FCC CFR47 PART 15 DIGITAL DEVICE

TEST REPORT

FOR

CD-ROM DRIVE

MODEL: SC-148B, CD4833E, CD1488

REPORT NUMBER: 99U0172-1

ISSUE DATE: APRIL 07, 1999

Prepared for

SAMSUNG ELECTRONICS CO., LTD.
416 MAETAN DONG, PALDAL GU
SUWON SHI, KOREA

Prepared by

COMPLIANCE ENGINEERING SERVICES, INC.
d.b.a.
COMPLIANCE CERTIFICATION SERVICES
1366 BORDEAUX DRIVE
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TEL: (408) 752-8166
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LAB CODE:200065-0

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1. VERIFICATION OF COMPLIANCE

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
416 MAETAN DONG, PALDAL GU
SUWON SHI, KOREA

CONTACT PERSON: BEN KIM / MANAGER

TELEPHONE NO: 408-544-5124

MODEL NO/NAME: SC-148B, CD4833E, CD1488

SERIAL NO: N/A

DATE TESTED: APRIL 07, 1999

TYPE OF EQUIPMENT:	INFORMATION TECHNOLOGY EQUIPMENT (ITE)
MEASUREMENT DISTANCE:	(X) 3 METER ( ) 10 METER
TECHNICAL LIMIT:	CLASS B
FCC RULES:	PART 15
MEASUREMENT PROCEDURE	ANSI C63.4:92
EQUIPMENT AUTHORIZATION PROCEDURE	DECLARATION OF CONFORMITY
MODIFICATIONS MADE ON EUT	☐ YES ☒ NO
DEVIATIONS FROM MEASUREMENT PROCEDURE	☐ YES (refer to section 20 for comments) ☒ NO
RADIATED EMISSION TEST RESULT	-3.66 dB @ 420.0 MHz MHz/VERTICAL
CONDUCTED EMISSION TEST RESULT	-12.85 dB @ 0.465 MHz/L2

The above equipment was tested by Compliance Certification Services for compliance with the requirements set forth in the FCC CFR 47, PART 15. The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved By

MIKE C.I. KUO / VICE PRESIDENT
COMPLIANCE CERTIFICATION SERVICES

Acknowledged By

BEN KIM / MANAGER
SAMSUNG ELECTRONICS CO., LTD.

2. PRODUCT DESCRIPTION

CHASSIS TYPE	METAL
LIST OF EACH OSC. OR XTAL. FREQ. (FREQ.>=1 MHz)	20, 50, 33.86 MHz
NUMBER OF PCB LAYERS	4
BOARD REVISION NO	DVT 01
LINE FILTER NAME AND MODEL	BUILT-IN
POWER REQUIREMENTS	12 V DC
NO. OF EXTERNAL I/O CONNECTORS	1

Model Differences:

Model Name	Differences	Tested (Checked)
SC-148B	**ORIGINAL MODEL**	☒
CD4833E	**FOR MARKETING PURPOSES**	☐
CD1488	**FOR MARKETING PURPOSES**	☐

3. TESTED SYSTEM DETAILS

The Model names for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

External Peripheral Devices

Device Type	Manufacturer	Model Number	Serial No.	FCC ID / DoC
MONITOR	IBM	G54	N/A	DoC
KEYBOARD	ACER	6511	K654D077937	GQ86311-K
MOUSE	MICROSOFT	X03-485P1	5939603	C3KKMP5
MODEM	DATATRONICS	1200CK	2511S41679	E2050V1200CK
PRINTER	HP	2225C	2511S41679	BS46XU2225C
COMPUTER	AST	ADVANTAGE 812	5018556-001	DJKMORRIS-MTP

4. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5. ACCREDITATION AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code:200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT(1300F2))

6. MEASUREMENT INSTRUMENTATION

Radiated emissions were measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, ridged waveguide, liner horn. EMI receivers were used for line conducted readings, spectrum analyzers with pre-selectors and quasi-peak detectors were used to perform radiated measurements. Receiving equipment (i.e., receiver, analyzer, quasi-peak adapter, pre-selector) and LISNs conform to CISPR specification for "Radio Interference Measuring Apparatus and Measurement Methods," Publication 16.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

7. MEASURING INSTRUMENT CALIBRATION

The measuring equipment which was utilized in performing the tests documented herein has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment which is traceable to recognized national standards.

8. UNITS OF MEASUREMENT

Measurements of radiated interference are reported in terms of dB(uV/m) at a specified distance. The indicated readings on the spectrum analyzer were converted to dB(uV/m) by use of appropriate conversion factors. Measurements of conducted interference are reported in terms of dB(uV).

The field strength is calculated by adding the Antenna Factor and Cable Factors, then by subtracting the Amplifier Gain from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

Where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Attenuation Factor
AG = Amplifier Gain

Assume a receiver reading of 52.5 dBuV is obtained. The Antenna Factor of 7.4dB/m and a Cable Factor of 1.1dB is added. The Amplifier Gain of 29 dB is subtracted, giving a field strength of 32 dBuV/m. The 32 dBuV/m value was mathematically converted to its corresponding level in uV/m.

FS = 52.5 + 7.4 + 1.1 - 29 = 32 dBuV/m

Level in uV/m = Common Antilogarithm [(32 dBuV/m)/20] = 39.8 uV/m

9. ANTENNAS

The calibrated antennas used to sample the radiated field strength are mounted on a non-conductive, motorized antenna mast 3 meters from the leading edge of the turn table.

10. CLASSIFICATION OF DIGITAL DEVICE

Class A includes digital devices that are marketed for use in commercial, industrial or business environments, excluding devices which are marketed for use by the general public or are intended to be used in the home.

Class B includes digital devices that are marketed for use in residential environments, notwithstanding use in commercial, business and industrial environments.

Note: The responsible party may also qualify a device intended to be marketed in a commercial, business or industrial environment as Class B device, and in fact is encouraged to do so provided the device complies with the technical specifications for a Class B digital device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B digital device, regardless of its intended use.

11. RADIATED EMISSION LIMITS

FCC PART 15 CLASS A

MEASURING DISTANCE OF 10 METER		
FREQUENCY RANGE (MHz)	FIELD STRENGTH (Microvolts/m)	FIELD STRENGTH (dBuV/m)
30-88	90	39.1
88-216	150	43.5
216-960	210	46.4
Above 960	300	49.5

FCC PART 15 CLASS B

MEASURING DISTANCE OF 3 METER		
FREQUENCY RANGE (MHz)	FIELD STRENGTH (Microvolts/m)	FIELD STRENGTH (dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

FCC RADIATED EMISSION ALTERNATIVE METHOD
(CISPR 22/EN55022)

Limits for radiated disturbance of Class A ITE at
measuring distance of 10 m

Frequency range MHz	Quasi-peak limits dB(uV/m)
30 to 230	40
230 to 1000	47
NOTES 1. The lower limit shall apply at the transition frequency. 2. Additional provisions may be required for cases where interference occurs.	

Limits for radiated disturbance of Class B ITE at
measuring distance of 10 m

Frequency range MHz	Quasi-peak limits dB(uV/m)
30 to 230	30
230 to 1000	37
NOTES 1. The lower limit shall apply at the transition frequency. 2. Additional provisions may be required for cases where interference occurs.	

12. CONDUCTED EMISSION LIMITS

FCC CLASS A

FREQUENCY RANGE	FIELD STRENGTH (Microvolts)	FIELD STRENGTH (dBuV)/QP
450kHz-1.705MHz	1000	60
1.705MHz - 30MHz	3000	69.54

FCC CLASS B

FREQUENCY RANGE	FIELD STRENGTH (Microvolts)	FIELD STRENGTH (dBuV)/QP
450kHz-30MHz	250	48

FCC CONDUCTED EMISSION ALTERNATIVE METHOD (CISPR 22/EN55022)

Limits for conducted disturbance at the mains ports of Class A ITE

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	79	66
0.5 to 30	73	60
Note- The lower limit shall apply at the transition frequency.		

Limits of Conducted disturbance at the mains ports of Class B ITE

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

13. CONDUCTED EMISSION TEST PROCEDURE

The EUT is located so that the distance between the boundary of the EUT and the closest surface to the LISN is 0.8m.

EUT test configuration is according to Section 7 of ANSI C63.4/1992.

Conducted disturbance shall be measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.450 - 30 MHz (or 0.150 - 30 MHz in case of CISPR 22/EN55022 method) shall be investigated.

Set the EMI receiver to PEAK detector setting and sweep continuously over the frequency range to be investigated. Set resolution bandwidth to 9kHz minimum. Connect EMI receiver input cable to LINE 1 RF measurement connection on the LISN. Connect a 50ohm terminator to the unused RF connection on the LISN. For each mode of EUT operation, maximize emissions readings by manipulating cable and wire positions. Record the configuration for each EUT power cord which produces emissions closest to the limit. Repeat the same procedure for LINE 2 of each EUT power cord.

14. RADIATED EMISSION TEST PROCEDURE

The EUT and all other support equipment are placed on a wooden table 80 cm above the ground screen. Antenna to EUT distance is either 3 meters or 10 meters (Class B or Class A). During the test, the table is rotated 360 degrees to maximize emissions and the antenna is positioned from 1 to 4 meters above the ground screen to further maximize emissions. The antenna is polarized in both vertical and horizontal positions.

EUT test configuration is according to Section 8 of ANSI C63.4/1992.

Monitor the frequency range of interest at a fixed antenna height and EUT azimuth. Frequency span should be small enough to easily differentiate between broadcast stations and intermittent ambients. Rotate EUT 360 degrees to maximize emissions received from EUT. If emission increases by more than 1 dB, or if another emission appears that is greater by 1 dB, return to azimuth where maximum occurred and perform additional cable manipulation to further maximize received emission.

Move antenna up and down to further maximize suspected highest amplitude signal. If emission increased by 1 dB or more, or if another emission appears that is greater by 1dB or more, return to antenna height where maximum signal was observed and manipulate cables to produce highest emissions, noting frequency and amplitude.

15. AMBIENT CONDITIONS

The ambient conditions at the time of final tests were as follows:

	Radiated Emission	Conducted Emission
Temperature	15 °C	17° C
Humidity	89%	67%

16. SYSTEM TEST CONFIGURATION

The equipment under test was configured and operated in a manner which tended to maximize its emission characteristics in a typical application. Power and signal distribution, ground, interconnecting cabling and physical placement of equipment simulated the typical application and usage insofar as practicable.

SOFTWARE USED DURING THE TESTS	
Operating System	WINDOWS 95
File Name	MULTIMEDIA.EXE
Program Sequence	Plays music continuously.

COMPLIANCE CERTIFICATION SERVICES DOCUMENT NO:CCSUP4002C
1366 BORDEAUX DRIVE SUNNYVALE, CA 94089 USA TEL:(408) 752-8166 FAX:(408) 752-8168

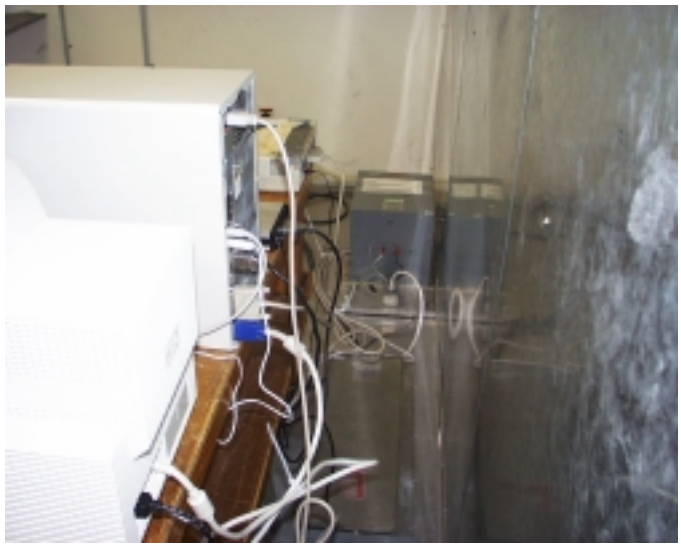
17. EQUIPMENT MODIFICATIONS

To achieve compliance to CLASS B levels, the following change(s) were made during compliance testing:

NOT APPLICABLE

18. EUT SETUP PHOTOS


Radiated Emission Setup Photos (Worst Emission Position)

Conducted Emission Setup Photos (Worst Emission Position)

COMPLIANCE CERTIFICATION SERVICES DOCUMENT NO:CCSUP4002C
1366 BORDEAUX DRIVE SUNNYVALE, CA 94089 USA TEL:(408) 752-8166 FAX:(408) 752-8168

19. TEST EQUIPMENT LIST

Equipment	Manufacturer	Model No.	Serial No.	Site	Cal Date	Due Date
Receiver	H.P.	8546A	3520A00259	A	04/99	04/00
RF Filter Section	H.P.	85460A	3448A00232	A	04/99	04/00
Antenna	Chase	CBL6112	2049	A/F	03/99	03/00
Antenna	EMCO	3110	8908-1079	A/F	03/99	03/00
Antenna	EMCO	3146	NSN=X100	A/F	03/99	03/00
Pre-Amp	H.P.(P1)	8447D	2944A06833	A	10/98	10/99
Pre-Amp	H.P.(P2)	8447D	2944A06265	F	09/98	09/99
Spectrum Analyzer	H.P.	8566B	3014A06685	F	07/98	07/99
Spectrum Display	H.P.	85662A	3026A19146	F	07/98	07/99
Quasi-peak Detector	H.P.	85650A	3145A01654	F	07/98	07/99
Spectrum Analyzer	H.P.	8568A	2314A02604	B	02/99	02/00
Spectrum Display	H.P.	85662A	2314A04793	B	02/99	02/00
Quasi-peak Detector	H.P.	85650A	2521A01038	B	02/99	02/00
Pre-Amp	H.P.(P8)	8447D	2944A06589	B	08/98	08/99
Antenna	Eaton	94455-1	1197	B	08/98	08/99
Antenna	Emco	3146	2120	B	08/98	08/99
Spectrum Analyzer	H.P.	8568B	2732A03661	C	11/98	11/99
Spectrum Display	H.P.	85662A	2811A015728	C	11/98	11/99
Quasi-peak Detector	H.P.	85650A	2811A01335	C	11/98	11/99
Pre-Amp	H.P.(P5)	8447D	2944A06550	C	08/98	08/99
Antenna	Eaton	94455-1	1214	C	08/98	08/99
Antenna	EMCO	3146	9107-3163	C	08/98	08/99
LISN	Fischer	LISN2 CISPR adapter	00710 00711	Cond	03/99	03/00
EMI Receiver	Rohde Schwarz	ESHS20	827129/006	Cond	03/99	03/00
LISN	Fischer	FCCLISN 50/250-25-2	114	Cond	08/98	08/99

20. TEST RESULT SUMMARY

Preliminary Radiated Emission Tests were performed at the 3 meter open area test site. CCS test procedure no:CCSUE2001B and the procedure listed in ANSI C63.4 /1992 section 8.3.1.1. were used. The following preliminary tests were conducted to determine the worst mode of operation and configuration.

Preliminary Radiated Emission Test			
Frequency Range Investigated		30 MHz TO 1000 MHz	
Mode of operation	Date	Data Report No.	Worst Mode
PLAYING MUSIC	**04/07/99**	**990407C1**	☒

Final Radiated Emission Test was conducted by operating the worst mode as indicated above.

OATS No: C/ 3 METER	Data Report No. 990407C1	Date 04/07/99	Tested By: JUAN MARTINEZ

Six Highest Radiated Emission Readings

Frequency Range Investigated				30 MHz TO 1000 MHz			
Freq (MHz)	Meter Reading (dBuV)	C.F. (dB/m)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading Type (P/Q/A)	Polar (H/V)
420.0	**51.3**	**-8.96**	**42.34**	**46.0**	**-3.66**	**P**	**V**
460.0	**46.8**	**-8.23**	**38.57**	**46.0**	**-7.43**	**P**	**V**
540.0	**46.0**	**-6.72**	**39.28**	**46.0**	**-6.72**	**P**	**H**
600.0	**46.5**	**-5.49**	**41.01**	**46.0**	**-4.99**	**P**	**H**
720.0	**43.8**	**-3.51**	**40.29**	**46.0**	**-5.71**	**P**	**H**
750.0	**39.6**	**-3.06**	**36.54**	**46.0**	**-9.46**	**P**	**H**

C.F.(Correction Factor)=Antenna Factor+Cable Loss-Amplifier Gain
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading H=Horizontal Polarization/Antenna
Q=Quasi-peak V=Vertical Polarization/Antenna
A=Average Reading

Comments: N/A

Preliminary Conducted Emission Tests were performed according to CCS test procedure no:CCSUE2002B and ANSI C63.4/1992 section 7.2.3. The following preliminary tests were conducted to determine the worst mode of operation.

Preliminary Conducted Emission Test			
Frequency Range Investigated		450 kHz TO 30 MHz	
Mode of operation	Date	Data Report/Plot No.	Worst Mode
PLAYING MUSIC	**04/07/99**	**99U0172**	☐

Final Conducted Emission Test was conducted by operating the worst mode as indicated above.

Conducted Room	Plot No. 99U0172		Date 04/07/99		Tested By: JUAN MARTINEZ	
Six Highest Conducted Emission Readings						
Frequency Range Investigated			450 kHz TO 30 MHz			
Freq (MHz)	Meter Reading (dBuV)	C.F. (dB)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading Type (P/Q/A)	Line (L1/L2)
0.461	**33.27**	**0**	**33.27**	**48.0**	**-14.73**	**P**	**L1**
0.532	**33.61**	**0**	**33.61**	**48.0**	**-14.39**	**P**	**L1**
0.659	**34.09**	**0**	**34.09**	**48.0**	**-13.91**	**P**	**L1**
0.726	**32.44**	**0**	**32.44**	**48.0**	**-15.56**	**P**	**L1**
0.859	**34.09**	**0**	**34.09**	**48.0**	**-13.91**	**P**	**L1**
0.465	**35.15**	**0**	**35.15**	**48.0**	**-12.85**	**P**	**L2**

C.F.(Correction Factor)=Insertion Loss + Cable Loss
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading L1=Hot
Q=Quasi-peak L2=Neutral
A=Average Reading

Comments: N/A

APPENDICES

EXTERNAL I/O CABLE CONSTRUCTION DESCRIPTION

CONFIGURATION BLOCK DIAGRAM

CONDUCTED EMISSION PLOT

RADIATED EMISSION DATA

EUT PHOTOGRAPHS

COMPLIANCE CERTIFICATION SERVICES DOCUMENT NO:CCSUP4002C
1366 BORDEAUX DRIVE SUNNYVALE, CA 94089 USA TEL:(408) 752-8166 FAX:(408) 752-8168

External I/O Cable Construction Description

CABLE NO: 1	
I/O Port: Mouse	Number of I/O ports of this type: 1
Number of Conductors: 6	**Connector Type: PS/2**
Capture Type: Push-In	**Type of Cable used: Unshielded**
Cable Connector Type: Molded	**Cable Length: 1.5 m**
Bundled During Tests: No	**Data Traffic Generated: Yes**
Remark: N/A	

CABLE NO: 2	
I/O Port: DB	Number of I/O ports of this type: 1
Number of Conductors: 6	**Connector Type: PS/2**
Capture Type: Push-In	**Type of Cable used: Unshielded**
Cable Connector Type: Molded	**Cable Length: 1.7 m**
Bundled During Tests: No	**Data Traffic Generated: Yes**
Remark: N/A	

CABLE NO: 3	
I/O Port: VGA	Number of I/O ports of this type: 1
Number of Conductors: 14	**Connector Type: D-SUB 15**
Capture Type: Screw-In	**Type of Cable used: Shielded**
Cable Connector Type: Molded	**Cable Length: 1.5 m**
Bundled During Tests: Yes	**Data Traffic Generated: Yes**
Remark: Ferrite cores at both ends.	

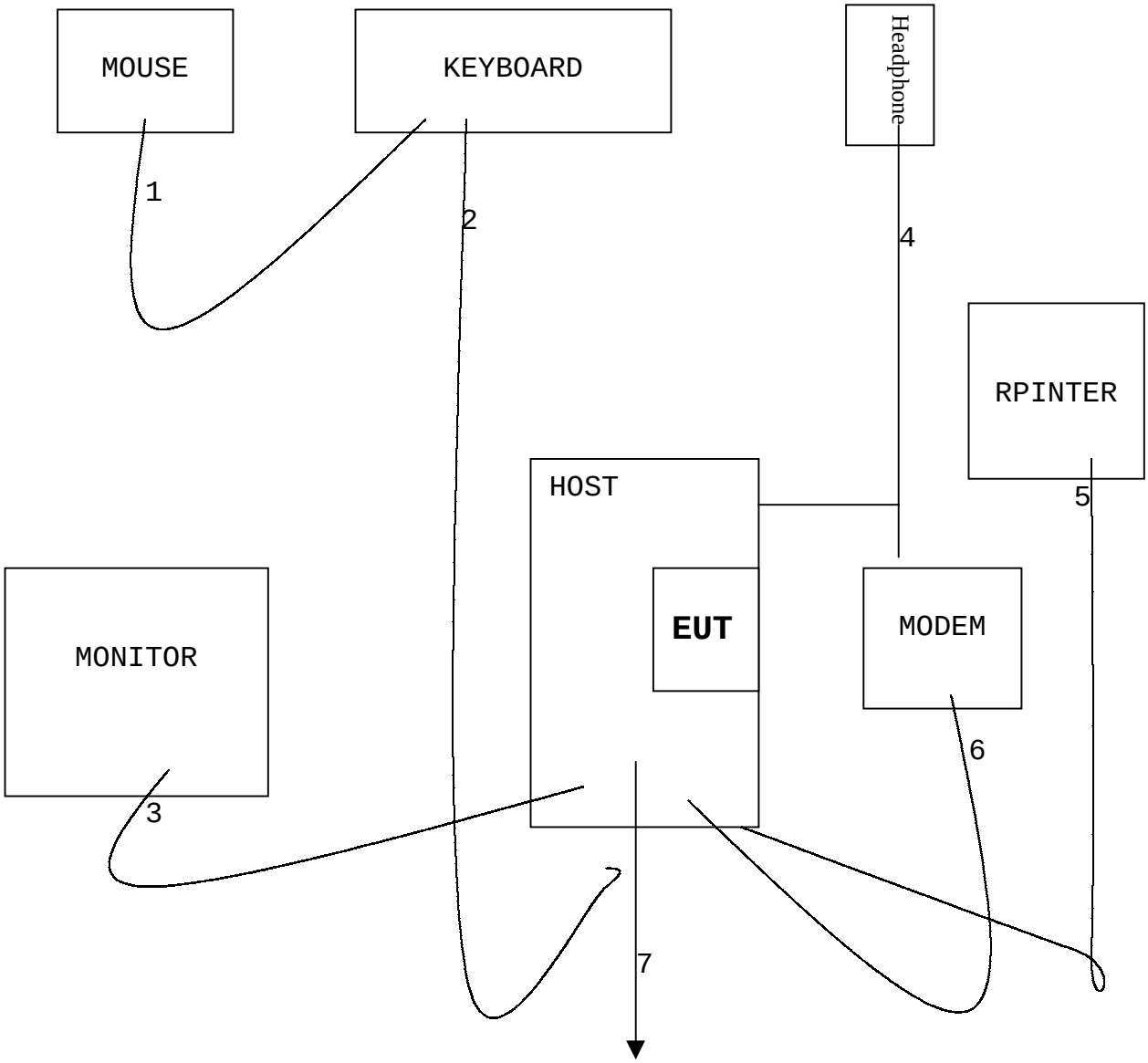
CABLE NO: 4	
I/O Port: Headphones	Number of I/O ports of this type: 1
Number of Conductors: 2	**Connector Type: 3.5 mm Stereo Plug**
Capture Type: Snap-In	**Type of Cable used: Shielded**
Cable Connector Type: Molded	**Cable Length: 1.5 m**
Bundled During Tests: Yes	**Data Traffic Generated: Yes**
Remark: N/A	

CABLE NO: 5	
I/O Port: Parallel	Number of I/O ports of this type: 1
Number of Conductors: 25	**Connector Type: DB25**
Capture Type: Screw-In	**Type of Cable used: Shielded**
Cable Connector Type: Metal	**Cable Length: 2.5 m**
Bundled During Tests: Yes	**Data Traffic Generated: No**
Remark: N/A	

CABLE NO: 6	
I/O Port: RS232	Number of I/O ports of this type: 1
Number of Conductors: 9	**Connector Type: DB25**
Capture Type: Screw-In	**Type of Cable used: Shielded**
Cable Connector Type: Metal	**Cable Length: 2.5 m**
Bundled During Tests: No	**Data Traffic Generated: No**
Remark: N/A	

CABLE NO: 7	
I/O Port: EUT AC Input	Number of I/O ports of this type: 1
Number of Conductors: 3	**Connector Type: USA Power Plug**
Capture Type: Push-In	**Type of Cable used: Shielded**
Cable Connector Type: Molded	**Cable Length: 1.8 m**
Bundled During Tests: No- Radiation, Yes- Line Conduction	**Data Traffic Generated: No**
Remark: N/A	

Configuration Block Diagram



RETENTION OF RECORDS BY RESPONSIBLE PARTY

1. Product Specification Sheet.
2. Schematic Diagram
3. Revision History
4. Modification Report (E.C.N.)
5. A record of procedure used for production inspection
6. A record of procedure used for testing on any modification or changes made.
7. Measurement report made by Accredited test site
8. A copy of the **compliance information**

NOTE:

1. The records shall be retained for two years after the manufacturer or assembly, as appropriate, of said equipment has been permanently discontinued, or until the conclusion of an investigation or a proceeding if the responsible party is officially notified that an investigation or another administrative proceeding involving the equipment has been instituted.

2. **Compliance information** statement shall be included in the user's manual or as separate sheet.

LABELING REQUIREMENTS

(sample for reference use only)

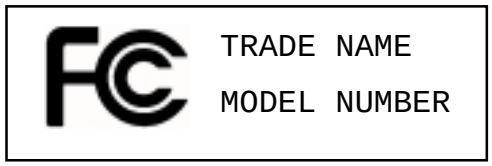
TRADE NAME MODEL NUMBER

Tested To Comply
With FCC Standards

FOR HOME OR OFFICE USE

When a device is so small or made for such use that it is not practicable to place the above label on it, such as a CPU board or a plug-in circuit board peripheral device, the text associated with the logo may be placed in a prominent location in the instruction manual or pamphlet supplied to the user. However, the unique identification (trade name and model number) and the logo must be displayed on the device.

(SAMPLE FOR REFERENCE USE ONLY)



The label shall not be a stick-on, paper label. The label on these products shall be permanently affixed and shall be readily visible to the purchaser at the time of purchase. "Permanently affixed" means that the label is etched, engraved, stamped, silk-screened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which it may be operated, and must not be readily detachable.

(PROPOSED FCC **COMPLIANCE INFORMATION** FORMAT to be included in the users manual)

FCC
COMPLIANCE INFORMATION

PRODUCT NAME: CD-ROM DRIVE
MODEL NUMBER: SC-148B, CD4833E, CD1488
FCC RULES: TESTED TO COMPLY WITH FCC PART 15 CLASS B
OPERATING ENVIRONMENT: FOR HOME OR OFFICE USE

FCC COMPLIANCE STATEMENT:
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INFORMATION TO USER:
This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation; if this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. *Reorient / Relocate the receiving antenna.*
2. *Increase the separation between the equipment and receiver.*
3. *Connect the equipment into an outlet on a circuit difference from that to which the receiver is connected.*
4. *Consult the dealer or an experienced radio/TV technician for help.*

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment

THE PARTY RESPONSIBLE FOR PRODUCT COMPLIANCE
SAMSUNG ELECTRONICS CO., LTD.
85 WEST TASMAN DRIVE
SAN JOSE, CA 95134
USA
TELEPHONE NO: 408-544-5124
(ABOVE NAME AND ADDRESS HAS TO BE LOCATED WITHIN THE UNITED STATES)