipment Under Test (EUT)
 - 1) Kind of EUT : Multimedia System
 - 2) Condition : Pre-production sample
 - 3) Category : 47 C.F.R. Part 15 Class B, Subpart B Digital Device
 - 4) Trade Name : Panasonic
 - 5) Model No. : UN-W700
 - 6) Serial No. : DVT3
 - 7) Date of Manufacture : April 2012
 - 8) Rated Power Supply : 1 ϕ AC 100 - 240 V, 50 / 60 Hz
DC 3.7V (lithium-ion rechargeable battery)
 - 9) Tested Power Supply : 1 ϕ AC 120 V, 60 Hz
3. Baseline Test Methods : 47 C.F.R. Part 15 Class B, Subpart B
4. Measurement Procedure Used : ANSI C63.4-2003
5. Date of Measurement : May 11, 2012
6. Test Site : TDK Corporation EMC Center
2-15-7 Higashi-Owada, Ichikawa-shi, Chiba-ken, 272-8558 Japan
7. Test Results : The EUT complied with the requirement of the
47 C.F.R. Part 15 Class B
under the test configuration as shown in the attached sheets.
8. Deviation from the Test Methods : The test is not deviated from the baseline test methods.

The test results relate only to items tested. This report shall not be reproduced except in full without the written approval of the TDK Corporation. This test results are traceable to the national or international standard.

We hereby certify that no party to the applications authorized hereunder is subject to a denial of benefits, including FCC benefits, pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U. S. C 853(a).



Kunio Yata
Manager

TDK Test Report No. : TDJ - 12 - 0502 - 01
Kind of EUT : Multimedia System
Model No. : UN-W700

Highest Frequency Used in the EUT : 1000.0000 MHz

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
☐ Below 1.705	30
☐ 1.705 - 108	1000
☐ 108 - 500	2000
☐ 500 - 1000	5000
☒ Above 1000	5000

Note : Above 1000 : 5th harmonic of the highest frequency or 40 GHz, whichever is lower

TDK Test Report No. : TDJ - 12 - 0502 - 01
 Kind of EUT : Multimedia System
 Model No. : UN-W700

Summary of Test Results

The tests were performed in accordance with the procedures described in ANSI C63.4-2003.
 The test results show that EUT conforms to the requirement of 47 C.F.R. Rule Part 15 Class B Subpart B Section 107 and 109 as shown in the test data on page 4, 6 and 8.

1. Summary of Radiated Emission Test Result

Test Result : Passed
 Measurement Frequency Range : 30 MHz - 1000 MHz
 Minimum Margin to the Limit : 9.0 dB at 120.381 MHz
 Antenna Polarization : Horizontal
 Turntable Angle : 74 °
 Antenna Height : 2.62 m
 Measurement Uncertainty (k=2) : 2.58

※ Based on the Requirement of CISPR 16-4-2:2003

Note : 1) The measurement was performed based on the test procedure of Radiated Emission described on page 4.

Tested by : Kyosuke Takahashi
 Engineer

1. Summary of Radiated Emission Test Result

Test Result : Passed
 Measurement Frequency Range : 1000 MHz - 5000 MHz
 Minimum Margin to the Limit (Peak) : 26.5 dB at 1127.690 MHz
 Antenna Polarization : Horizontal
 Turntable Angle : 7 °
 Antenna Height : 109.00 m
 Minimum Margin to the Limit (Ave.) : 29.8 dB at 1625.420 MHz
 Antenna Polarization : Horizontal
 Turntable Angle : 251 °
 Antenna Height : 102.00 m
 Measurement Uncertainty (k=2) : 4.71

※ Based on the Requirement of CISPR 16-4-2:2003

Note : 1) Minimum Margin to the Limit (Peak) :
 The measurement was performed based on the test procedure of Radiated Emission described on page 6.
 2) Minimum Margin to the Limit (Ave.) :
 The measurement was performed based on the test procedure of Radiated Emission described on page 6.

Tested by : Kyosuke Takahashi
 Engineer

2. Summary of Powerline Conducted Emission Test Result

Test Result : Passed
 Measurement Frequency Range : 150 kHz - 30 MHz
 Minimum Margin to the Limit (Q.P.) : 22.4 dB at 3.4351 MHz
 Minimum Margin to the Limit (Ave.) : 22.7 dB at 0.4357 MHz
 Measurement Uncertainty (k=2) : 2.63

※ Based on the Requirement of CISPR 16-4-2:2003

Note : 1) Minimum Margin to the Limit (Q.P.) :
 The measurement was performed based on the test procedure of Powerline Conducted Emission described on page 8.
 2) Minimum Margin to the Limit (Ave.) :
 The measurement was performed based on the test procedure of Powerline Conducted Emission described on page 8.

Tested by : Kyosuke Takahashi
 Engineer

Date of measurement : May 11 , 2012
Temperature : 22 °C ; Humidity : 53 %

Baseline Test Methods : 47 C.F.R. Part 15 Class B , Subpart B

[illegible]

Remark : 1) Emission level was measured at the worst case condition.

Tested by : Kyosuke Takahashi
Engineer

TDK Test Report No. : TDJ - 12 - 0502 - 01
 Kind of EUT : Multimedia System
 Model No. : UN-W700

Measurement Results of Radiated Emission at 3 m

Date of measurement : May 11, 2012
 Temperature : 22 °C ; Humidity : 53 %

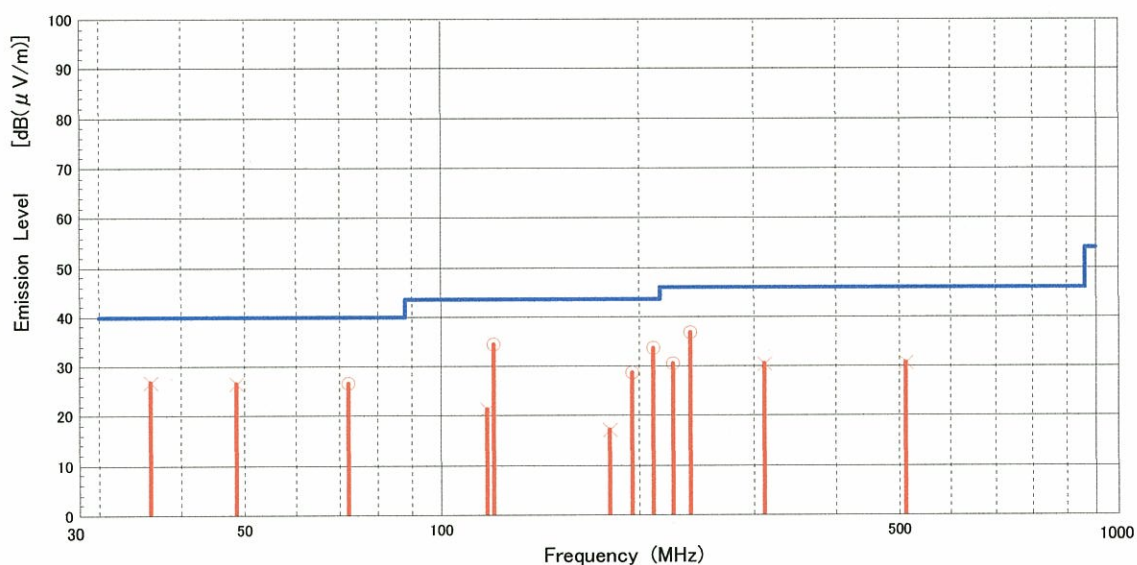
Test Receiver Operating Condition : Detector function : CISPR. Q.P. (30 MHz - 1 GHz)
 6 dB bandwidth : 120 kHz (30 MHz - 1 GHz)

Kind of EUT : Multimedia System
 Model No. : UN-W700
 Serial No. : DVT3
 Configuration of EUT : Refer to page 10, 11 and 14.
 EUT Grounding : None

Tested Power Supply : 1 ϕ AC 120 V , 60 Hz
 Operating Condition : USB-Mass storage / Charge

Baseline Test Methods : 47 C.F.R. Part 15 Class B , Subpart B

○ Horizontal (Q.P.) × Vertical (Q.P.) — Limits Line (Q.P.)



Note :

Remark : 1) Emission level was measured at the worst case condition.

TDK Test Report No. : TDJ - 12 - 0502 - 01
 Kind of EUT : Multimedia System
 Model No. : UN-W700

Measurement Results of Radiated Emission at 3 m

Date of measurement : May 11, 2012
 Temperature : 22 °C ; Humidity : 53 %

Test Receiver Operating Condition : Detector function : Peak, Ave. (Above 1 GHz)
 6 dB bandwidth : 1 MHz (Above 1 GHz)

Kind of EUT : Multimedia System

Model No. : UN-W700

Serial No. : DVT3

Configuration of EUT : Refer to page 10, 11 and 15.

EUT Grounding : None

Tested Power Supply : 1 ϕ AC 120 V, 60 Hz

Operating Condition : USB-Mass storage / Charge

Baseline Test Methods : 47 C.F.R. Part 15 Class B, Subpart B

Frequency (MHz)	Correction Factor (dB/m)	Meter Reading [dB(μ V)]				Limit		Emission Level [dB(μ V/m)]				Margin	
		Horizontal		Vertical		[dB(μ V/m)]		Horizontal		Vertical		(dB)	
		Peak	Ave.	Peak	Ave.	Peak	Ave.	Peak	Ave.	Peak	Ave.	Peak	Ave.
1127.690	-15.5	63.0	37.3	-----	-----	74.0	54.0	47.5	21.8	-----	-----	26.5	32.2
1128.650	-15.5	-----	-----	58.9	35.0	74.0	54.0	-----	-----	43.4	19.5	30.6	34.5
1152.950	-15.3	52.3	34.4	-----	-----	74.0	54.0	37.0	19.1	-----	-----	37.0	34.9
1362.820	-14.1	57.9	37.9	-----	-----	74.0	54.0	43.8	23.8	-----	-----	30.2	30.2
1362.850	-14.1	-----	-----	53.0	34.6	74.0	54.0	-----	-----	38.9	20.5	35.1	33.5
1516.860	-14.0	59.2	37.3	-----	-----	74.0	54.0	45.2	23.3	-----	-----	28.8	30.7
1537.020	-14.0	-----	-----	56.2	34.9	74.0	54.0	-----	-----	42.2	20.9	31.8	33.1
1625.420	-13.8	59.4	38.0	-----	-----	74.0	54.0	45.6	24.2	-----	-----	28.4	29.8
1679.390	-13.5	-----	-----	58.0	34.1	74.0	54.0	-----	-----	44.5	20.6	29.5	33.4
2126.250	-9.9	-----	-----	51.6	31.5	74.0	54.0	-----	-----	41.7	21.6	32.3	32.4
2641.030	-8.4	50.1	30.0	-----	-----	74.0	54.0	41.7	21.6	-----	-----	32.3	32.4
2881.410	-7.1	-----	-----	44.5	28.5	74.0	54.0	-----	-----	37.4	21.4	36.6	32.6

Note : 1) Correction Factor = Antenna factor + Cable loss - Pre-amplifier gain
 2) Emission Level = Meter Reading + Correction Factor
 3) Level μ V/m = Common Antilogarithm [(Emission Level dB μ V/m) / 20]
 Remark : 1) Emission level was measured at the worst case condition.

Tested by : Kyosuke Takahashi
 Engineer

TDK Test Report No. : TDJ - 12 - 0502 - 01
 Kind of EUT : Multimedia System
 Model No. : UN-W700

Measurement Results of Radiated Emission at 3 m

Date of measurement : May 11, 2012

Temperature : 22 °C ; Humidity : 53 %

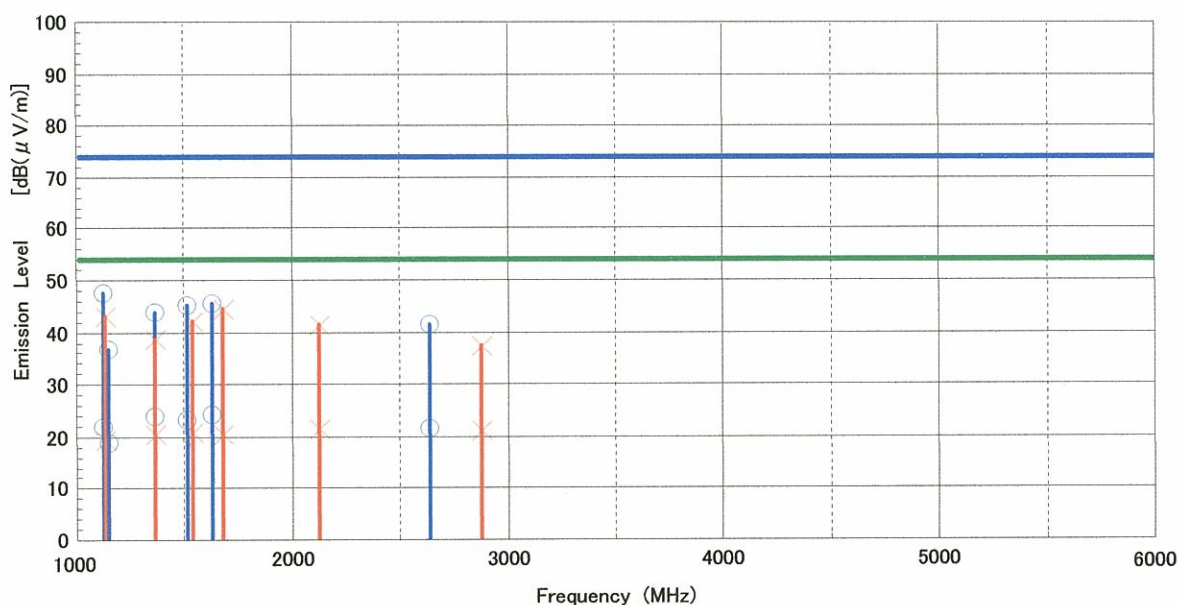
Test Receiver Operating Condition : Detector function : Peak , Ave. (Above 1 GHz)
 6 dB bandwidth : 1 MHz (Above 1 GHz)

Kind of EUT : Multimedia System
 Model No. : UN-W700
 Serial No. : DVT3
 Configuration of EUT : Refer to page 10 , 11 and 15.
 EUT Grounding : None

Tested Power Supply : 1 ϕ AC 120 V , 60 Hz
 Operating Condition : USB-Mass storage / Charge

Baseline Test Methods : 47 C.F.R. Part 15 Class B , Subpart B

○ Horizontal (Peak) × Vertical (Peak) — Limits Line (Peak)
 ○ Horizontal (Ave.) × Vertical (Ave.) — Limits Line (Ave.)



Note :

Remark : 1) Emission level was measured at the worst case condition.

Date of measurement : May 11 , 2012
Temperature : 22 °C ; Humidity : 53 %

Baseline Test Methods : 47 C.F.R. Part 15 Class B

[illegible]

Remark : 1) Emission level was measured at the worst case condition.

Tested by : Kyosuke Takahashi
Engineer

TDK Test Report No. : TDJ - 12 - 0502 - 01
 Kind of EUT : Multimedia System
 Model No. : UN-W700

Measurement Results of Powerline Conducted Emission

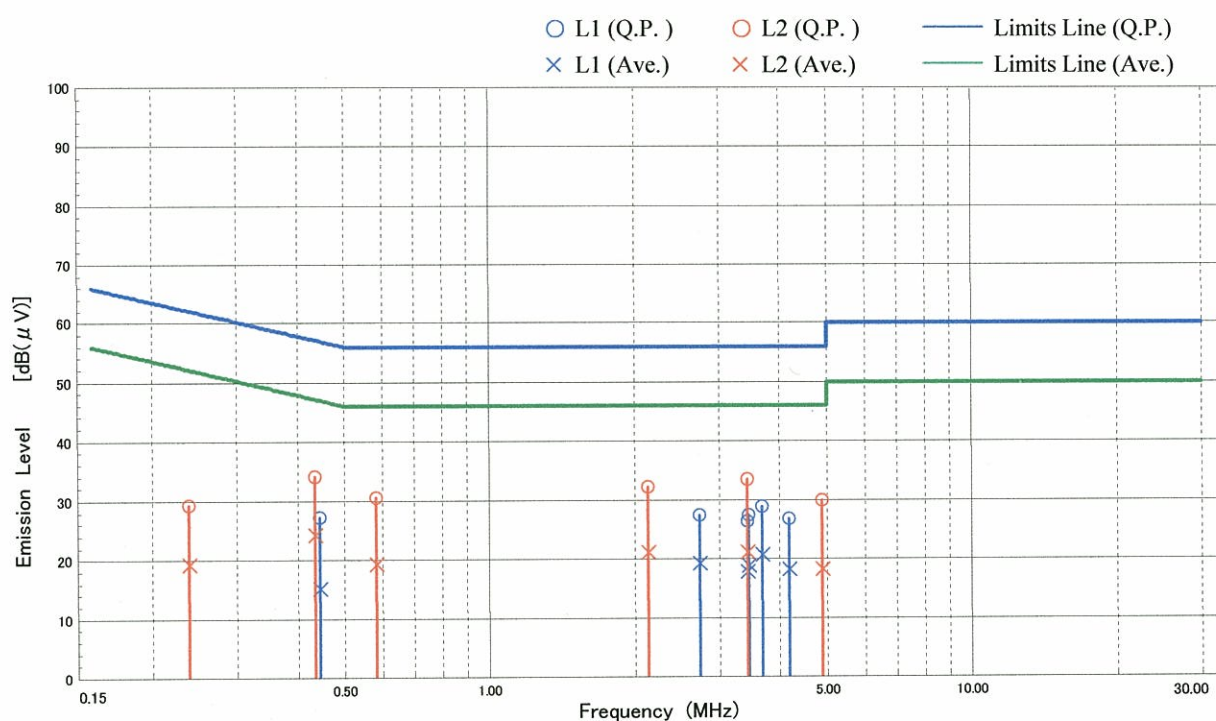
Date of measurement : May 11, 2012
 Temperature : 22 °C ; Humidity : 53 %

Test Receiver Operating Condition : Detector function : CISPR, Q.P., Ave.
 6 dB bandwidth : 9 kHz (150 kHz - 30 MHz)

Kind of EUT : Multimedia System
 Model No. : UN-W700
 Serial No. : DVT3
 Configuration of EUT : Refer to page 12, 13 and 16.
 EUT Grounding : None

Tested Power Supply : 1 ϕ AC 120 V, 60 Hz
 Operating Condition : Video playback

Baseline Test Methods : 47 C.F.R. Part 15 Class B

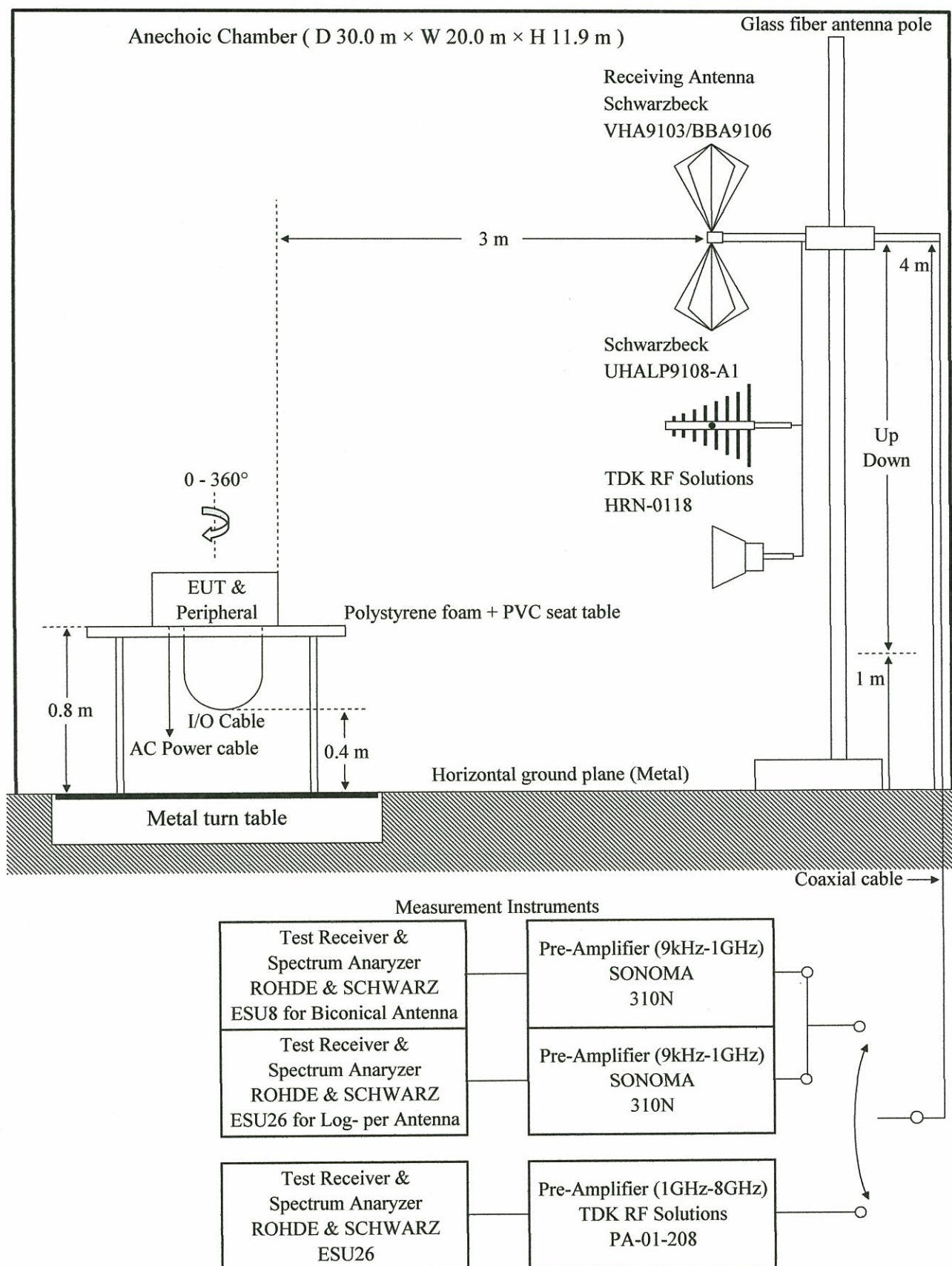


Note :

Remark : 1) Emission level was measured at the worst case condition.

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 Kind of EUT : Multimedia System
 Model No. : UN-W700

Figure of Test Set - up for Radiated Emission



Note :

TDK Test Report No. : TDJ - 12 - 0502 - 01
Kind of EUT : Multimedia System
Model No. : UN-W700

Test Procedure of Radiated Emission :

Preliminary radiated measurements were performed at the measurement distance specified for compliance to determine the emission characteristics of the EUT based on ANSI C63.4-2003.

The EUT was set up in its typical configuration and operated in its various modes in order. For tabletop systems, cables or wires were manipulated within the range of likely configurations.

For each mode of operation required to be tested, the frequency spectrum was monitored. Antenna height, EUT azimuth, antenna polarization, and cable or wire placement were varied for exploration to produce the maximized emission relative to the limit. Antenna height was varied from 1m to 4m step by step with 1m step, and the EUT on the turntable was rotated in 360° at each antenna height to detect maximized radiated emission while monitoring spectrum analyzer. The frequency and amplitude of the suspect signals (or the highest 10 to 20 amplitudes and frequencies) were recorded. At the frequency of suspect signal, interface cables positions were varied in order to determine the maximum emission level.

Furthermore, the EUT was rotated 360° and antenna height was varied to maximize the suspected highest amplitude signal.

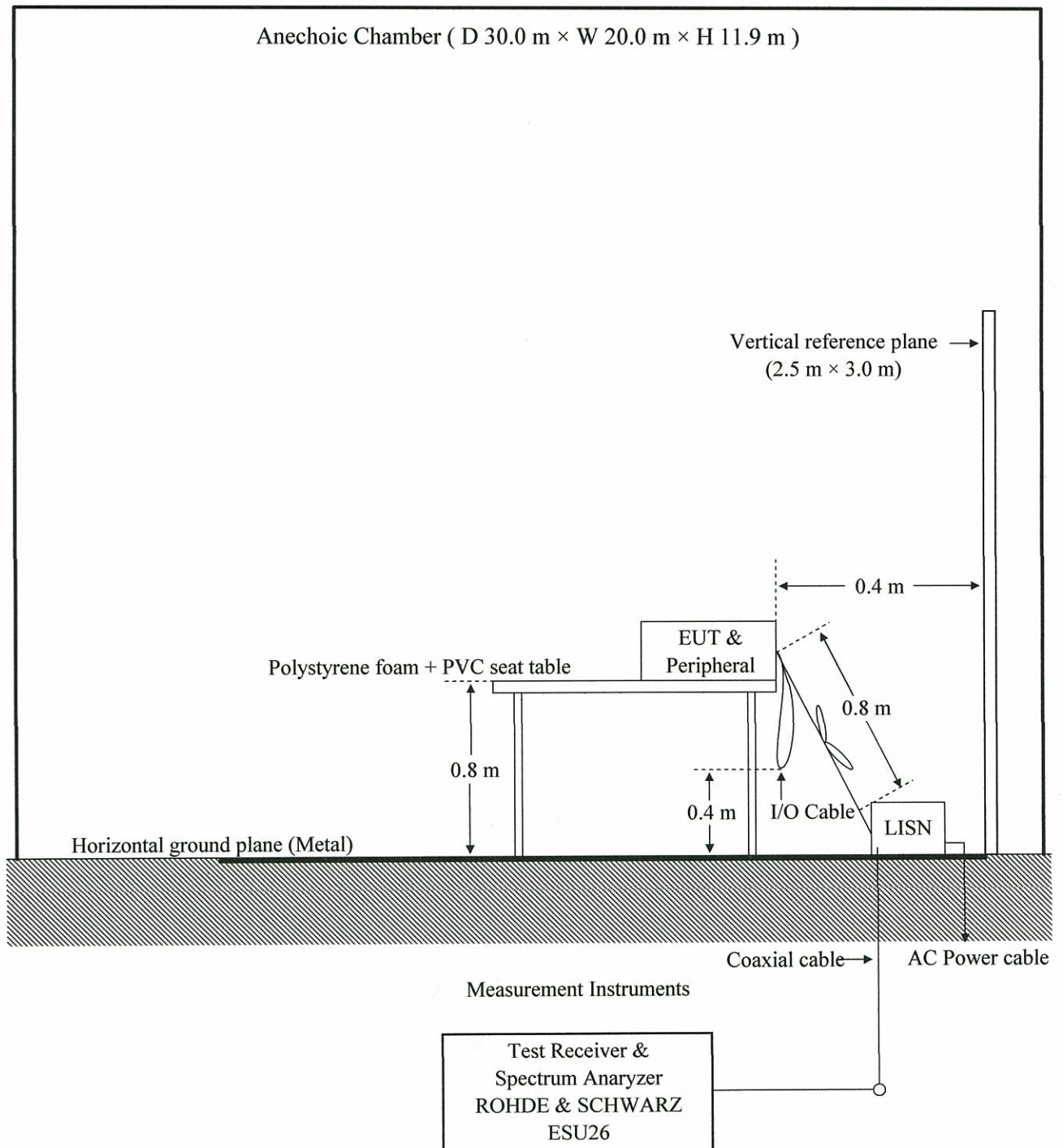
In case that the EUT has multiple ports all of the same type, additional connecting cables were added to the EUT to determine the effect these cables have on emission from the EUT. The additional cables were added to the condition where the addition of another cables did not significantly affect the emission level, i. e. , varied less than 2dB provided that the emission level remained compliant.

Based on the preliminary radiated measurements, the one EUT configuration, cable or wire configuration, and mode of operation that produced the highest emission level relative to limit was selected for the final test.

The final test was performed and the frequency and amplitude of the suspect signals (or the highest 10 to 20 amplitudes and frequencies) were measured with CISPR QP mode and recorded.

TDK Test Report No. : TDJ - 12 - 0502 - 01
Kind of EUT : Multimedia System
Model No. : UN-W700

Figure of Test Set-up for Powerline Conducted Emission



Note :

TDK Test Report No. : TDJ - 12 - 0502 - 01
Kind of EUT : Multimedia System
Model No. : UN-W700

Test Procedure of Powerline Conducted Emission :

According to ANSI C63.4-2003 the preliminary power line conduction emission measurement was performed.

Tabletop devices were placed on a platform of nominal size, 1m by 2.0m, raised 0.8m above the conducting ground plane. The vertical conducting plane was located 0.4m to the rear of the EUT.

All other surfaces of EUT were placed at least 0.8m from any other grounded conducting surfaces including the cases of LISNs.

Each EUT current - carrying power lead, except the safety lead, was individually connected through the LISN to the input power source. The unused 50 Ω connector of the LISN was terminated with 50 Ω terminator. When the EUT comprised multiple units that had their own individual power cords, power line conducted emissions measurements were performed with the line cord of the particular unit under test connected to one LISN that was connected to the measuring instrument. Those power cords for the units in the remainder of the configuration not under measurement were connected to a multiple outlet which was connected to an LISN different from the LISN used for the power cord of the EUT.

The preliminary testing was performed to identify the frequency of the emissions that had the highest amplitude relative to the limit by operating the EUT in selected typical modes of operation, typical cable positions, and with a typical or representative system configuration.

For each mode of operation and for each current - carrying conductor, cable or wire manipulation were performed within the range of likely configurations. For this series of tests, the frequency spectrum of interest were monitored looking for the emission that had the highest amplitude relative to the limit. Once that emission was found for each current carrying conductor of each power cord associated with the EUT, the one configuration and mode of operation that produced the emission closest to the limit was recorded.

Based on the preliminary tests of EUT, the one EUT and cable or wire configuration and mode of operation that produced the emission with the highest amplitude relative to the limit was selected for the final test.

The final test was performed and the frequency and amplitude of the suspect signals (or the highest 10 to 20 amplitudes and frequencies) were measured with CISPR QP mode and recorded.

TDK Test Report No. : TDJ - 12 - 0502 - 01

Kind of EUT : Multimedia System

Model No. : UN-W700

Measuring Instrument Used

(1) Radiated Emission Test Below 1GHz

Instrument	Trade Name	Model No.	Serial No.	Last Calibration Date	Calibration Due Date	Note
Spectrum Analyzer / EMI Test Receiver	ROHDE& SCHWARZ	ESU26	100214	November 29 , 2011	November 29 , 2012	For the final measurement
Spectrum Analyzer / EMI Test Receiver	ROHDE& SCHWARZ	ESU8	100243	November 1 , 2011	November 1 , 2012	For the final measurement
Pre-Amplifire	SONOMA INSTRUMEN	310N	301407	May 31 , 2011	May 31 , 2012	
Pre-Amplifire	SONOMA INSTRUMEN	310N	301408	May 31 , 2011	May 31 , 2012	
Biconical Antenna	Schwarzbeck	VHA9103 /BBA9106	VHA91032722	November 25 , 2011	November 25 , 2012	
Log- per Antenna	Schwarzbeck	UHALP9108-A1	UHALP9108-A 0917	November 26 , 2011	November 26 , 2012	
Software	TOYO	EP7RE	Ver.4.1.0	-----	-----	For the Pre-measurement
10m Anechoic Chamber (10m_SAC_2)	TDK	-----	-----	May 7 , 2010	May 6 , 2013	

(2) Radiated Emission Test Above 1GHz

Instrument	Trade Name	Model No.	Serial No.	Last Calibration Date	Calibration Due Date	Note
Spectrum Analyzer / EMI Test Receiver	ROHDE& SCHWARZ	ESU26	100214	November 29 , 2011	November 29 , 2012	For the final measurement
Pre-Amplifire	TDK RF Solutions	PA-01-208	12200909	May 31 , 2011	May 31 , 2012	
Horn Antenna	TDK RF Solutions	HRN-0118	130542	February 29 , 2012	February 28 , 2013	
Software	TOYO	EP7RE	Ver.4.1.0	-----	-----	For the Pre-measurement
10m Anechoic Chamber (10m_SAC_2)	TDK	-----	-----	May 7 , 2010	May 6 , 2013	

(3) Powerline Conducted Emission Test

Instrument	Trade Name	Model No.	Serial No.	Last Calibration Date	Calibration Due Date	Note
Spectrum Analyzer / EMI Test Receiver	ROHDE& SCHWARZ	ESU26	100214	November 29 , 2011	November 29 , 2012	For the final measurement
LISN (50 Ω / 50 μ H)	Kyoritsu	KNW-407FR	8-2015-2	December 1 , 2011	December 1 , 2013	
Software	TOYO	EP7CE	Ver.4.1.0	-----	-----	For the Pre-measurement
10m Anechoic Chamber (10m_SAC_2)	TDK	-----	-----	May 7 , 2010	May 6 , 2013	