



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

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EMC TEST REPORT For FCC

Test Report No. : CTK-2012-00669

Date of Issue : June 7, 2012

Model/Type No. : MDR-1RBT

Kind of Product : Wireless Stereo Headset

Applicant : Sony Corporation

Applicant Address : 1-7-1 Konan, Minato-ku, Tokyo 108-0075, Japan

Manufacturer : Cresyn Co., Ltd.

Manufacturer Address : 8-22, Jamwon-dong, Seocho-gu, Seoul, Korea

Contact Person : Kazunaga Kinjo

Telephone : +81-3-5769-5640

Received Date : June 5, 2012

Test period : Start : June 12, 2012 End : June 22, 2012

Test Results : **In Compliance** **Not in Compliance**

The test results presented in this report relate only to the object tested.

Tested by

Lee Eun-Won
EMC Test Engineer
Date: June 7, 2012

Reviewed by

James Hong
EMC Technical Manager
Date: June 7, 2012



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1.0 General Product Description

1.0.1 Tested Equipment

- Unless otherwise indicated, all tests were conducted on Model MDR-1RBT.
- Tests performed on Model _____ were considered to be representative of Model(s) _____.

1.0.2 Equipment Size, Mobility and Identification

Dimensions: 165(W) by 200(L) by 45(H) mm
Mobility: Table-top Floor-standing Built-in Portable
Serial No.: Prototype

1.0.3 Electrical Ratings

3.7 Vdc, 925mAh Lithium-Ion Rechargeable Battery Pack
(5 Vdc charging through the USB port)

1.0.4 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

(Mains of Personal Computer or AC Adaptor)
Voltage: 230 Vac
Frequency: 50 Hz

1.0.5 Clock & Other Frequencies Utilized

26 MHz

1.1 Model Differences

Not applicable

1.2 Device Modifications

The following modifications were necessary for compliance:

Not applicable

1.3 EUT Configuration(s)

See Appendix A for individual test set-up configuration(s). The following peripheral devices and/or interface cables were connected during the measurement:

Peripheral Devices

1. Charging mode through personal computer and music playing mode

Device	Manufacturer	Model No.	Serial No.
Personal Computer	SAMSUNG	DM-V400	ZYZF9WAZC01489B
LCD Monitor	Innocom Technology(Shenzhen) Co., Ltd.	SE198WFPf	CN-ORR716-72872-81T-OWG
Keyboard (PS/2 type)	MONTEREY INTERNATIONAL CORP.	K6515	ZCH3001
Mouse (USB type)	SAMSUG	SEM-DT35US	31001616

2. Charging mode through ac adaptor and music playing mode

Device	Manufacturer	Model No.	Serial No.
AC Adaptor	SONY CORP.	AC-UD10	11066000409
Personal Computer	SAMSUNG	DM-V400	ZYZF9WAZC01489B
LCD Monitor	Innocom Technology(Shenzhen) Co., Ltd.	SE198WFPf	CN-ORR716-72872-81T-OWG
Keyboard (PS/2 type)	MONTEREY INTERNATIONAL CORP.	K6515	ZCH3001
Mouse (USB type)	SAMSUG	SEM-DT35US	31001616

Cable Description

1. Charging mode through personal computer and music playing mode

#	Description	Ferrite Core	Length (m)	Other Details
1	USB Cable, Shielded	No	0.8	Between the EUT and a Personal Computer
2	Stereo mini jack Cable, Unshielded	No	1.5	Between the EUT and a Personal Computer
3	Mouse Cable, Shielded	No	1.5	USB type
4	Keyboard Cable, Shielded	No	1.5	PS/2 type
5	Monitor Cable, Shielded	Yes	1.5	Between a Personal Computer and a LCD Monitor
6	AC Power Cable, Unshielded	No	1.8	Connect to AC power
7	AC Power Cable, Unshielded	No	1.8	Connect to AC power

2. Charging mode through ac adaptor and music playing mode

#	Description	Ferrite Core	Length (m)	Other Details
1	Stereo mini jack Cable, Unshielded	No	1.5	Between the EUT and a Personal Computer
2	USB Cable, Shielded	No	0.8	Between the EUT and an AC Adaptor
3	AC Power Cable, Unshielded	No	1.8	Connect to AC power
4	Mouse Cable, Shielded	No	1.5	USB type
5	Keyboard Cable, Shielded	No	1.5	PS/2 type
6	Monitor Cable, Shielded	Yes	1.5	Between a Personal Computer and a LCD Monitor
7	AC Power Cable, Unshielded	No	1.8	Connect to AC power
8	AC Power Cable, Unshielded	No	1.8	Connect to AC power

1.4 Test Software

- EMC Test V 1.0
- Display Test Patterns - V1.5
- Ping.exe
- Not applicable



1.5 EUT Operating Mode(s)

Equipment under test was operated during the measurement under the following conditions:

- | | |
|--|--|
| <input type="checkbox"/> Standby | <input type="checkbox"/> Scrolling 'H' |
| <input type="checkbox"/> Display circles pattern | <input type="checkbox"/> Read / Write |
| <input checked="" type="checkbox"/> Practice operation - | |

1) Charging mode through personal computer and music playing mode

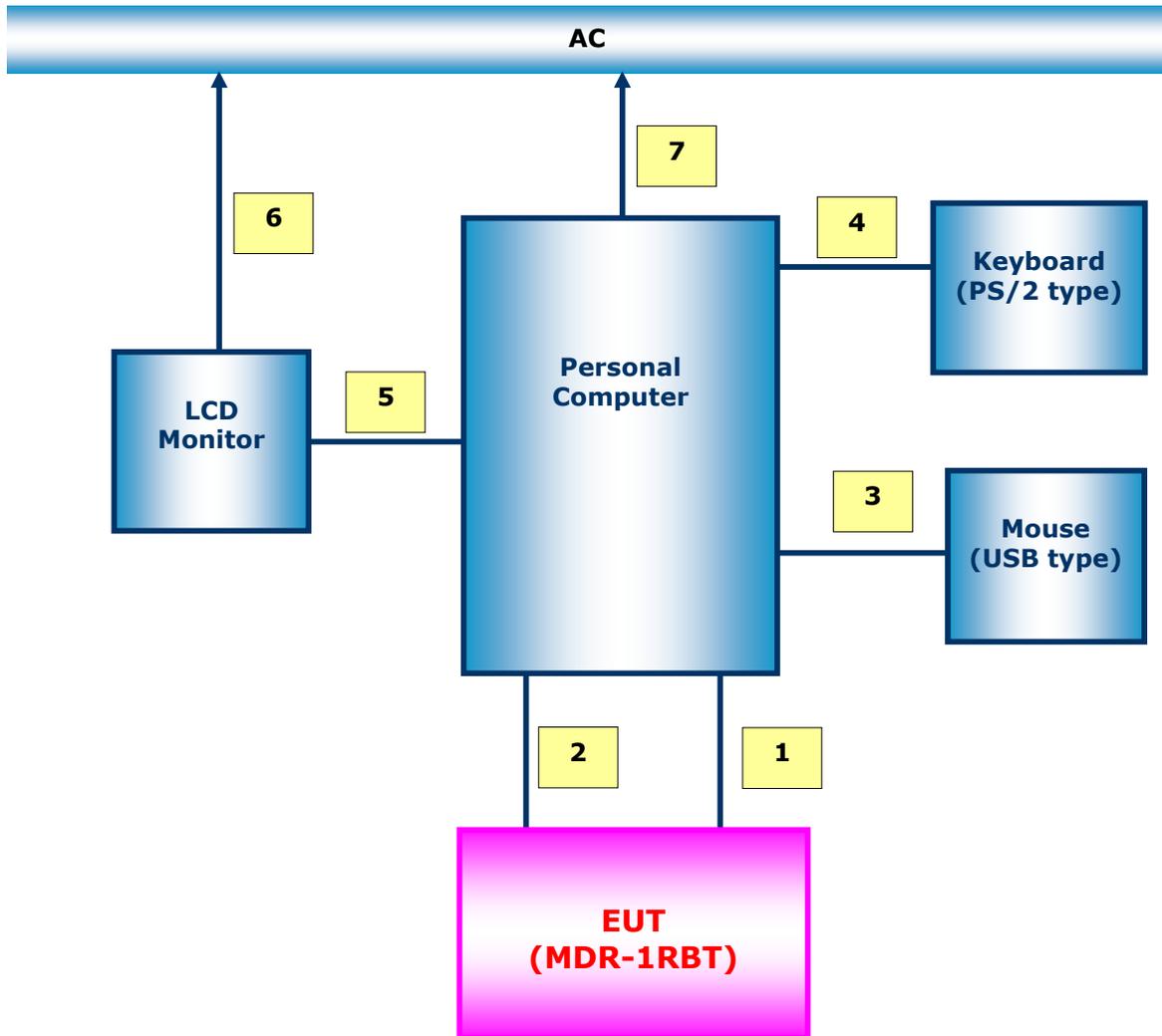
=> During the test, the EUT was connected to a personal computer via USB and stereo mini jack port.

2) Charging mode through ac adaptor and music playing mode

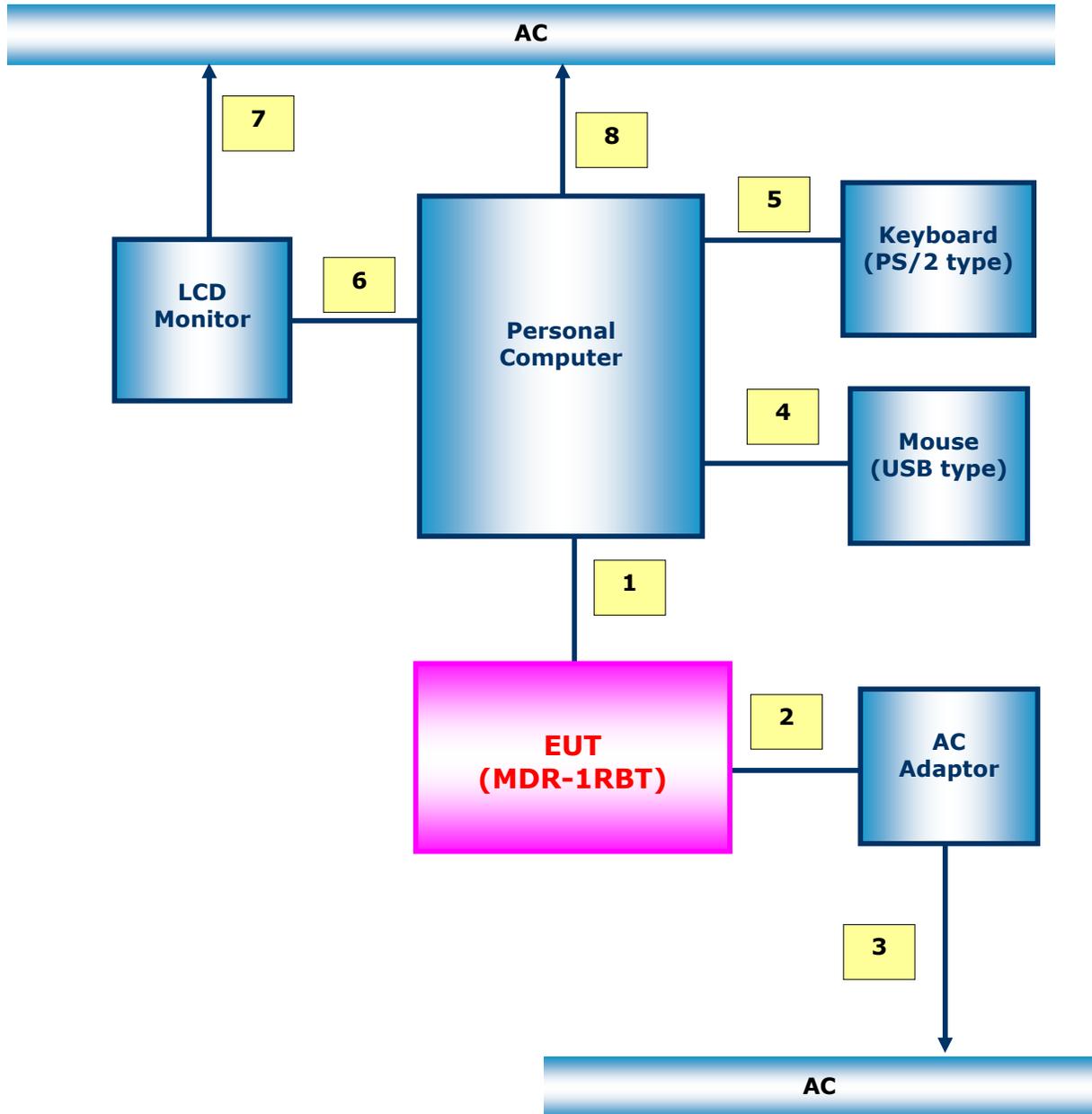
=> During the test, the EUT was connected to an ac adaptor via USB port and was connected to a personal computer via stereo mini jack port.

1.6 Configuration

1. Charging mode through personal computer and music playing mode



2. Charging mode through ac adaptor and music playing mode





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1.7 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.8 Test Facility

The measurement facility is located at 386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.9 Measurement Procedure

Preliminary AC power line conducted emissions tests were performed shielded room. To find worst mode, several typical mode and typical cable position were tested. Final AC power line conducted emissions test was performed shielded room. (location is same as Preliminary test)
Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

Preliminary radiated emissions test were performed semi-anechoic chambers. To find worst mode, several typical mode and typical cable position were tested and peak level and frequency were recorded.

Final radiated emissions test was performed semi-anechoic chambers. Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

* Measurement procedures was In accordance with ANSI C63.4-2009 7.3.3, 7.3.4, 8.3.1, 8.3.2

1.10 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 m & 10 m OATS, 3 m & 10 m SAC and Conducted Test Site to perform FCC Part 15/18 measurements	 805871
JAPAN	VCCI	10 m OATS, 3 m & 10 m SAC and Conducted Test Site	 R-948, C-986, T-1843, R-3627, G-387
KOREA	KCC	EMI (10 m OATS, 10 m SAC and Conducted Test Site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and Interruptions)	 No. 51, KR0025

1.11 Measurement Uncertainty

Compliance of the product is based on the measured value.

However, the measurement uncertainty is included for information purposes.

The measurement uncertainties given below are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Measurement Type	Frequency Range	Expanded Uncertainty
Conducted Emission	150 kHz to 30 MHz	± 2.48 dB (C.L.: Approx. 95 %, $k=2$)
Radiated Emission	30 MHz to 1000 MHz	± 3.70 dB (C.L.: Approx. 95 %, $k=2$)



2.0 Emissions Test Regulations

The emissions tests were performed according to following regulations:

- | | | |
|--|----------------------------------|---|
| <input type="checkbox"/> EN 61000-6-3:2007 | | |
| <input type="checkbox"/> EN 61000-6-4:2007 | | |
| <input type="checkbox"/> EN 55011:2007 +A2:2007 | <input type="checkbox"/> Group 1 | <input type="checkbox"/> Group 2 |
| | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55013:2001 +A1:2003 +A2:2006 | | |
| <input type="checkbox"/> EN 55014-1:2006 +A1:2009 | | |
| <input type="checkbox"/> EN 55015:2006 +A1:2007 +A2:2009 | | |
| <input type="checkbox"/> EN 61204-3:2000 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 61131-2:2007 | | |
| <input type="checkbox"/> EN 61326-1:2006 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55022:2006 +A1:2007 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 61000-3-2:2006 +A1:2009 +A2:2009 | | |
| <input type="checkbox"/> EN 61000-3-3:2008 | | |
| <input type="checkbox"/> VCCI V-3/2011.04 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> AS/NZS CISPR22:2009 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> FCC Part 15 Subpart B | <input type="checkbox"/> Class A | <input checked="" type="checkbox"/> Class B |
| <input type="checkbox"/> CISPR 22:2006 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |



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2.1 Conducted Voltage Emissions

Test Date

June 12, 2012 – June 22, 2012

Test Location

Shielded Room

Test Equipment

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	Rohde & Schwarz	ESCI7	100816	2012-12-16
<input checked="" type="checkbox"/>	EMI Test Receiver	Rohde & Schwarz	ESCI3	100032	2013-02-09
<input checked="" type="checkbox"/>	LISN	Rohde & Schwarz	ENV216	101235	2012-08-18
<input checked="" type="checkbox"/>	LISN	Rohde & Schwarz	ENV216	101236	2012-08-06
<input type="checkbox"/>	EMI Test Receiver	Rohde & Schwarz	ESHS30	828144/002	2013-02-09
<input type="checkbox"/>	LISN	Rohde & Schwarz	ENV216	101150	2013-02-09
<input type="checkbox"/>	LISN	EMCO	3825/2	9607-2575	2012-07-06

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are: MET NOT MET NOT APPLICABLE

1. Charging mode through personal computer and music playing mode

Frequency (MHz)	Measured Data (dB μ V)	Margin (dB)	Remark
24.022 500	30.8	19.2	Average

2. Charging mode through ac adaptor and music playing mode

Frequency (MHz)	Measured Data (dB μ V)	Margin (dB)	Remark
0.208 500	26.1	27.1	Average

Remarks

See Appendix B for test data.



2.2 Radiated Electric Field Emissions

Test Date

June 22, 2012

Test Location

Testing was performed at a test distance of:

- 10 m OATS 3 m OATS
 10 m SAC 3 m SAC

Test Equipment

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
<input type="checkbox"/>	EMI TEST RECEIVER	Rohde & Schwarz	ESVS30	826638/008	2012-07-07
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	Rohde & Schwarz	ESCI7	100814	2012-12-13
<input checked="" type="checkbox"/>	ULTRA Broadband Antenna	Rohde & Schwarz	HL562	100203	2013-07-05
<input checked="" type="checkbox"/>	AMPLIFIER	Sonoma Instrument Co.	310	291721	2013-03-27
<input type="checkbox"/>	EMI TEST RECEIVER	Rohde & Schwarz	ESCI7	100816	2012-12-16
<input type="checkbox"/>	Double Ridged Guide Antenna	ETS-Lindgren	3115	00078894	2013-03-22
<input type="checkbox"/>	PREAMPLIFIER	Agilent Technologies	8449B	3008A02307	2012-11-17

Frequency Range of Measurement

- 30 MHz to 1 GHz
 1 GHz to _ GHz

Instrument Settings

- IF Band Width: 120 kHz
 IF Band Width: 1 MHz

Test Results

The requirements are: MET NOT MET NOT APPLICABLE

1. Charging mode through personal computer and music playing mode

Frequency (MHz)	Measured Data (dB μ V/m)	Margin (dB)	Remark
246.795	31.5	14.5	Quasi-peak

2. Charging mode through ac adaptor and music playing mode

Frequency (MHz)	Measured Data (dB μ V/m)	Margin (dB)	Remark
886.752	31.3	14.7	Quasi-peak

Remarks

See Appendix B for test data.