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TEST REPORT

REPORT NUMBER : MKM98F-006

APPLICANT : Matsushita-Kotobuki
Electronics Industries, Ltd.

MODEL NUMBER : CW-7503-B

FCC ID : IUO9TB074CRB

Regulation : FCC Part15B Class B

Conducted Emission Test
Radiated Emission Test

Matsushita-Kotobuki Electronics Ind., Ltd.
Matsuyama Division

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TABLE OF CONTENTS

SECTION 1. TEST CERTIFICATION

APPLICANT INFORMATION

Company	:	Matsushita-Kotobuki Electronics Industries, Ltd.
Address	:	8-1, Furujin-machi, Takamatsu-city, Kagawa-ken, 760-0025 Japan

GRANTEE INFORMATION

Company	:	Matsushita-Kotobuki Electronics Industries, Ltd.
Division / Section	:	Matsuyama Division Legal Affairs Sec.
Address	:	2131-1 Minamikata, Kawauchi-cho, Onsen-gun, Ehime-ken, 791-0395 Japan
Telephone number	:	+81 89 966 2111
Fax number	:	+81 89 966 5733
Contact person	:	Kenji Matsugi

DESCRIPTION OF TEST ITEM

Kind of equipment	:	CD-R Drive
Trademark	:	Matsushita-Kotobuki
FCC ID	:	IUO9TB074CRB
Model number	:	CW-7503-B
Serial number	:	8X28XXA00012

TEST PERFORMED

FCC File No.	:	31040/SIT
Test started	:	November 20, 1998
Test completed	:	November 20, 1998
Purpose of test	:	FCC Docket 87-389
Regulation	:	FCC Part 15B Class B Unintentional Radiators
Test setup	:	ANSI C63.4 -1992

Report file number	:	MKM98F-006
Report issue date	:	November 20, 1998
Test engineer	:	Shinji Yamauchi S. Yamauchi
Report approved by	:	Shigeru Suzuki [Manager] S. Suzuki

This equipment complies with above standard or regulation under the test condition or test configuration shown on this test report.

SECTION 2. EQUIPMENT UNDER TEST

The equipment under test (E.U.T.) consists of the following equipment.
Indication in the following left side column corresponds to section 5.

Symbol	Item	Model No.	Serial No.	FCC ID	Manufacturer
A)	CD-R Drive	CW-7503-B	8X28XXA00012	IUO9TB074CRB	Matsushita-Kotobuki Electronics Ind., Ltd.

Power ratings of E.U.T : +5V DC, 2.0A / +12V DC, 2.0A

2.1 Port(s) / Connector(s) :

SCSI Bus Connector(50pin), Head Phone Jack(Stereo Mini Plug),
Audio Out Connector(4pin), DC IN Connector(4pin)

2.2 Oscillator(s) / Crystal(s) :

Oscillator	Operating Frequency	Board name	Remarks
33.8688 MHz	33.8688 MHz	Main PCB	MN662753
17.2872 MHz	17.2872 MHz	Main PCB	LC895926
20 MHz	20 MHz	Main PCB	LC895926
320.0 MHz/typ.		Pick Up	High Frequency Module (Highest Frequency)

SECTION 3. SUPPORT EQUIPMENT USED

The E.U.T. has been supported by the following equipment during these tests. Indication in the following left side column corresponds to section 5.

Symbol	Item	Model No.	Serial No.	FCC ID	Manufacturer
B)	Interface Card	AHA-1542CF	BC0F5091092	FGT1542CF	Adaptec
C)	Audio Interface Card	LMEP0266A	None	IUO9TB014CRI	Matsushita-Kotobuki
D)	Host Computer	DESK PRO 2000 M5166/2500/CD	7714HVU40014	CNT75MDEBV5	COMPAQ
E)	Head Phone	RP-HT28	None	N.A.	Panasonic
F)	CD-ROM Drive	CR-503-S	SA3514004298	IUO9TB013CRS	Matsushita-Kotobuki
G)	Stereo Radio Cassette Recorder	RX-F5	None	ACJ9TBRX-F5	Panasonic
H)	Keyboard	Enhanced II Keyboard	9101421CB515	CNT47K109232	COMPAQ
I)	Color Display	CM1483MU	Y0J005103	ABL9679001CD	HITACHI
J)	Printer	3630A	3219A17397	BSD8533630A	HEWLETT PACKARD
K)	Modem	C202A	010489	BKM552C202A	EPSON

SECTION 4. CABLE(S) USED

The following cable(s) was used for testing. Indication number in the following left side column corresponds to section 5.

Number	Name	Length	Shield	From	To
1)	50Pin Flat cable	0.4 m	None	CD-ROM Drive(A) Plastic connector	Interface Card
2)	Audio cable	0.4 m	None	CD-ROM Drive(A) Plastic connector	Audio Interface Card
3)	DC Power cable	0.4 m	None	CD-ROM Drive(A)	Host Computer
4)	Head Phone cable	1.5 m	None	CD-ROM Drive(A) Plastic connector	Head Phone
5)	SCSI I/F cable	1.2 m	Yes	Interface Card Metal connector	CD-ROM Drive(F)
6)	Audio cable	1.0 m	None	Audio Interface Card	Stereo Radio Cassette Recorder
7)	Audio cable	1.0 m	None	Audio Interface Card	Stereo Radio Cassette Recorder
8)	Keyboard I/F cable	1.4 m	Yes	Host Computer Metal connector	Keyboard
9)	Video Signal I/F cable	1.7 m	Yes	Host Computer Metal connector	Color Display

None :

All cables are not attached ferrite core.

The following cable(s) was used for testing. Indication number in the following left side column corresponds to section 5.

Number	Name	Length	Shield	From	To
10)	Parallel I/F cable	1.5 m	Yes	Host Computer Metal connector	Printer
11)	RS-232C I/F cable	1.1 m	Yes	Host Computer Metal connector	Modem
12)	Power cord for Host Computer	2.0 m	Yes	Host Computer	Power Source
13)	Power cord for CD-ROM Drive(F)	2.0 m	Yes	CD-ROM Drive(F)	Power Source
14)	Power cord for Stereo Radio Cassette Recorder	1.9 m	None	Stereo Radio Cassette Recorder	Power Source
15)	Power cord for Color Display	1.8 m	None	Color Display	Power Source
16)	Power cord for Printer	2.0 m	None	Printer	AC Adapter
17)	Power cord for Printer	2.0 m	None	AC Adapter	Power Source
18)	Power cord for Modem	1.9 m	None	Modem	Power Source

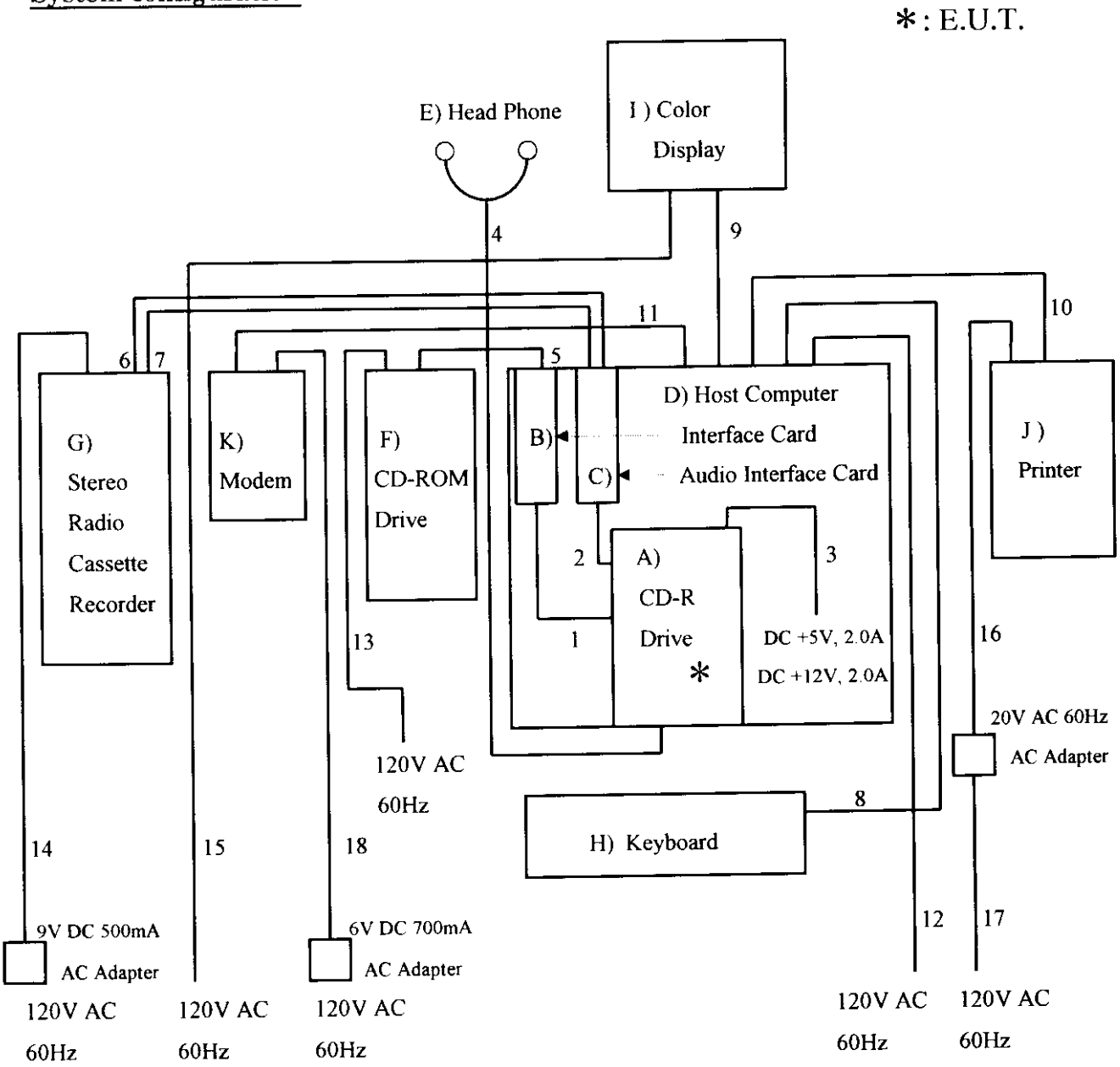
None :

All cables are not attached ferrite core.

SECTION 5. CONSTRUCTION OF EQUIPMENT

The construction of E.U.T. during testing is as follows.

System configuration



Symbol or numbers assigned to equipment or cables on this diagram are corresponded to the symbols or numbers assigned to equipment or cables on tables in Sections 2 to 4.

SECTION 6. OPERATING CONDITIONS

The E.U.T. has been operated under the following conditions during the tests.

6.1 Operating condition

The tests have been carried out under Read mode.

6.2 Operation flow

Performed following operations continuously.

1. The E.U.T. operates the normal speed.
2. The E.U.T. play-backs the audio data.
3. The E.U.T. reads the 'H' characters' data.
4. The Color Display displays 'H' characters.
5. The Printer prints 'H' characters' data.
6. The Modem sends 'H' characters' data.
7. The CD-ROM Drive(F) reads 'H' changes' data.
8. The E.U.T. changes the disc rotating speed to the maximum speed.
9. The E.U.T. reads 'H' characters' data.
10. The Color Display displays 'H' characters.
11. The Printer prints 'H' characters.
12. The Modem sends 'H' characters' data.
13. The CD-ROM Drive(F) reads 'H' characters' data.

SECTION 7. TEST PROCEDURE(S)

Tests have been carried out with the test procedure(s) drawn up by our laboratory which is in accordance with the following test procedure(s).

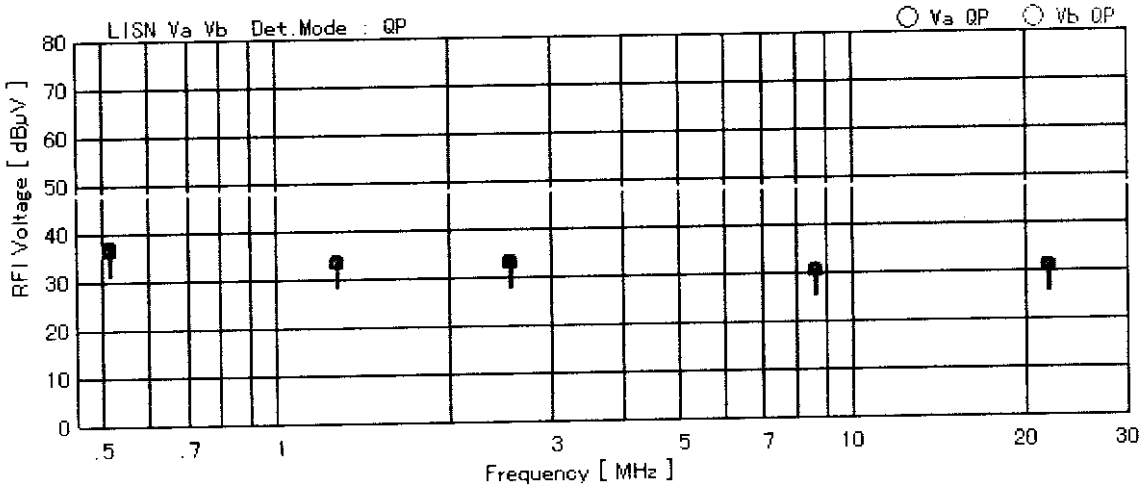
Test item	Test procedure used	Scanned Frequency Range
Conducted Emission	ANSI C63.4-1992	0.45 - 30 MHz
Radiated Emission	ANSI C63.4-1992	30 - 2000 MHz

SECTION 8. EVALUATION OF TEST RESULTS

8.1 Conducted Emission Test

Model Name	CD-R Drive
Model No.	CW-7503-B
Serial No.	8X28XXA00012
Power Supply	120V / 60Hz
Test Mode	READ
Temp/Humi/Pres	19℃ / 54% / 1003hPa
Operator	S.Yamauchi

No	Freq. [MHz]	Reading Level Va [dBuV]	Reading Level Vb [dBuV]	Factor [dB]	Emission Level Va [dBuV]	Emission Level Vb [dBuV]	Limit [dBuV]	Margin [dB]
1	0.517	----	36.6	0.1	----	36.7	48.0	11.3
2	0.517	36.2	----	0.1	36.3	----	48.0	11.7
3	1.278	----	33.1	0.2	----	33.3	48.0	14.7
4	2.560	32.8	----	0.2	33.0	----	48.0	15.0
5	8.655	----	29.9	0.4	----	30.3	48.0	17.7
6	22.031	29.7	----	1.1	30.8	----	48.0	17.2



8.2 Radiated Emission Test

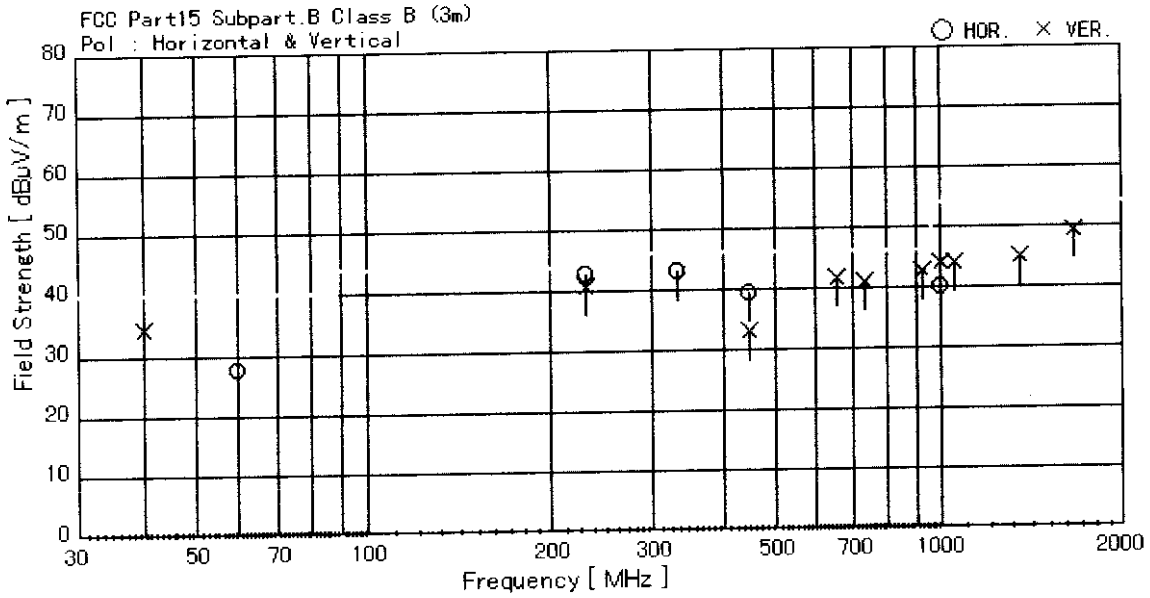
Model Name	CD-R Drive
Model No.	CW-7503-B
Serial No.	8X28XXA00012
Power Supply	120V / 60Hz
Test Mode	READ
Temp/Humi/Pres	19℃ / 54% / 1003hPa
Operator	S.Yamauchi

[Quasi Peak Mode]

No.	FREQ [MHz]	READING LEVEL HOR. [dBuV]	READING LEVEL VER. [dBuV]	FACTOR [dB]	EMISSION LEVEL HOR. [dBuV/m]	EMISSION LEVEL VER. [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]
1	40.005	----	17.4	16.9	----	34.3	40.0	5.7
2	59.994	17.7	----	10.0	27.7	----	40.0	12.3
3	232.526	23.9	----	18.9	42.8	----	46.0	3.2
4	232.526	----	22.0	18.9	----	40.9	46.0	5.1
5	334.545	23.5	----	19.4	42.9	----	46.0	3.1
6	449.486	----	11.8	21.2	----	33.0	46.0	13.0
7	449.490	18.2	----	21.2	39.4	----	46.0	6.6
8	664.341	----	15.5	26.2	----	41.7	46.0	4.3
9	730.801	----	14.3	26.6	----	40.9	46.0	5.1
10	930.112	----	13.8	28.8	----	42.6	46.0	3.4
11	996.518	----	15.2	28.9	----	44.1	54.0	9.9
12	996.558	11.2	----	28.9	40.1	----	54.0	13.9

[Peak Mode]

No.	FREQ [MHz]	READING LEVEL HOR. [dBuV]	READING LEVEL VER. [dBuV]	FACTOR [dB]	EMISSION LEVEL HOR. [dBuV/m]	EMISSION LEVEL VER. [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]
1	1065	----	15.3	28.7	----	44.0	54.0	10.0
2	1330	----	15.4	30.0	----	45.4	54.0	8.6
3	1660	----	17.3	31.8	----	49.1	54.0	4.9



8.3 Conclusion

This test report clearly shows that the EUT is in compliance with the FCC Part 15B, Class B specification.

The minimum margins to the limits are as follows:

-Conduction measurement	11.3 dB	at	0.517 MHz
-Radiation measurement	3.1 dB	at	334.545 MHz

8.4 Sample Calculations

8.4.1 Conducted Emission

			Example @ 0.517 MHz
Emission Level	=	Meter Reading	36.6 dBuV
	+	A.M.N. Factor	+ 0.1 dB
			= 36.7 dBuV
Margin	=	Limit	48.0 dBuV
	-	Emission Level	- 36.7 dBuV
			= 11.3 dB

A.M.N. : Artificial Mains Network = Line Impedance Stabilization Network (LISN)

8.4.2 Radiated Emission

			Example @ 334.545 MHz
Emission Level	=	Meter Reading	23.5 dBuV
	+	Factor	+ 19.4 dB
(Factor	=	Antenna Factor + Cable Loss)	
			= 42.9 dBuV/m
Margin	=	Limit	46.0 dBuV/m
	-	Emission Level	- 42.9 dBuV/m
			= 3.1 dB

SECTION 10. INSTRUMENTS USED FOR TEST

Instrument	Model No.	Serial No.	Manufacturer	Last cal.	Period
EMI Test Receiver	85462A	3520A00241	Hewlett Packard	11/98	1 Year
RF Filter Section	85460A	3448A00210	Hewlett Packard	11/98	1 Year
Biconical Antenna	BBA9106	None	Schwarzbeck	4/98	1 Year
Logperiodic Antenna	UHALP9107	1623	Schwarzbeck	4/98	1 Year
Double Ridged Antenna	3115	9702-5139	EMCO	7/98	1 Year
Artificial Mains Network(AMN) = Line Impedance Stabilization Network(LISN)	ESH3-Z5	840062/024	Schwarzbeck	6/98	1 Year
Artificial Mains Network(AMN) = Line Impedance Stabilization Network(LISN)	ESH3-Z5	840062/028	Schwarzbeck	7/98	1 Year

SECTION 11. PRECISION

Tolerance of the measuring instruments are shown on below.

1. Antenna factor ±2.0 dB
2. Cable loss ±1.0 dB
3. EMI test receiver ±2.0 dB
4. Artificial Mains Network(AMN) impedance ±20%

= Line Impedance Stabilization Network(LISN)

5. Site Attenuation ±4.0 dB

Repeatability and reproducibility about maximum emission setup are not specified herein.

SECTION 12. VALIDITY TEST REPORT

12.1 The test result of this report is effective for equipment under test itself and under the test configuration described on the report.

12.2 This test report does not assure that whether the test result taken in other testing laboratory is compatible or reproducible to the test result on this report or not.

12.3 Copying of this report without permission is prohibited.