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MEASUREMENT REPORT OF DIGITAL DEVICE

Applicant : Toshiba Corporation
Digital Media Network Company
2-9, Suehiro-cho, Ome-shi, Tokyo 198-8710 Japan

Description on device : HDD portable audio player
a) Category : Class B Personal Computers and Peripherals
b) Trade name : TOSHIBA
c) Model No. : 1090
d) Power supply : DC 5 V, 1.4A (powered from host device)
DC 3.7V (Internal Battery)

Date of measurement : July 28, 2006

Regulation applied : FCC rules and regulations Part 15 Subpart B

Measurement procedure : ANSI C63.4-2003

Measurement place : Anechoic Chamber No. 1 of Ome Operations, Toshiba Corporation.
(NVLAP Lab Code: 200107-0)

Measurement results : The results obtained from the measuring of the above-mentioned device are as shown in the attached sheets.
Test results in this test report are applicable to the sample tested.
Test results in this test report are traceable to the National/ International Standards.

I HEREBY CERTIFY THAT : The data shown in this report was made in accordance with the procedures given in ANSI C63.4-2003 and the energy emitted by the device was found to be within the applicable limits. This report was made in accordance with NVLAP requirements.

Document No.: OFA-C5426



K. Takenaka, Group Manager
Quality Assurance Group
Technology & Quality Management Division
Identify NVLAP Signatory

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1. EQUIPMENT UNDER TEST (EUT)

1.1. EUT information

The equipment under test (EUT) was tested as a system consisting of appropriate operating peripherals, host device and cables connected to the external connectors of the following equipment.

Equipment name	Model No.	Serial No.	Type
HDD portable audio player	1090	KEEL-CS-FB-01	Pre-production

Note: This EUT is operated with personal computer (host device).

1.2. Product information of the EUT

1.2.1. Model designation

Product name	Model No.	Body color
HDD portable audio player	1089	Black
	1090	White
	1091	Brown

Note: This product has several body color variations.
These color difference has no effect on electrical and RF characteristics.

1.2.2. Product function

This product has some functions as follows.

- Wireless LAN communication mode (IEEE802.11b/g)
- FM tuner mode
- Audio and video player mode
- USB data transfer mode

1.2.3. Unit information

This product consists of the following units.

Units or components	Number of unit(s) or component(s)
- System board	1
- Switch flexible board	1
- 3.0 inch LCD unit	1
- 1.8 inch HDD	1
- Battery	1

1.2.4. System Block Diagram

Please refer to the Appendix E

1.2.5. Details of units

Please refer to the Appendix F

1.2.6. Label Information

Please refer to the Appendix G

1.2.7. Photographs

Please refer to the Appendix H

1.3. Operating conditions of EUT

1.3.1. EUT operation

Our report represents measurement data taken during the worst-case EUT operations as follows.

[Data A]: USB data transfer mode

- Data transfer between EUT and PC
- Output by printer connected to PC
- Display on LCD of PC
- Display on LCD of EUT
- EUT powered from PC

[Data B]: Video player mode

- Display on TV monitor
- Display on LCD of EUT
- EUT powered from PC

[Data C]: Wireless LAN communication mode

- Data transfer by Wireless LAN, between EUT and communication equipment.
- Display on LCD of EUT
- EUT powered from PC

1.3.2. Peripherals and cables used

The measurement in this report was performed with the following peripherals and cables connected to the EUT.

-Table 1, Peripherals

Equipment No.	Kind of Equipment	Manufacturer or Distributor	Model No. (Serial No.)	FCC approval
1	Personal computer (Host PC)	Toshiba	PSJ30N(CS#1)	DoC
2	Headphone	Able King Enterprises	X810122-001(MG1#1)	N/A
3	Printer	EPSON	P110 (BUY1388702)	FCC ID: BKMFBP110A
4	Tablet	Hitachi	HDG-405J-SR (AA405P2022)	FCC ID: K5G01028
5	TV monitor	SONY	KV-13M31(400825)	Verification

Note:

- *1: The personal computer was operated with an AC Adaptor (Model No. PA3282U-2ACA) supplied by Toshiba Corporation.

-Table 2, Peripherals for Wireless LAN communication

Kind of Equipment	Manufacturer or Distributor	Model No. (Serial No.)
Personal computer	Toshiba	PPM30N(35031444HJ)
Access point	NETGEAR	JWAGR614(861622400073)

Note: These peripherals were used for only Wireless LAN communication mode (Data C).
These were set up so that it is not affected to the result, to the most distant position (the right corner of turntable side in the Anechoic chamber) from a measurement antenna.

-Table 3, Connecting information for peripherals and cables

Connector name of		Peripherals (Equipment No. * ¹)			Interface cable information			
EUT	PC	Data			Cable type	Connector type	Length [m]	Description
		A	B* ²	C* ²				
USB port	-	1	1	1	Shielded	Metallic	1.2	USB cable
Headphone jack	-	2	-	2	Shielded	Metallic	1.2	Headphone cable
		-	5	-	Unshielded	Metallic	1.4	AV cable
-	Printer port	3	-	-	Shielded	Metallic	1.5	Printer cable
-	Serial port	4	-	-	Shielded	Metallic	1.2	Tablet cable

Note:

*¹ The Equipment numbers refers to the Table 1.

*² In these modes (Data B and C), this EUT can not send and receive any signals across the USB cable.
So PC which has regulator function is used as AC adaptor under measurement.
Hence, Subpart B measurement is performed without peripheral device of PC

1.3.3. Operating power supply

These measurements for all equipment were performed by 120Vac/ 60Hz power supply.

2. COMMENT ON THE MEASUREMENT

2.1. Measurement methodology

Both conduction and radiation measurement are performed in accordance with the procedures in ANSI 63.4-2003.

2.2. Deviation from standard

None

2.3 Measurement procedure

During the evaluation measurement, all available modes, all cabling and peripheral layouts were arranged to achieve the "WORST" case emissions.

The exploratory and final measurements were performed under the conditions (mode of operation and configuration) of EUT determined by evaluation measurement.

At least six highest emissions relative to the limits were recorded at the final measurement.

2.3.1. Conduction measurement

The investigated frequency range was 150 kHz to 30 MHz.

The exploratory measurement was made by peak detector function to determine the emission characteristics of the EUT. Based on the exploratory measurement, the one EUT cable configuration and arrangement and mode of operation that produces the emission with the highest amplitude relative to the limit is selected for the final measurement. The final measurement was made by quasi-peak and average detector function.

The signal output port of the LISN (Model No. KNW341C) for peripherals was terminated with a 50-ohms termination.

The measurement is in accordance with section 7 (AC line conducted emission measurements) in ANSI C63.4-2003.

2.3.2. Radiation measurement

The investigated frequency range was 30 MHz to 12.5 GHz.

The radiation measurement was performed at the measurement distance of 3 meter.

The exploratory measurement was made by peak detector function to determine the emission characteristics of the EUT. Based on the measurement results of the exploratory measurement, the one EUT, cable and wire arrangement, and mode of operation that produces the emission that has the highest amplitude relative to the limit is selected for the final measurement. The final measurement was made by quasi-peak (If above 1GHz, average and peak) detector functions.

This investigation is performed with the EUT rotated 360 degree, the antenna height scanned between 1m and 4m, and the antenna rotate to repeat the measurement for both the horizontal and vertical antenna polarizations.

The measurement is in accordance with section 8 (Radiated emission measurements) in ANSI C63.4-2003.

2.4. Measurement place

Both conduction and radiation measurement was performed in the Anechoic Chamber No.1.

- Table 4, measurement place -

Data	Conduction (150k - 30MHz)	Radiation (30M -1GHz)	Radiation (above 1GHz)
A to C	Anechoic Chamber No.1	Anechoic Chamber No.1	Anechoic Chamber No.1

2.5. Ambient condition

The ambient conditions at the time the measurement was conducted were as follows:

- Temperature / Relative humidity: Please see [Measurement Results] in this report.

2.6. Measurement Uncertainty

Derived from ISO Guide to the Determination of Uncertainties with a Coverage Factor K=2.

-Table 5, Measurement Uncertainty -

Anechoic chamber	Measurement Uncertainty [dB]		
	150k - 30MHz	30M - 1GHz	1 - 18GHz
No. 1	±1.4	±3.7	±5.5

2.7. Sample of calculation

-Table 6, Factor information -

Item		Unit	Instruments	Frequency range	Appendix
Conduction measurement	Final	System factor	LISN: ENV216 and System loss	150k - 30MHz	A
	Exploratory	System factor	LISN: ENV216 and System loss	150k - 30MHz	A
Radiation measurement	Final	System loss	cable loss and/or selector loss and/or Amplifier	30M - 18GHz	B
		Antenna factor	Tunable dipole antenna: KBA-511A	30M - 500MHz	C
		Antenna factor	Tunable dipole antenna: KBA-611	500M - 1GHz	C
		Antenna factor	Double Ridged Waveguide Horn Antenna: 3115	1G - 18GHz	D
	Exploratory	System loss	cable loss and/or selector loss and/or Amplifier	30M - 18GHz	B
		Antenna factor	BILOG antenna: CBL6111A	30M - 1GHz	D
		Antenna factor	Double Ridged Waveguide Horn Antenna: 3115	1G - 18GHz	D

- Table 6, Sample of calculation -

Conduction	Frequency [MHz]	Line/ Detector	Meter Reading [dBuV]	System factor [dB]	Emission level [dBuV]	Reference mark of data
Final measurement	0.15265	Va/ QP	31.2 +	9.6 =	40.8	#

Radiation	Frequency [MHz]	Polarization	Meter Reading [dBuV]	System loss + antenna factor [dB]	Emission level [dBuV/m]	Reference mark of data
Final measurement	194.773	H	12.9 +	16.5 =	29.4	##

3. Measurement results

3.1. Conduction measurement results

Final measurement result (A: USB data transfer mode)

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<<Conducted Emission>>

28 July, 2006 23:22

Standard : FCC Part 15B Class B
Model Name : HDD portable audio player
Model No. : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 25.2deg. / 76%
Operator : M. Watanabe
Remark1 : USB Transfer mode
Remark2 :
Remark3 :

Final Result

--- L1 Phase ---

No.	Frequency	Reading	c. f	Result	Limit	Limit	Margin
		QP		QP	QP	AV	QP
	[MHz]	[dB(μ V)]	[dB]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB]
# 1	0.15265	31.2	9.6	40.8	65.9	55.9	25.1
2	0.19221	34.6	9.7	44.3	63.9	53.9	19.6
3	0.31981	27.4	9.7	37.1	59.7	49.7	22.6
4	0.51175	26.3	9.8	36.1	56.0	46.0	19.9
5	0.89761	26.0	9.9	35.9	56.0	46.0	20.1
6	4.67623	21.5	10.0	31.5	56.0	46.0	24.5

--- L2 Phase ---

No.	Frequency	Reading	c. f	Result	Limit	Limit	Margin
		QP		QP	QP	AV	QP
	[MHz]	[dB(μ V)]	[dB]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB]
1	0.16022	30.1	9.6	39.7	65.5	55.5	25.8
2	0.1922	35.5	9.7	45.2	63.9	53.9	18.7
3	0.31915	27.7	9.7	37.4	59.7	49.7	22.3
4	0.51134	26.3	9.8	36.1	56.0	46.0	19.9
5	0.89724	26.1	9.9	36.0	56.0	46.0	20.0
6	4.80361	22.5	10.0	32.5	56.0	46.0	23.5

Exploratory Measurement (pick up list): (A: USB data transfer mode)

***** TOSHIBA CORPORATION *****
<<Conducted Emission>>

28 July, 2006 23:22

Standard : FCC Part 15B Class B
Model Name : HDD portable audio player
Model No. : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 25.2deg. / 76%
Operator : M.Watanabe
Remark1 : USB Transfer mode
Remark2 :
Remark3 :

Spectrum Selection

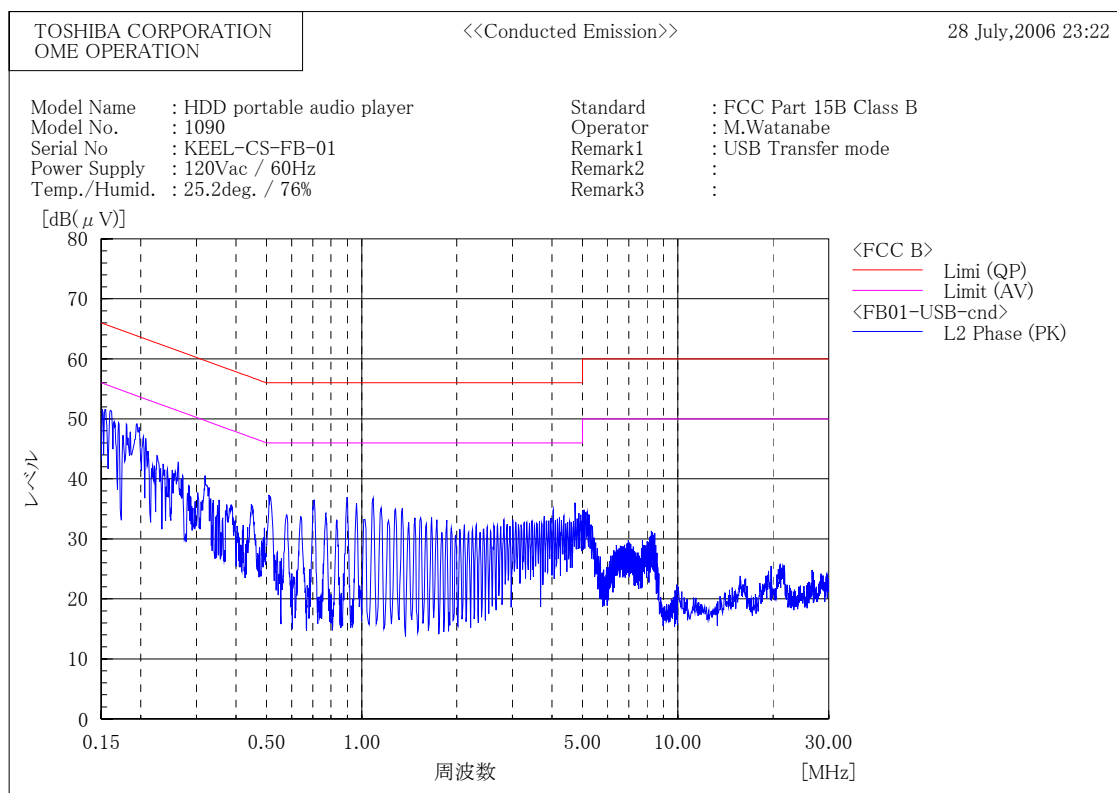
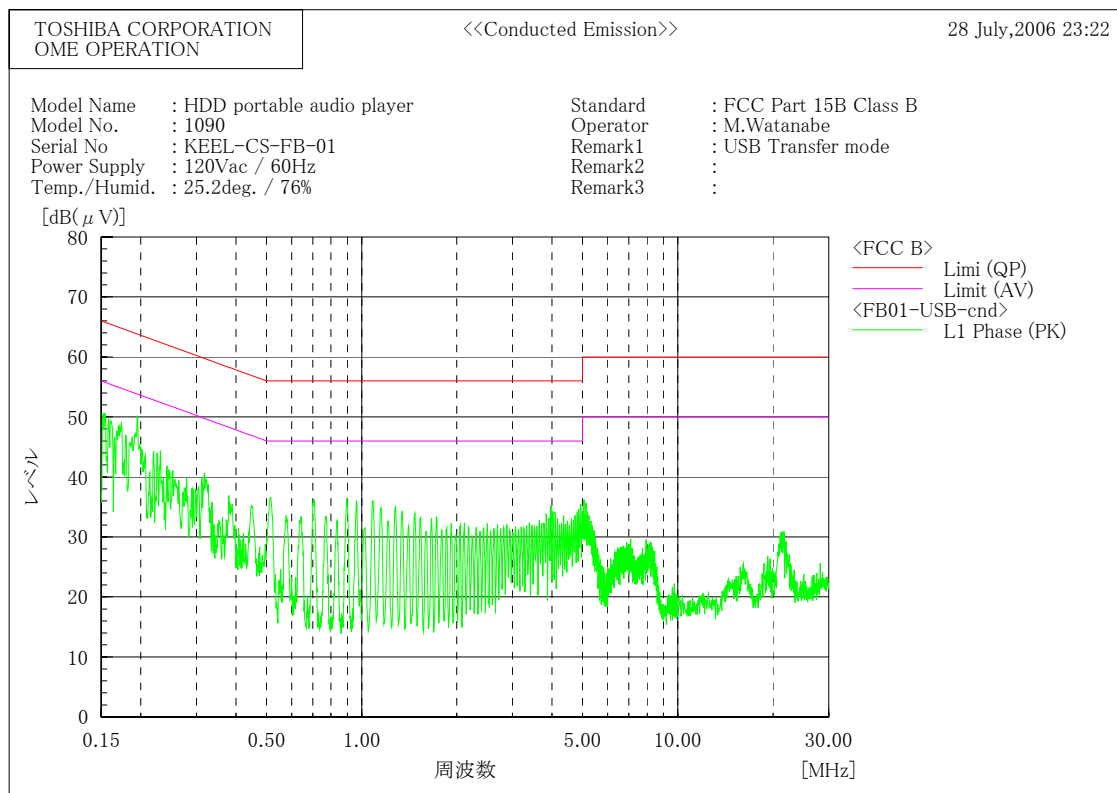
--- L1 Phase ---

No.	Frequency	Reading	c.f	Result PK	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.15421	41.1	9.6	50.7	65.8	55.8	15.1	5.1
2	0.15842	40.2	9.6	49.8	65.5	55.5	15.7	5.7
3	0.16543	36.9	9.7	46.6	65.2	55.2	18.6	8.6
4	0.17385	39.4	9.7	49.1	64.8	54.8	15.7	5.7
5	0.17946	37.3	9.7	47.0	64.5	54.5	17.5	7.5
6	0.19489	40.4	9.7	50.1	63.8	53.8	13.7	3.7
7	0.22014	34.5	9.7	44.2	62.8	52.8	18.6	8.6
8	0.22505	34.3	9.7	44.0	62.6	52.6	18.6	8.6
9	0.23066	34.6	9.7	44.3	62.4	52.4	18.1	8.1
10	0.31834	30.9	9.7	40.6	59.8	49.8	19.2	9.2
11	0.51503	26.8	9.8	36.6	56.0	46.0	19.4	9.4
12	0.70842	26.4	9.8	36.2	56.0	46.0	19.8	9.8
13	0.8978	26.5	9.9	36.4	56.0	46.0	19.6	9.6
14	0.96192	26.0	10.0	36.0	56.0	46.0	20.0	10.0
15	1.08818	26.0	10.0	36.0	56.0	46.0	20.0	10.0

--- L2 Phase ---

No.	Frequency	Reading	c.f	Result PK	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.1514	42.0	9.6	51.6	65.9	55.9	14.3	4.3
2	0.15421	42.0	9.6	51.6	65.8	55.8	14.2	4.2
3	0.16052	41.8	9.6	51.4	65.4	55.4	14.0	4.0
4	0.17034	39.7	9.7	49.4	64.9	54.9	15.5	5.5
5	0.19489	39.5	9.7	49.2	63.8	53.8	14.6	4.6
6	0.20752	37.0	9.7	46.7	63.3	53.3	16.6	6.6
7	0.22505	34.2	9.7	43.9	62.6	52.6	18.7	8.7
8	0.23557	32.8	9.7	42.5	62.3	52.3	19.8	9.8
9	0.26293	33.0	9.7	42.7	61.3	51.3	18.6	8.6
10	0.31974	30.8	9.7	40.5	59.7	49.7	19.2	9.2
11	0.50902	27.5	9.8	37.3	56.0	46.0	18.7	8.7
12	0.70741	26.7	9.8	36.5	56.0	46.0	19.5	9.5
13	0.8998	27.1	9.9	37.0	56.0	46.0	19.0	9.0
14	1.08818	26.7	10.0	36.7	56.0	46.0	19.3	9.3
15	4.73547	26.0	10.0	36.0	56.0	46.0	20.0	10.0

Exploratory Measurement (spectrum graph): (A: USB data transfer mode)



Final measurement result (B: Video player mode)

***** TOSHIBA CORPORATION *****
<<Conducted Emission>>

28 July, 2006 22:36

Standard : FCC Part 15B Class B
Model Name : HDD portable audio player
Model No. : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 25.2deg. / 76%
Operator : M. Watanabe
Remark1 : Video mode
Remark2 :
Remark3 :

Final Result

--- L1 Phase ---

No.	Frequency	Reading QP	c. f	Result QP	Limit QP	Limit AV	Margin QP
	[MHz]	[dB(μ V)]	[dB]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB]
1	0.19405	32.5	9.7	42.2	63.9	53.9	21.7
2	0.36785	32.2	9.8	42.0	58.5	48.5	16.5
3	0.61239	25.0	9.8	34.8	56.0	46.0	21.2
4	0.83427	22.4	9.9	32.3	56.0	46.0	23.7
5	14.70942	18.8	10.3	29.1	60.0	50.0	30.9
6	17.06373	19.9	10.4	30.3	60.0	50.0	29.7

--- L2 Phase ---

No.	Frequency	Reading QP	c. f	Result QP	Limit QP	Limit AV	Margin QP
	[MHz]	[dB(μ V)]	[dB]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB]
1	0.193	34.3	9.7	44.0	63.9	53.9	19.9
2	0.37024	32.2	9.8	42.0	58.5	48.5	16.5
3	0.59529	24.5	9.8	34.3	56.0	46.0	21.7
4	0.83527	22.4	9.9	32.3	56.0	46.0	23.7
5	14.74596	21.0	10.3	31.3	60.0	50.0	28.7
6	17.19138	19.9	10.4	30.3	60.0	50.0	29.7

Exploratory Measurement (pick up list): (B: Video player mode)

***** TOSHIBA CORPORATION *****
<<Conducted Emission>>

28 July, 2006 22:36

Standard : FCC Part 15B Class B
Model Name : HDD portable audio player
Model No. : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 25.2deg. / 76%
Operator : M.Watanabe
Remark1 : Video mode
Remark2 :
Remark3 :

Spectrum Selection

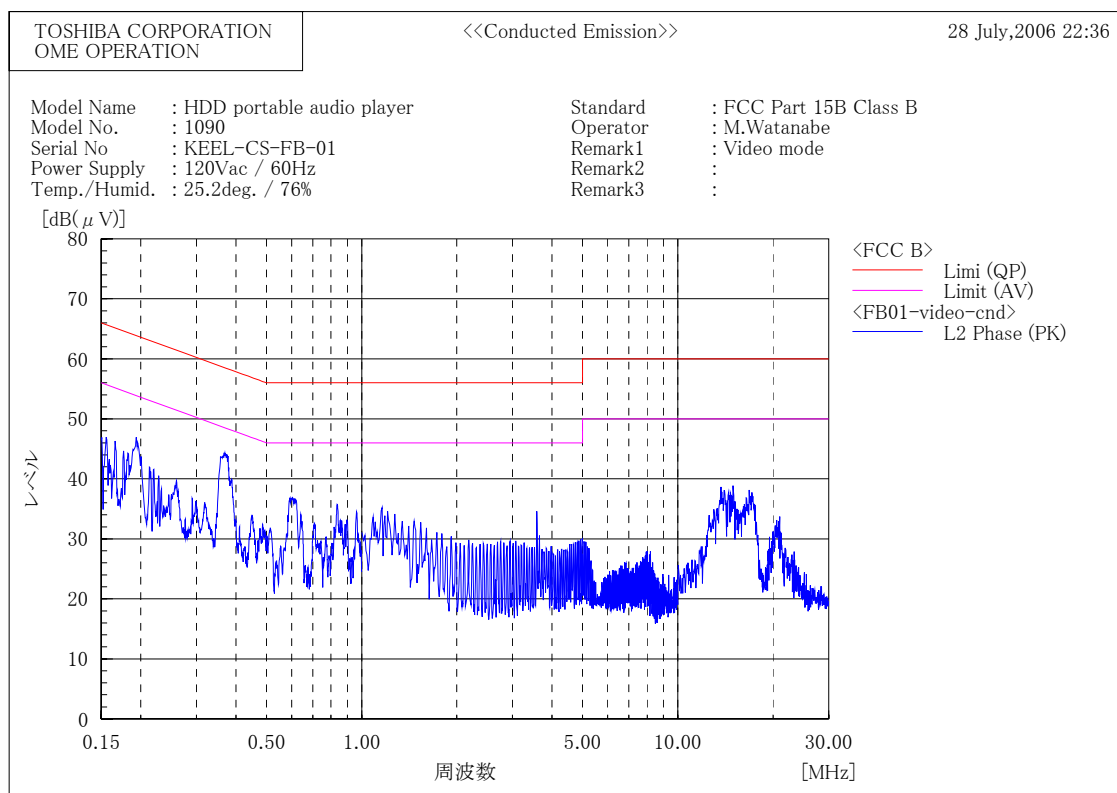
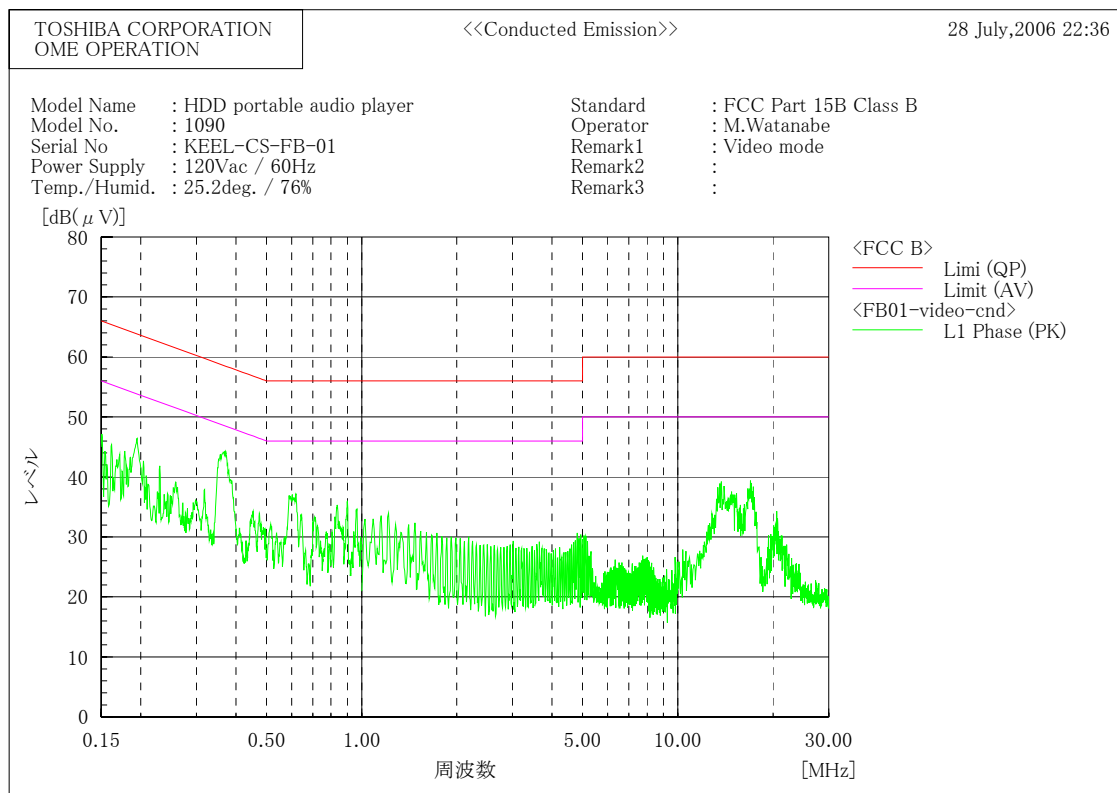
--- L1 Phase ---

No.	Frequency	Reading	c.f	Result PK	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μ V)]	[dB]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB]	[dB]
1	0.15421	34.7	9.6	44.3	65.8	55.8	21.5	11.5
2	0.16192	35.7	9.7	45.4	65.4	55.4	20.0	10.0
3	0.17174	34.1	9.7	43.8	64.9	54.9	21.1	11.1
4	0.19489	36.8	9.7	46.5	63.8	53.8	17.3	7.3
5	0.22996	32.1	9.7	41.8	62.5	52.5	20.7	10.7
6	0.25802	29.4	9.7	39.1	61.5	51.5	22.4	12.4
7	0.31834	28.2	9.7	37.9	59.8	49.8	21.9	11.9
8	0.37024	34.5	9.8	44.3	58.5	48.5	14.2	4.2
9	0.61924	27.4	9.8	37.2	56.0	46.0	18.8	8.8
10	0.83667	25.4	9.9	35.3	56.0	46.0	20.7	10.7
11	0.9008	26.0	9.9	35.9	56.0	46.0	20.1	10.1
12	0.96593	24.7	10.0	34.7	56.0	46.0	21.3	11.3
13	1.21643	24.0	10.0	34.0	56.0	46.0	22.0	12.0
14	13.72746	29.0	10.2	39.2	60.0	50.0	20.8	10.8
15	16.97395	29.0	10.4	39.4	60.0	50.0	20.6	10.6

--- L2 Phase ---

No.	Frequency	Reading	c.f	Result PK	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μ V)]	[dB]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB]	[dB]
1	0.15561	37.3	9.6	46.9	65.7	55.7	18.8	8.8
2	0.16613	36.6	9.7	46.3	65.2	55.2	18.9	8.9
3	0.17665	35.0	9.7	44.7	64.6	54.6	19.9	9.9
4	0.19349	37.2	9.7	46.9	63.9	53.9	17.0	7.0
5	0.21313	32.3	9.7	42.0	63.1	53.1	21.1	11.1
6	0.22014	31.9	9.7	41.6	62.8	52.8	21.2	11.2
7	0.36743	34.6	9.7	44.3	58.6	48.6	14.3	4.3
8	0.60321	27.1	9.8	36.9	56.0	46.0	19.1	9.1
9	0.83667	25.9	9.9	35.8	56.0	46.0	20.2	10.2
10	0.96393	24.5	10.0	34.5	56.0	46.0	21.5	11.5
11	1.16032	25.2	10.0	35.2	56.0	46.0	20.8	10.8
12	1.20842	24.6	10.0	34.6	56.0	46.0	21.4	11.4
13	3.58116	24.6	10.0	34.6	56.0	46.0	21.4	11.4
14	13.68738	28.5	10.2	38.7	60.0	50.0	21.3	11.3
15	14.92986	28.6	10.3	38.9	60.0	50.0	21.1	11.1

Exploratory Measurement (spectrum graph): (B: Video player mode)



Final measurement result (C: Wireless LAN communication mode)

***** TOSHIBA CORPORATION *****
<<Conducted Emission>>

28 July, 2006 22:12

Standard : FCC Part 15B Class B
Model Name : HDD portable audio player
Model No. : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 25.2deg. / 76%
Operator : M. Watanabe
Remark1 : W-LAN mode
Remark2 :
Remark3 :

Final Result

--- L1 Phase ---

No.	Frequency	Reading QP	c. f	Result QP	Limit QP	Limit AV	Margin QP
	[MHz]	[dB(μ V)]	[dB]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB]
1	0.15154	25.8	9.6	35.4	65.9	55.9	30.5
2	0.1927	32.9	9.7	42.6	63.9	53.9	21.3
3	0.256	24.9	9.7	34.6	61.6	51.6	27.0
4	0.29405	17.0	9.7	26.7	60.4	50.4	33.7
5	0.3847	22.7	9.8	32.5	58.2	48.2	25.7
6	0.4498	17.9	9.8	27.7	56.9	46.9	29.2

--- L2 Phase ---

No.	Frequency	Reading QP	c. f	Result QP	Limit QP	Limit AV	Margin QP
	[MHz]	[dB(μ V)]	[dB]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB]
1	0.16553	24.2	9.7	33.9	65.2	55.2	31.3
2	0.19395	32.8	9.7	42.5	63.9	53.9	21.4
3	0.25521	25.2	9.7	34.9	61.6	51.6	26.7
4	0.31882	18.0	9.7	27.7	59.7	49.7	32.0
5	0.38557	23.5	9.8	33.3	58.2	48.2	24.9
6	0.44729	19.0	9.8	28.8	56.9	46.9	28.1

Exploratory Measurement (pick up list): (C: Wireless LAN communication mode)

***** TOSHIBA CORPORATION *****
<<Conducted Emission>>

28 July, 2006 22:12

Standard : FCC Part 15B Class B
Model Name : HDD portable audio player
Model No. : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 25.2deg. / 76%
Operator : M. Watanabe
Remark1 : W-LAN mode
Remark2 :
Remark3 :

Spectrum Selection

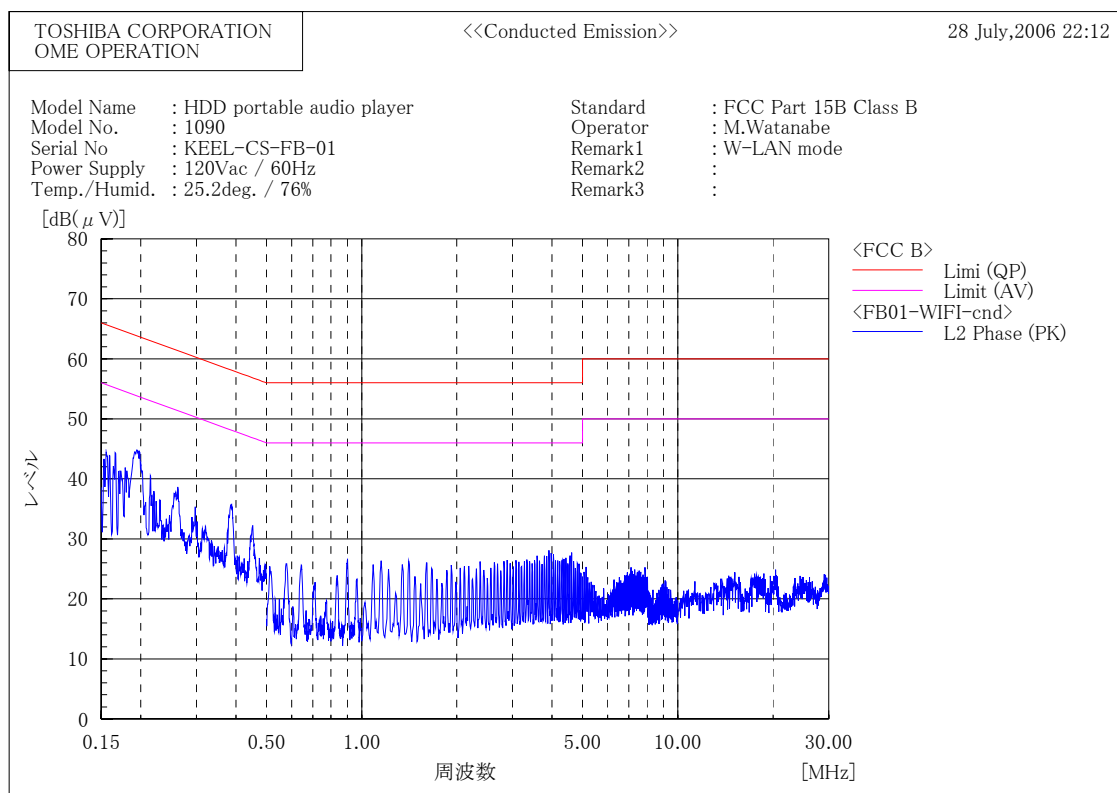
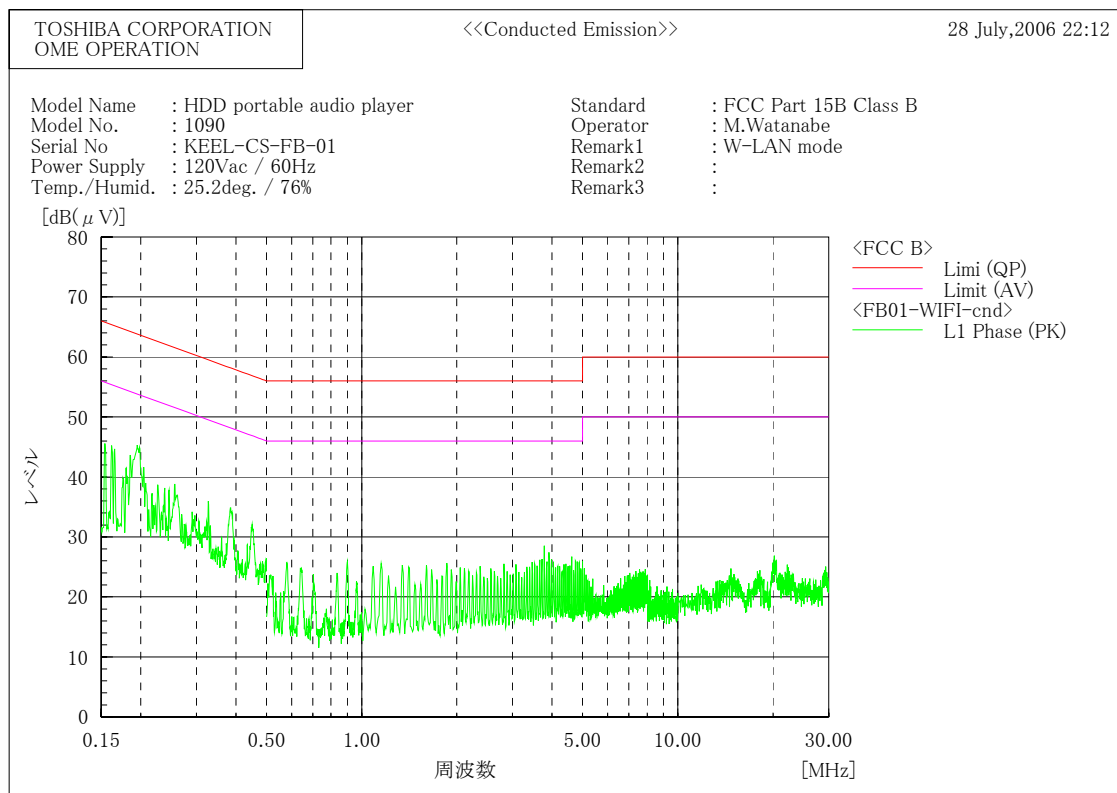
--- L1 Phase ---

No.	Frequency	Reading	c.f	Result	Limit	Limit	Margin	Margin
	[MHz]	[dB(μV)]	[dB]	PK	QP	AV	QP	AV
				[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.15421	36.0	9.6	45.6	65.8	55.8	20.2	10.2
2	0.16192	35.5	9.7	45.2	65.4	55.4	20.2	10.2
3	0.16543	35.0	9.7	44.7	65.2	55.2	20.5	10.5
4	0.17595	30.1	9.7	39.8	64.7	54.7	24.9	14.9
5	0.18016	31.8	9.7	41.5	64.5	54.5	23.0	13.0
6	0.19489	35.6	9.7	45.3	63.8	53.8	18.5	8.5
7	0.21733	27.6	9.7	37.3	62.9	52.9	25.6	15.6
8	0.22645	28.9	9.7	38.6	62.6	52.6	24.0	14.0
9	0.23838	28.5	9.7	38.2	62.2	52.2	24.0	14.0
10	0.24609	28.1	9.7	37.8	61.9	51.9	24.1	14.1
11	0.25591	29.0	9.7	38.7	61.6	51.6	22.9	12.9
12	0.32745	26.2	9.7	35.9	59.5	49.5	23.6	13.6
13	0.38497	25.1	9.8	34.9	58.2	48.2	23.3	13.3
14	0.4502	22.3	9.8	32.1	56.9	46.9	24.8	14.8
15	3.78156	18.5	10.0	28.5	56.0	46.0	27.5	17.5

--- L2 Phase ---

No.	Frequency	Reading	c.f	Result	Limit	Limit	Margin	Margin
	[MHz]	[dB(μV)]	[dB]	PK	QP	AV	QP	AV
				[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.150	29.0	9.6	38.6	66.0	56.0	27.4	17.4
2	0.15561	34.8	9.6	44.4	65.7	55.7	21.3	11.3
3	0.15912	34.3	9.6	43.9	65.5	55.5	21.6	11.6
4	0.16613	34.7	9.7	44.4	65.2	55.2	20.8	10.8
5	0.17315	31.6	9.7	41.3	64.8	54.8	23.5	13.5
6	0.19419	35.1	9.7	44.8	63.9	53.9	19.1	9.1
7	0.21453	30.8	9.7	40.5	63.0	53.0	22.5	12.5
8	0.22014	28.3	9.7	38.0	62.8	52.8	24.8	14.8
9	0.26222	29.0	9.7	38.7	61.4	51.4	22.7	12.7
10	0.298	25.6	9.7	35.3	60.3	50.3	25.0	15.0
11	0.38778	25.9	9.8	35.7	58.1	48.1	22.4	12.4
12	0.4516	22.4	9.8	32.2	56.8	46.8	24.6	14.6
13	3.90982	18.1	10.0	28.1	56.0	46.0	27.9	17.9
14	3.97395	17.6	10.0	27.6	56.0	46.0	28.4	18.4
15	4.61523	17.7	10.0	27.7	56.0	46.0	28.3	18.3

Exploratory Measurement (spectrum graph): (C: Wireless LAN communication mode)



3.2. Radiation measurement results

Final measurement: (A: USB data transfer mode)

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 10:15

Standard : FCC Part 15B Class B (3m)
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac/ 60Hz
Temp./Humid. : 24.1deg./ 80%
Operator : M. Watanabe
Remark1 : USB Transfer mode
Remark2 :
Remark3 :

Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c. f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [°]
## 1	194.773	12.9	16.5	29.4	43.5	14.1	250.0	120.0
2	263.994	21.2	19.2	40.4	46.0	5.6	128.0	48.0
3	285.999	16.9	20.0	36.9	46.0	9.1	109.0	319.0
4	440.135	9.6	24.3	33.9	46.0	12.1	247.0	103.0
5	479.953	11.5	25.1	36.6	46.0	9.4	98.0	201.0
6	659.939	12.0	28.6	40.6	46.0	5.4	156.0	72.0

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c. f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [°]
1	43.091	9.3	22.1	31.4	40.0	8.6	98.0	261.0
2	151.199	15.4	14.2	29.6	43.5	13.9	98.0	142.0
3	193.946	12.5	16.5	29.0	43.5	14.5	264.0	332.0
4	263.985	14.0	19.2	33.2	46.0	12.8	102.0	30.0
5	434.333	12.2	24.2	36.4	46.0	9.6	110.0	203.0
6	864.225	11.9	32.0	43.9	46.0	2.1	147.0	352.0

Exploratory Measurement (pick up list): (A: USB data transfer mode)

for 30M - 1GHz

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 10:15

Standard : FCC Part 15B Class B (3m)
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac/ 60Hz
Temp./Humid. : 24.1deg./ 80%
Operator : M.Watanabe
Remark1 : USB Transfer mode
Remark2 :
Remark3 :

Spectrum Selection

--- Horizontal Polarization ---

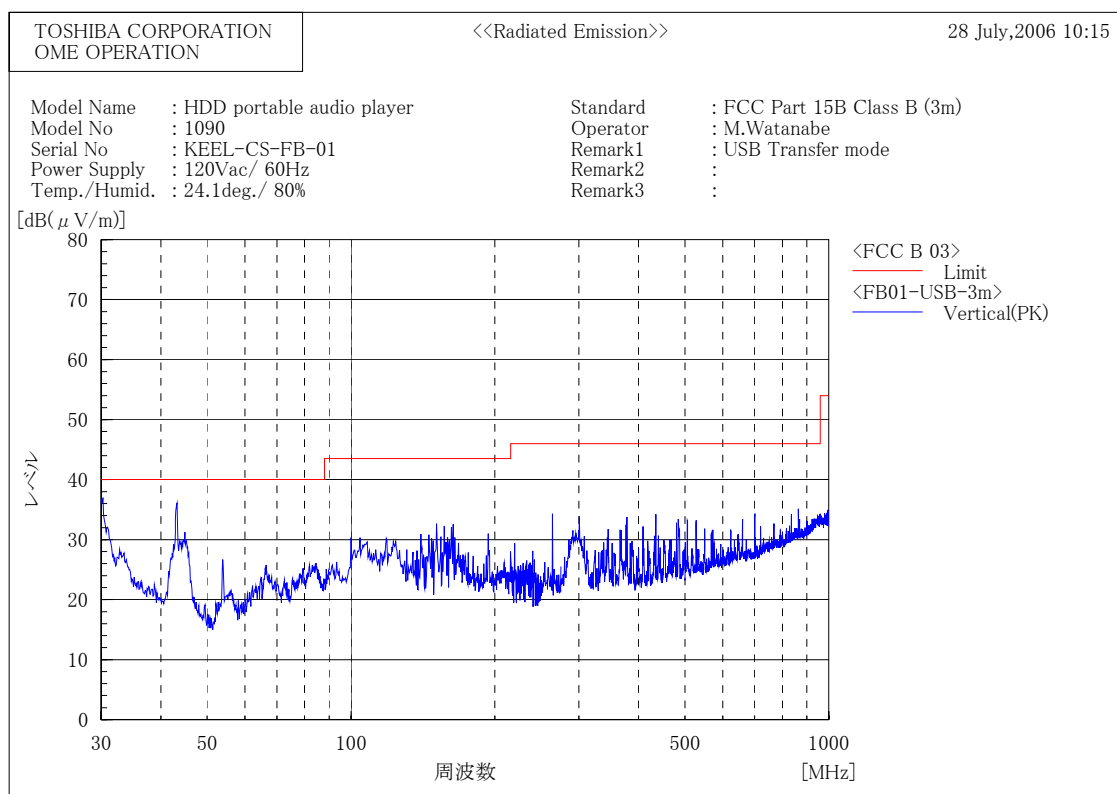
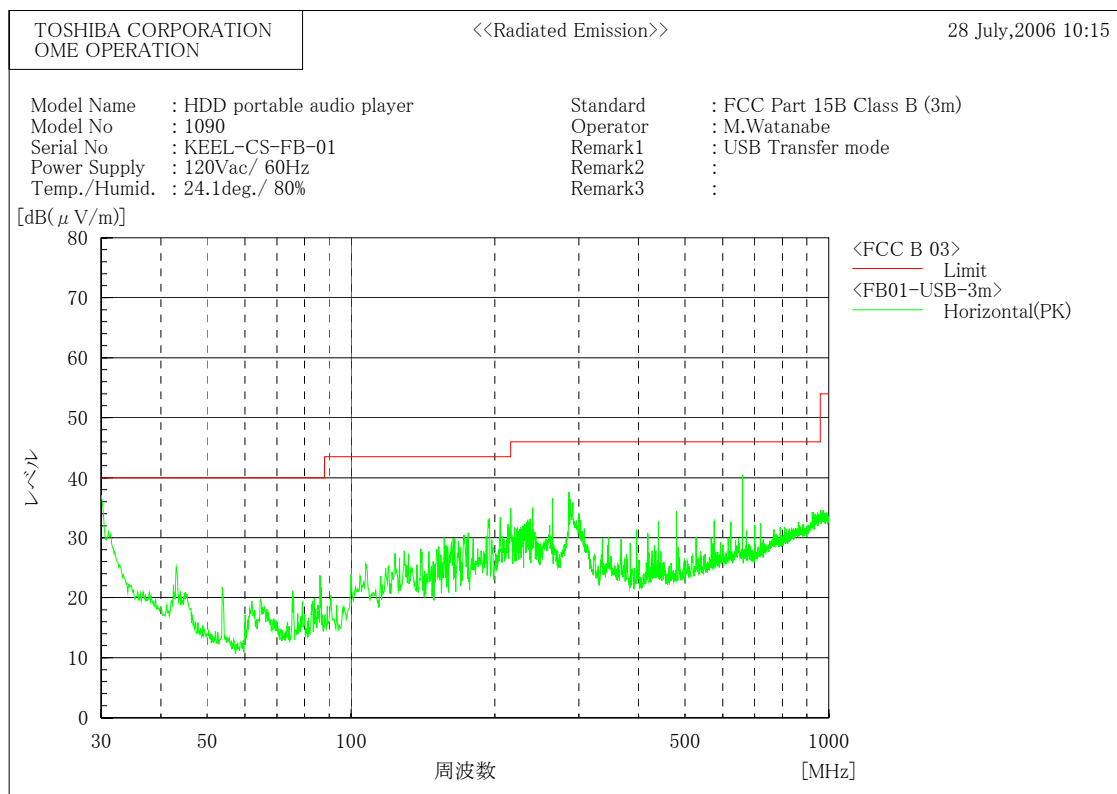
No.	Frequency	Reading	c.f	Result	Limit	Margin	Height	Angle
	[MHz]	[dB(μ V)]	[dB(1/m)]	PK [dB(μ V/m)]	[dB(μ V/m)]	[dB]	[cm]	[°]
1	172.305	19.2	11.3	30.5	43.5	13.0	150.0	243.0
2	176.012	19.9	10.9	30.8	43.5	12.7	150.0	238.0
3	194.920	22.5	10.8	33.3	43.5	10.2	300.0	111.0
4	205.301	21.8	11.6	33.4	43.5	10.1	150.0	127.0
5	216.052	23.1	11.8	34.9	46.0	11.1	150.0	4.0
6	234.589	20.3	12.7	33.0	46.0	13.0	150.0	270.0
7	237.184	20.3	12.9	33.2	46.0	12.8	150.0	286.0
8	240.150	21.9	13.1	35.0	46.0	11.0	150.0	309.0
9	264.249	21.6	15.0	36.6	46.0	9.4	150.0	32.0
10	285.822	22.4	15.2	37.6	46.0	8.4	110.0	315.0
11	440.030	13.6	19.1	32.7	46.0	13.3	248.0	96.0
12	480.160	14.6	19.8	34.4	46.0	11.6	110.0	208.0
13	660.321	17.2	23.3	40.5	46.0	5.5	150.0	76.0

--- Vertical Polarization ---

No.	Frequency	Reading	c.f	Result	Limit	Margin	Height	Angle
	[MHz]	[dB(μ V)]	[dB(1/m)]	PK [dB(μ V/m)]	[dB(μ V/m)]	[dB]	[cm]	[°]
1	43.226	22.7	13.4	36.1	40.0	3.9	115.0	259.0
2	140.050	17.6	13.3	30.9	43.5	12.6	106.0	123.0
3	145.611	17.7	13.1	30.8	43.5	12.7	106.0	128.0
4	151.172	19.8	12.8	32.6	43.5	10.9	106.0	34.0
5	156.733	19.8	12.4	32.2	43.5	11.3	106.0	56.0
6	162.295	20.1	12.0	32.1	43.5	11.4	106.0	45.0
7	163.778	20.6	12.0	32.6	43.5	10.9	106.0	123.0
8	193.808	20.2	10.8	31.0	43.5	12.5	106.0	29.0
9	264.249	19.3	15.0	34.3	46.0	11.7	106.0	23.0
10	300.701	18.3	15.6	33.9	46.0	12.1	209.0	184.0
11	377.806	15.9	17.9	33.8	46.0	12.2	114.0	223.0
12	434.619	15.2	19.0	34.2	46.0	11.8	114.0	200.0
13	484.218	13.5	19.9	33.4	46.0	12.6	114.0	178.0
14	505.511	12.9	20.3	33.2	46.0	12.8	111.0	85.0
15	528.056	12.4	20.8	33.2	46.0	12.8	111.0	272.0
16	660.321	10.1	23.3	33.4	46.0	12.6	301.0	153.0
17	700.401	11.0	23.3	34.3	46.0	11.7	111.0	123.0
18	864.228	9.1	26.0	35.1	46.0	10.9	148.0	357.0

Exploratory Measurement (spectrum graph): (A: USB data transfer mode)

for 30M - 1GHz



Exploratory Measurement (pick up list): (A: USB data transfer mode)

for above 1GHz

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 11:32

Standard : FCC Part 15B Class B (3m): PK
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 24.2deg. / 76%
Operator : M.Watanabe
Remark1 : USB Transfer mode
Remark2 :
Remark3 :

Spectrum Selection

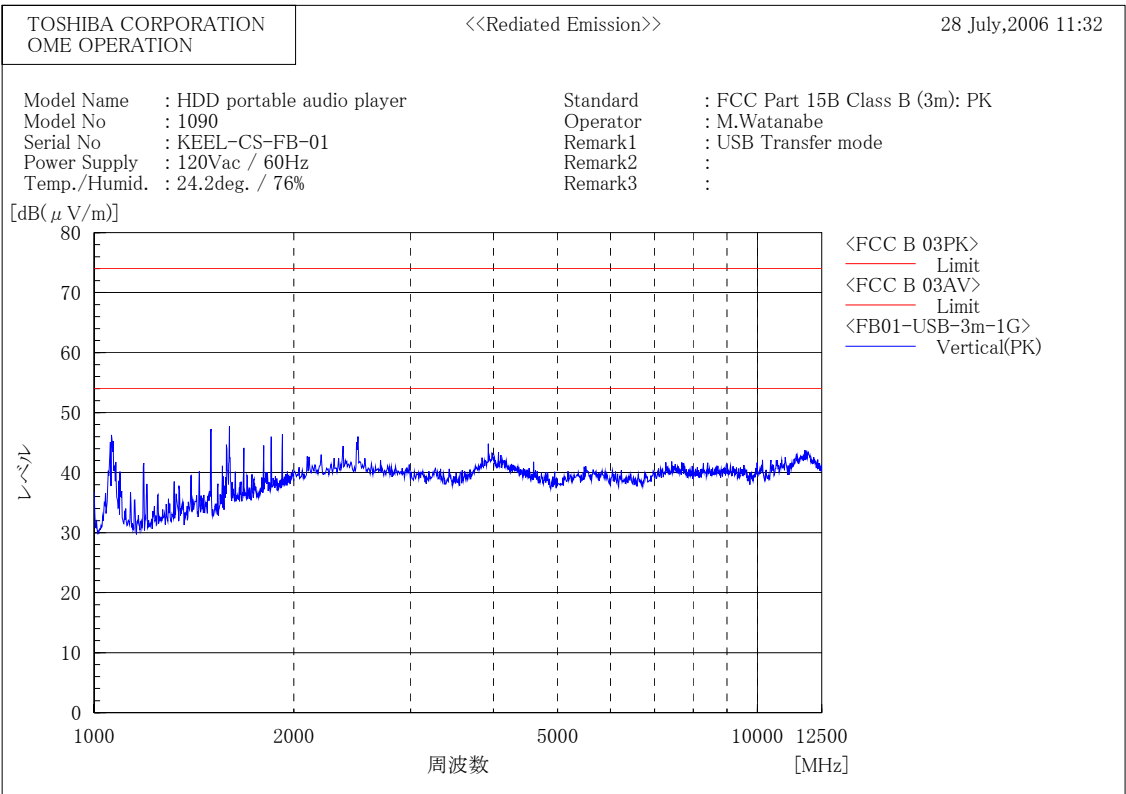
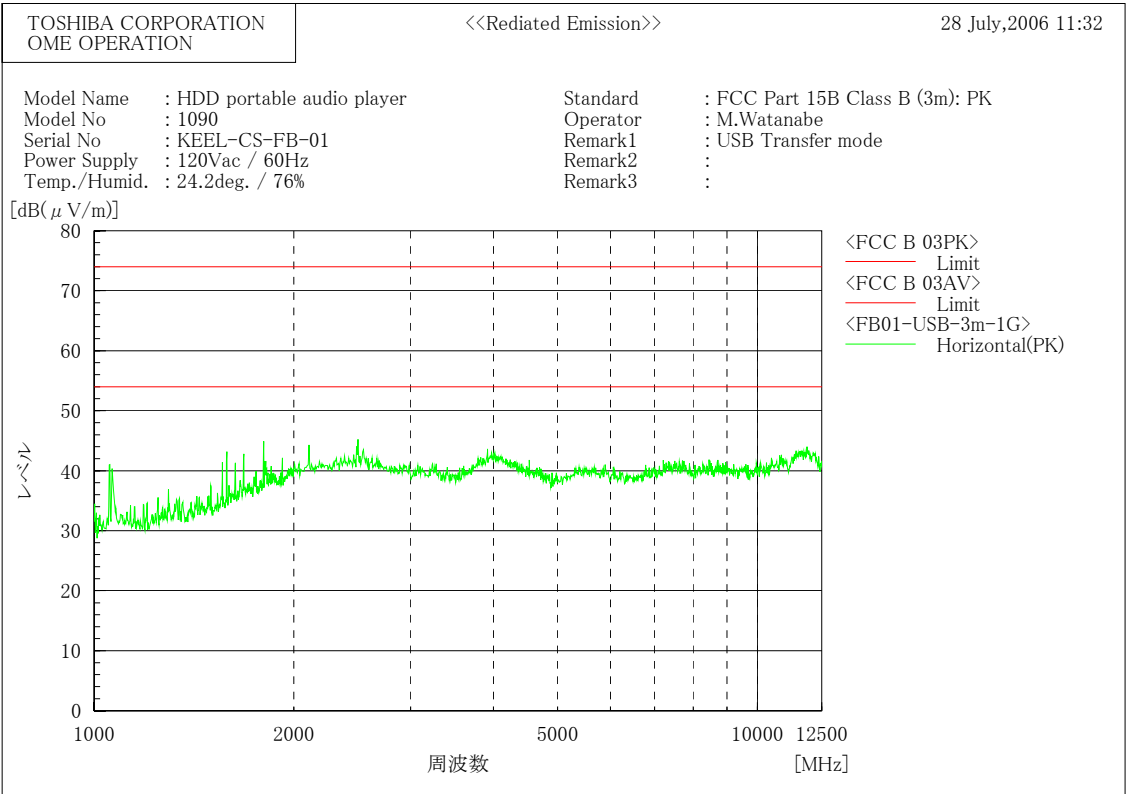
--- Horizontal Polarization ---

No.	Frequency	Reading	c.f	Result PK	Limit	Margin	Height	Angle
	[MHz]	[dB(μ V)]	[dB(1/m)]	[dB(μ V/m)]	[dB(μ V/m)]	[dB]	[cm]	[°]
1	1561.122	63.6	-22.2	41.4	74.0	32.6	100.0	164.0
2	1585.170	64.9	-21.8	43.1	74.0	30.9	100.0	164.0
3	1633.267	62.2	-20.9	41.3	74.0	32.7	100.0	224.0
4	1681.363	62.8	-20.0	42.8	74.0	31.2	100.0	246.0
5	1801.603	62.7	-17.8	44.9	74.0	29.1	100.0	48.0
6	2498.998	56.4	-11.2	45.2	74.0	28.8	100.0	150.0

--- Vertical Polarization ---

No.	Frequency	Reading	c.f	Result PK	Limit	Margin	Height	Angle
	[MHz]	[dB(μ V)]	[dB(1/m)]	[dB(μ V/m)]	[dB(μ V/m)]	[dB]	[cm]	[°]
1	1058.116	72.2	-27.1	45.1	74.0	28.9	100.0	221.0
2	1062.124	73.4	-27.1	46.3	74.0	27.7	100.0	232.0
3	1188.377	67.9	-26.3	41.6	74.0	32.4	100.0	89.0
4	1501.002	70.4	-23.1	47.3	74.0	26.7	100.0	288.0
5	1583.166	66.5	-21.8	44.7	74.0	29.3	100.0	227.0
6	1599.198	69.2	-21.5	47.7	74.0	26.3	100.0	4.0
7	1681.363	64.1	-20.0	44.1	74.0	29.9	100.0	138.0
8	1801.603	62.3	-17.8	44.5	74.0	29.5	100.0	244.0
9	1849.699	62.9	-16.9	46.0	74.0	28.0	100.0	244.0
10	1921.844	62.1	-15.7	46.4	74.0	27.6	100.0	227.0
11	2498.998	57.2	-11.2	46.0	74.0	28.0	100.0	189.0
12	3929.860	55.8	-11.0	44.8	74.0	29.2	100.0	326.0

Exploratory Measurement (spectrum graph): (A: USB data transfer mode)
for above 1GHz



Final measurement: (B: Video player mode)

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 12:17

Standard : FCC Part 15B Class B (3m)
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac/ 60Hz
Temp./Humid. : 24.5deg./ 90%
Operator : M. Watanabe
Remark1 : Video mode
Remark2 :
Remark3 :

Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c.f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [°]
1	158.411	16.1	14.5	30.6	43.5	12.9	211.0	57.0
2	237.574	19.3	18.3	37.6	46.0	8.4	145.0	47.0
3	263.994	13.3	19.2	32.5	46.0	13.5	169.0	8.0
4	290.400	18.0	20.2	38.2	46.0	7.8	114.0	273.0
5	316.763	12.3	21.1	33.4	46.0	12.6	117.0	40.0
6	659.693	10.5	28.6	39.1	46.0	6.9	300.0	174.0

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c.f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [°]
1	79.181	18.3	8.2	26.5	40.0	13.5	98.0	258.0
2	158.356	15.8	14.5	30.3	43.5	13.2	97.0	34.0
3	237.589	12.5	18.3	30.8	46.0	15.2	167.0	80.0
4	527.993	11.9	26.1	38.0	46.0	8.0	112.0	210.0
5	554.207	10.7	26.5	37.2	46.0	8.8	110.0	196.0
6	766.075	11.5	30.1	41.6	46.0	4.4	148.0	220.0

Exploratory Measurement (pick up list): (B: Video player mode)

for 30M - 1GHz

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 12:17

Standard : FCC Part 15B Class B (3m)
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac/ 60Hz
Temp./Humid. : 24.5deg. / 90%
Operator : M.Watanabe
Remark1 : Video mode
Remark2 :
Remark3 :

Spectrum Selection

--- Horizontal Polarization ---

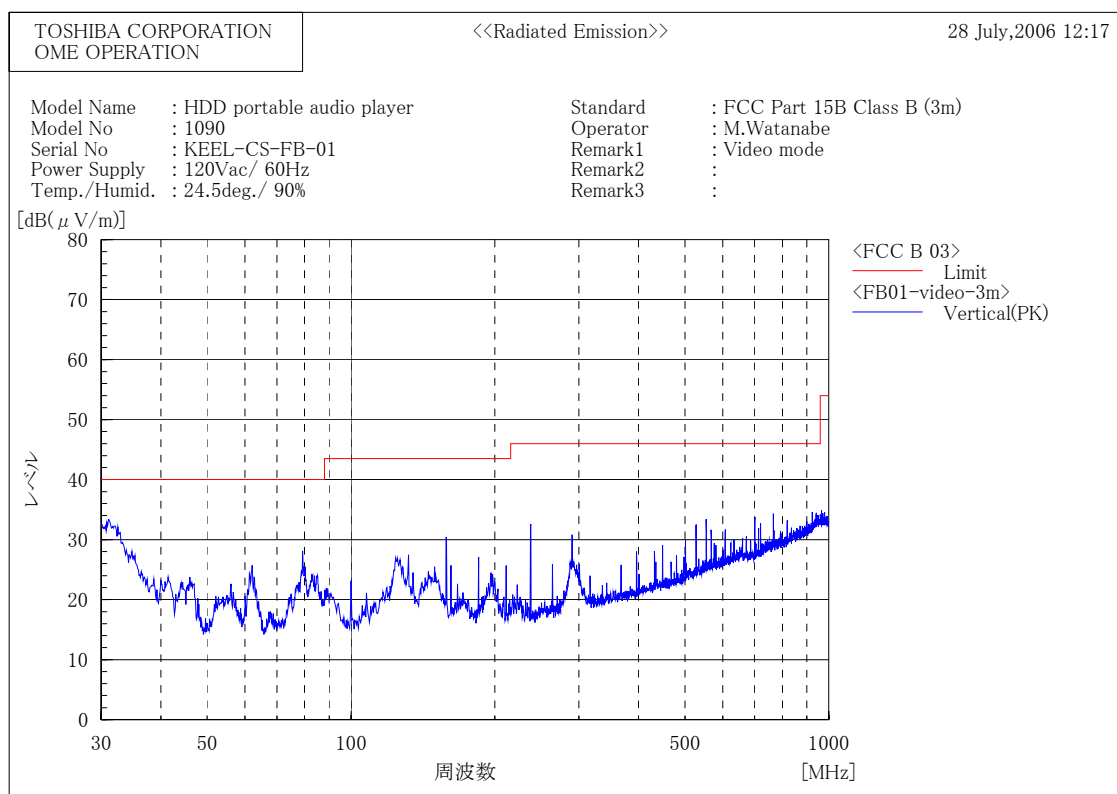
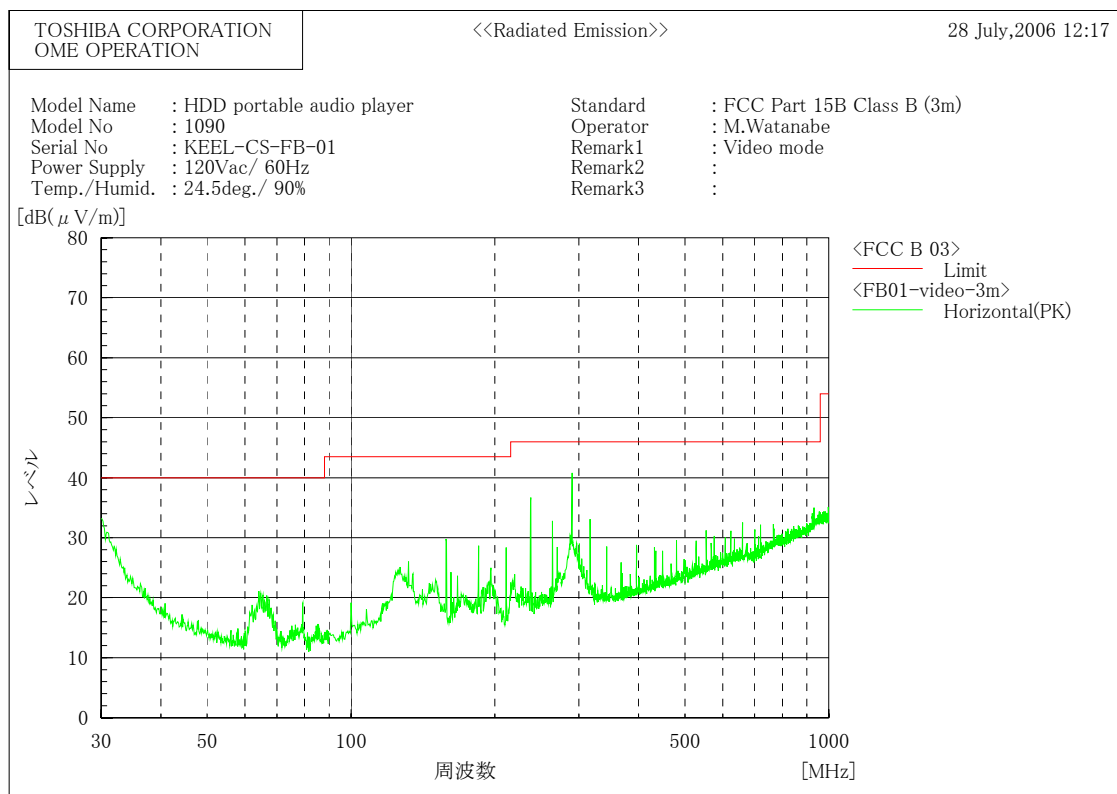
No.	Frequency	Reading	c.f	Result PK	Limit	Margin	Height	Angle
	[MHz]	[dB(μ V)]	[dB(1/m)]	[dB(μ V/m)]	[dB(μ V/m)]	[dB]	[cm]	[°]
1	158.216	17.5	12.3	29.8	43.5	13.7	150.0	62.0
2	184.910	18.0	10.7	28.7	43.5	14.8	150.0	79.0
3	211.232	16.5	11.9	28.4	43.5	15.1	150.0	217.0
4	237.926	23.8	12.9	36.7	46.0	9.3	150.0	51.0
5	264.249	17.8	15.0	32.8	46.0	13.2	150.0	51.0
6	290.331	25.4	15.4	40.8	46.0	5.2	110.0	278.0
7	316.483	17.0	16.1	33.1	46.0	12.9	110.0	278.0
8	343.086	11.4	17.1	28.5	46.0	17.5	110.0	45.0
9	395.842	10.6	18.2	28.8	46.0	17.2	110.0	206.0
10	480.160	9.7	19.8	29.5	46.0	16.5	248.0	358.0
11	528.056	8.7	20.8	29.5	46.0	16.5	150.0	225.0
12	554.108	9.9	21.3	31.2	46.0	14.8	150.0	225.0
13	660.321	9.2	23.3	32.5	46.0	13.5	150.0	178.0
14	719.940	8.3	23.8	32.1	46.0	13.9	150.0	347.0

--- Vertical Polarization ---

No.	Frequency	Reading	c.f	Result PK	Limit	Margin	Height	Angle
	[MHz]	[dB(μ V)]	[dB(1/m)]	[dB(μ V/m)]	[dB(μ V/m)]	[dB]	[cm]	[°]
1	45.992	11.8	11.9	23.7	40.0	16.3	115.0	32.0
2	56.092	15.0	7.6	22.6	40.0	17.4	115.0	55.0
3	62.104	18.6	7.1	25.7	40.0	14.3	115.0	342.0
4	79.178	19.7	8.4	28.1	40.0	11.9	115.0	280.0
5	131.894	14.0	13.5	27.5	43.5	16.0	106.0	109.0
6	158.587	18.1	12.3	30.4	43.5	13.1	106.0	42.0
7	184.910	16.4	10.7	27.1	43.5	16.4	106.0	31.0
8	237.926	19.7	12.9	32.6	46.0	13.4	106.0	205.0
9	290.331	15.4	15.4	30.8	46.0	15.2	209.0	337.0
10	449.048	9.7	19.3	29.0	46.0	17.0	209.0	192.0
11	501.503	9.7	20.2	29.9	46.0	16.1	111.0	217.0
12	528.056	11.7	20.8	32.5	46.0	13.5	111.0	217.0
13	554.108	12.1	21.3	33.4	46.0	12.6	111.0	200.0
14	567.635	10.1	21.5	31.6	46.0	14.4	111.0	73.0
15	700.401	10.5	23.3	33.8	46.0	12.2	111.0	90.0
16	765.531	9.6	24.7	34.3	46.0	11.7	149.0	214.0

Exploratory Measurement (spectrum graph): (B: Video player mode)

for 30M - 1GHz



Exploratory Measurement (pick up list): (B: Video player mode)

for above 1GHz

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 12:00

Standard : FCC Part 15B Class B (3m): PK
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 24.2deg. / 76%
Operator : M. Watanabe
Remark1 : Video mode
Remark2 :
Remark3 :

Spectrum Selection

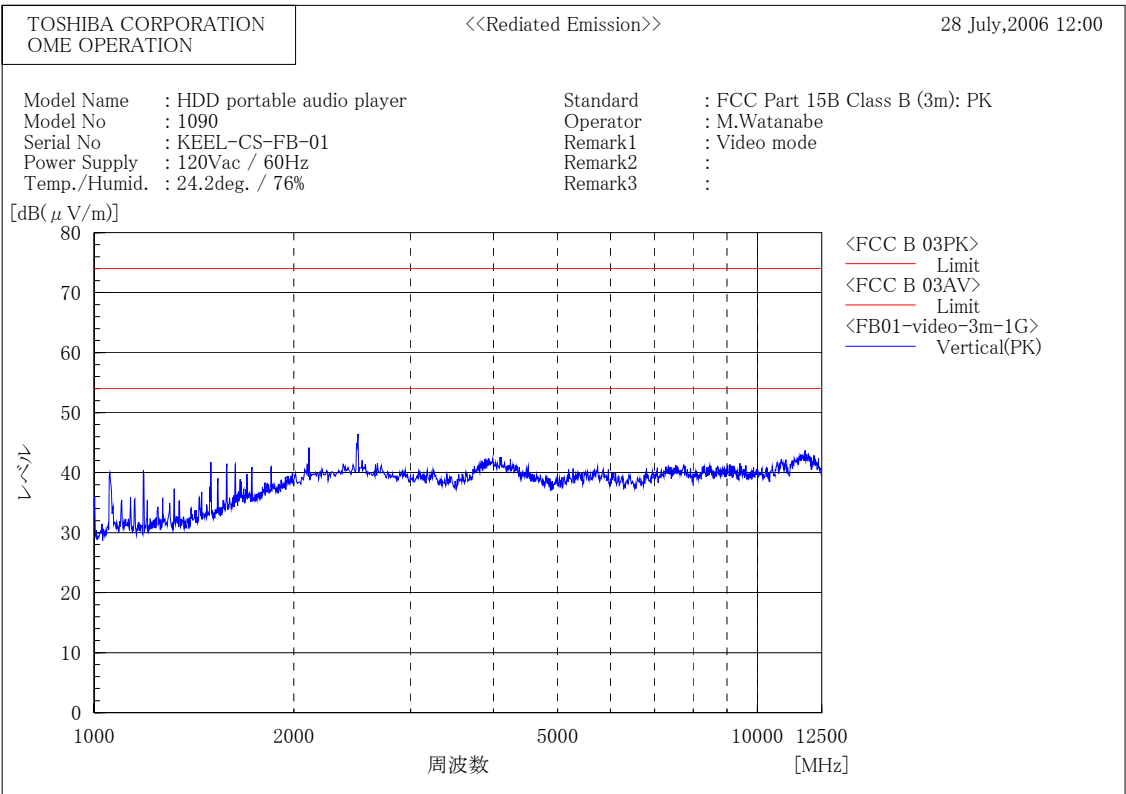
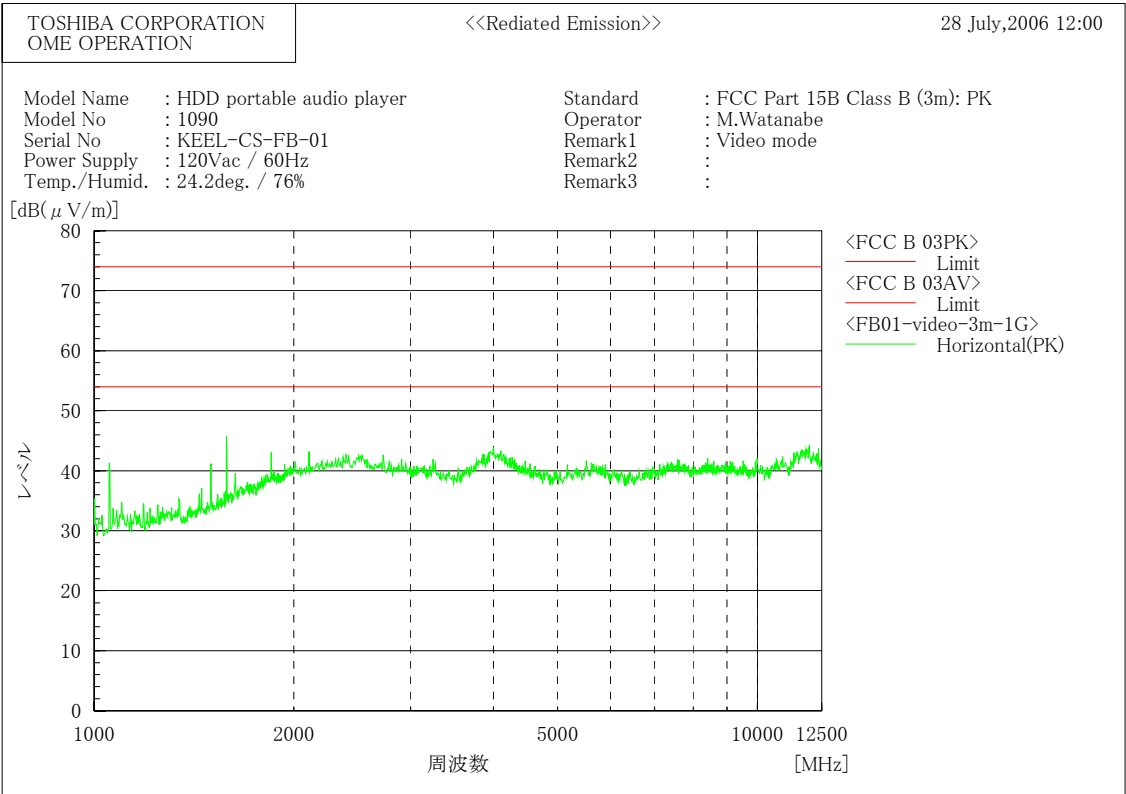
--- Horizontal Polarization ---

No.	Frequency	Reading	c.f	Result PK	Limit	Margin	Height	Angle
	[MHz]	[dB(μ V)]	[dB(1/m)]	[dB(μ V/m)]	[dB(μ V/m)]	[dB]	[cm]	[°]
1	1054.108	68.3	-27.1	41.2	74.0	32.8	100.0	237.0
2	1501.002	64.3	-23.1	41.2	74.0	32.8	100.0	314.0
3	1583.166	67.6	-21.8	45.8	74.0	28.2	100.0	226.0
4	1849.699	59.9	-16.9	43.0	74.0	31.0	100.0	264.0
5	3995.992	54.7	-10.9	43.8	74.0	30.2	100.0	115.0

--- Vertical Polarization ---

No.	Frequency	Reading	c.f	Result PK	Limit	Margin	Height	Angle
	[MHz]	[dB(μ V)]	[dB(1/m)]	[dB(μ V/m)]	[dB(μ V/m)]	[dB]	[cm]	[°]
1	1056.112	67.1	-27.1	40.0	74.0	34.0	100.0	213.0
2	1186.373	66.6	-26.3	40.3	74.0	33.7	100.0	163.0
3	1498.998	64.9	-23.1	41.8	74.0	32.2	100.0	7.0
4	1537.074	61.6	-22.5	39.1	74.0	34.9	100.0	240.0
5	1585.170	63.3	-21.8	41.5	74.0	32.5	100.0	356.0
6	1633.267	62.2	-20.9	41.3	74.0	32.7	100.0	251.0
7	1849.699	57.9	-16.9	41.0	74.0	33.0	100.0	185.0
8	2498.998	57.6	-11.2	46.4	74.0	27.6	100.0	146.0

Exploratory Measurement (spectrum graph): (B: Video player mode)
for above 1GHz



Final measurement: (C: Wireless LAN communication mode)

for 30M - 1GHz

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 17:51

Standard : FCC Part 15B Class B (3m)
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac/ 60Hz
Temp./Humid. : 25.3deg. / 80%
Operator : M. Watanabe
Remark1 : W-LAN mode
Remark2 :
Remark3 :

Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c. f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [$^{\circ}$]
1	158.151	19.2	14.5	33.7	43.5	9.8	211.0	224.0
2	160.797	20.1	14.6	34.7	43.5	8.8	207.0	233.0
3	163.513	17.3	14.8	32.1	43.5	11.4	207.0	231.0
4	281.799	16.1	19.8	35.9	46.0	10.1	119.0	68.0
5	287.329	16.5	20.0	36.5	46.0	9.5	108.0	62.0
6	295.596	14.2	20.4	34.6	46.0	11.4	117.0	314.0

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c. f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [$^{\circ}$]
1	152.605	19.1	14.2	33.3	43.5	10.2	101.0	106.0
2	153.996	17.7	14.3	32.0	43.5	11.5	100.0	142.0
3	158.151	20.4	14.5	34.9	43.5	8.6	100.0	117.0
4	160.797	20.9	14.6	35.5	43.5	8.0	100.0	130.0
5	163.513	16.3	14.8	31.1	43.5	12.4	100.0	154.0
6	164.983	17.0	14.9	31.9	43.5	11.6	100.0	144.0

Final measurement: (C: Wireless LAN communication mode)
for above 1GHz (Peak)

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 20:00

Standard : FCC Part 15B Class B (3m): PK
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 25.3deg. / 80%
Operator : M. Watanabe
Remark1 : W-LAN mode
Remark2 :
Remark3 :

Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c.f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [$^{\circ}$]
1	4823.848	84.8	-15.8	69.0	74.0	5.0	100.0	286.0
2	7238.277	71.0	-10.8	60.2	74.0	13.8	100.0	174.0

--- Vertical Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c.f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [$^{\circ}$]
1	4823.848	79.5	-15.8	63.7	74.0	10.3	100.0	202.0
2	7238.277	80.8	-10.8	70.0	74.0	4.0	100.0	198.0
3	9647.896	72.3	-8.9	63.4	74.0	10.6	100.0	203.0

Final measurement: (C: Wireless LAN communication mode)
for above 1GHz (Average)

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 20:00

Standard : FCC Part 15B Class B (3m): PK
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 25.3deg. / 80%
Operator : M. Watanabe
Remark1 : W-LAN mode
Remark2 :
Remark3 :

Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c. f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [°]
1	4823.848	63.1	-15.8	47.3	54.0	6.7	100.0	286.0
2	7238.277	53.8	-10.8	43.0	54.0	11.0	100.0	174.0

--- Vertical Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μ V)]	c. f [dB(1/m)]	Result [dB(μ V/m)]	Limit [dB(μ V/m)]	Margin [dB]	Height [cm]	Angle [°]
1	4823.848	51.0	-15.8	35.2	54.0	18.8	100.0	202.0
2	7238.277	62.8	-10.8	52.0	54.0	2.0	100.0	198.0
3	9647.896	57.0	-8.9	48.1	54.0	5.9	100.0	203.0

Exploratory Measurement (pick up list): (C: Wireless LAN communication mode) for 30M - 1GHz

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 17:51

Standard : FCC Part 15B Class B (3m)
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac/ 60Hz
Temp./Humid. : 25.3deg./ 80%
Operator : M. Watanabe
Remark1 : W-LAN mode
Remark2 :
Remark3 :

Spectrum Selection

--- Horizontal Polarization ---

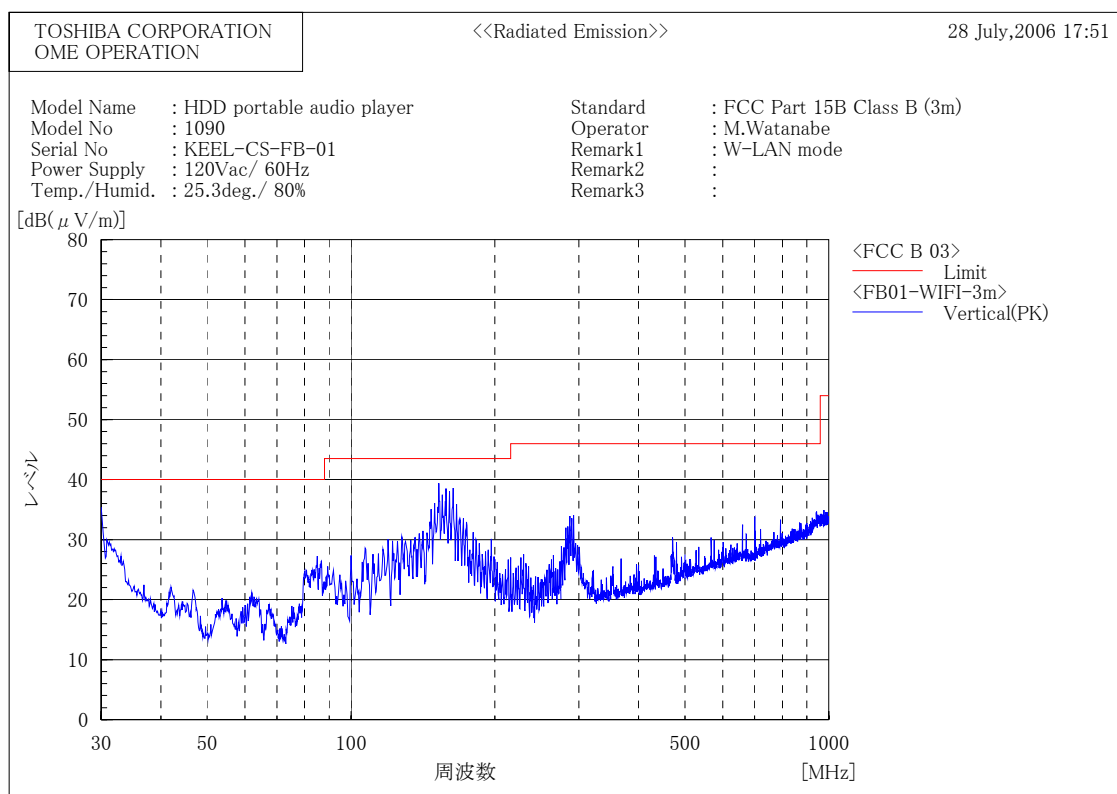
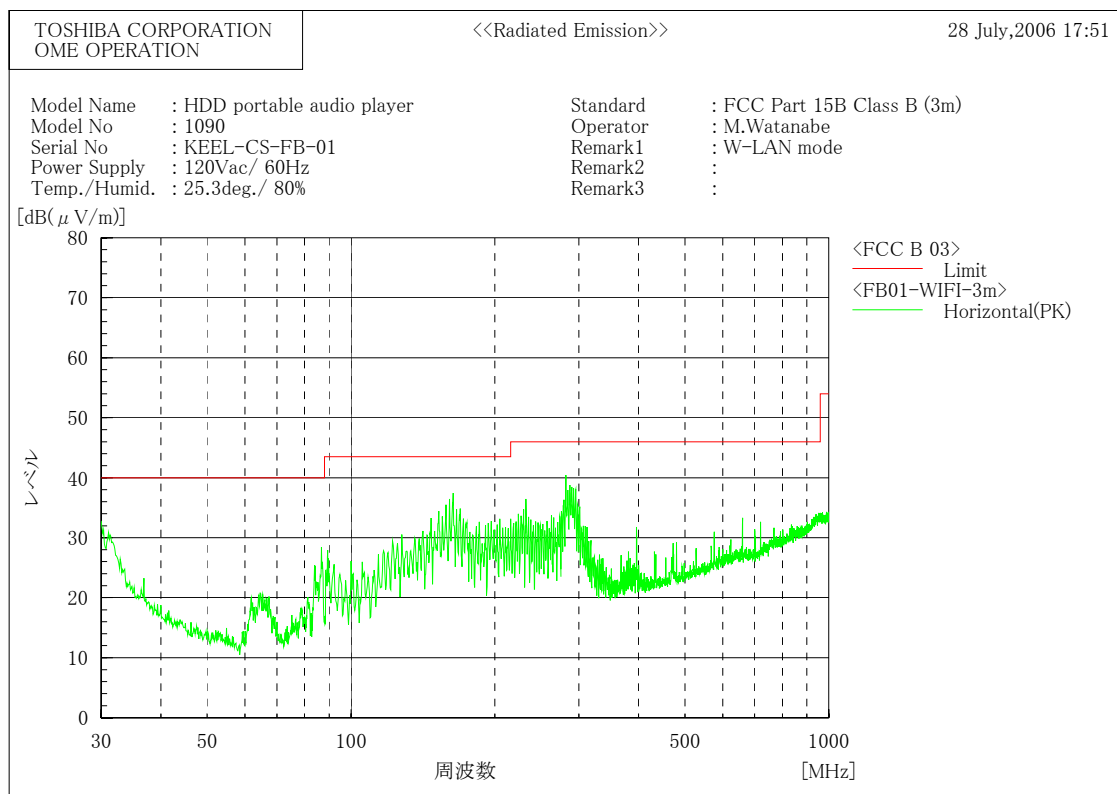
No.	Frequency	Reading	c.f	Result PK	Limit	Margin	Height	Angle
	[MHz]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	147.094	20.2	13.1	33.3	43.5	10.2	150.0	213.0
2	152.655	21.7	12.7	34.4	43.5	9.1	301.0	210.0
3	158.216	23.2	12.3	35.5	43.5	8.0	150.0	232.0
4	160.812	24.3	12.1	36.4	43.5	7.1	150.0	228.0
5	163.778	25.5	12.0	37.5	43.5	6.0	150.0	213.0
6	166.373	23.0	11.8	34.8	43.5	8.7	150.0	238.0
7	169.339	23.2	11.6	34.8	43.5	8.7	150.0	228.0
8	171.934	21.8	11.4	33.2	43.5	10.3	150.0	228.0
9	185.651	21.9	10.7	32.6	43.5	10.9	150.0	232.0
10	193.808	21.6	10.8	32.4	43.5	11.1	150.0	248.0
11	196.774	21.9	10.9	32.8	43.5	10.7	150.0	238.0
12	204.930	21.5	11.6	33.1	43.5	10.4	150.0	38.0
13	229.770	22.3	12.4	34.7	46.0	11.3	150.0	304.0
14	232.365	23.9	12.6	36.5	46.0	9.5	150.0	332.0
15	279.058	21.3	15.0	36.3	46.0	9.7	110.0	89.0
16	281.764	25.4	15.0	40.4	46.0	5.6	110.0	67.0
17	287.174	23.6	15.2	38.8	46.0	7.2	110.0	84.0
18	295.741	22.6	15.5	38.1	46.0	7.9	110.0	311.0
19	297.996	20.0	15.6	35.6	46.0	10.4	110.0	333.0
20	301.152	19.5	15.7	35.2	46.0	10.8	110.0	322.0

--- Vertical Polarization ---

No.	Frequency	Reading	c.f	Result PK	Limit	Margin	Height	Angle
	[MHz]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	147.094	22.0	13.1	35.1	43.5	8.4	104.0	76.0
2	152.655	26.7	12.7	39.4	43.5	4.1	104.0	131.0
3	155.251	25.0	12.5	37.5	43.5	6.0	104.0	126.0
4	158.216	26.2	12.3	38.5	43.5	5.0	104.0	131.0
5	160.812	25.9	12.1	38.0	43.5	5.5	104.0	104.0
6	163.778	26.6	12.0	38.6	43.5	4.9	104.0	153.0
7	166.373	24.1	11.8	35.9	43.5	7.6	104.0	93.0
8	168.597	21.7	11.7	33.4	43.5	10.1	104.0	93.0
9	171.934	22.2	11.4	33.6	43.5	9.9	104.0	170.0
10	174.529	21.8	11.1	32.9	43.5	10.6	104.0	87.0

Exploratory Measurement (spectrum graph): (C: Wireless LAN communication mode)

for 30M - 1GHz



Exploratory Measurement (pick up list): (C: Wireless LAN communication mode)
for above 1GHz

***** TOSHIBA CORPORATION *****
<<Radiated Emission>> 28 July, 2006 20:00

Standard : FCC Part 15B Class B (3m): PK
Model Name : HDD portable audio player
Model No : 1090
Serial No : KEEL-CS-FB-01
Power Supply : 120Vac / 60Hz
Temp./Humid. : 25.3deg. / 80%
Operator : M. Watanabe
Remark1 : W-LAN mode
Remark2 :
Remark3 :

Spectrum Selection

--- Horizontal Polarization ---

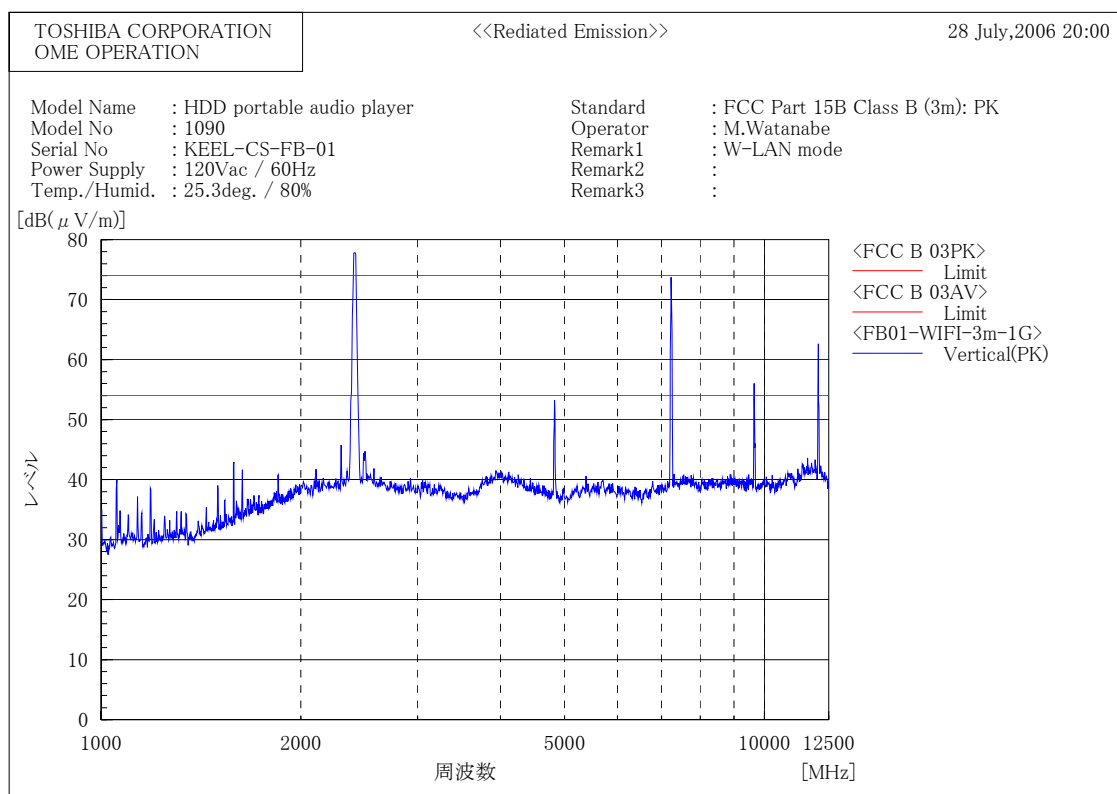
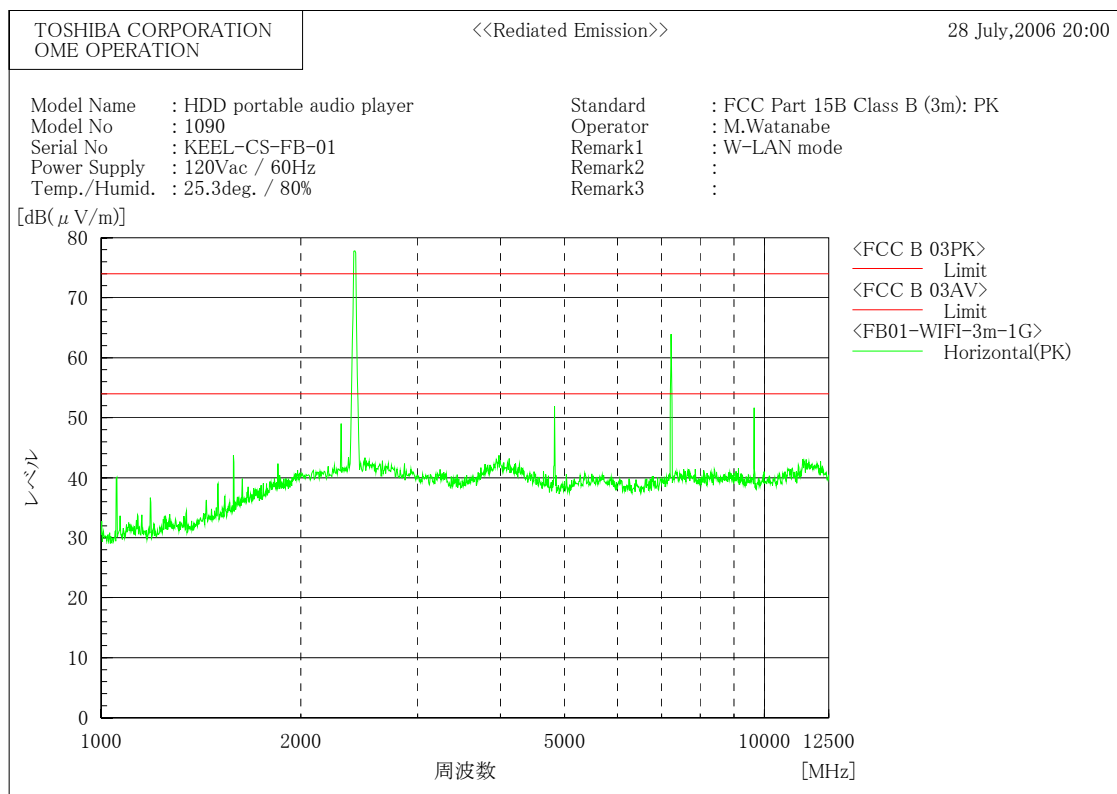
No.	Frequency	Reading	c. f	Result PK	Limit	Margin	Height	Angle
	[MHz]	[dB(μ V)]	[dB(1/m)]	[dB(μ V/m)]	[dB(μ V/m)]	[dB]	[cm]	[$^{\circ}$]
1	1056.112	67.2	-27.1	40.1	74.0	33.9	100.0	213.0
2	1583.166	65.5	-21.8	43.7	74.0	30.3	100.0	219.0
3	1847.695	59.4	-17.0	42.4	74.0	31.6	100.0	129.0
4	2300.601	60.9	-11.9	49.0	74.0	25.0	100.0	65.0
5	2408.818	89.2	-11.4	77.8	74.0	-3.8	100.0	60.0
6	4825.651	67.7	-15.8	51.9	74.0	22.1	100.0	38.0
7	7234.469	74.7	-10.8	63.9	74.0	10.1	100.0	187.0
8	9649.298	60.6	-8.9	51.7	74.0	22.3	100.0	346.0

--- Vertical Polarization ---

No.	Frequency	Reading	c. f	Result PK	Limit	Margin	Height	Angle
	[MHz]	[dB(μ V)]	[dB(1/m)]	[dB(μ V/m)]	[dB(μ V/m)]	[dB]	[cm]	[$^{\circ}$]
1	1585.170	64.7	-21.8	42.9	74.0	31.1	100.0	151.0
2	1633.267	62.5	-20.9	41.6	74.0	32.4	100.0	257.0
3	1849.699	57.7	-16.9	40.8	74.0	33.2	100.0	188.0
4	2300.601	57.7	-11.9	45.8	74.0	28.2	100.0	353.0
5	2408.818	89.2	-11.4	77.8	74.0	-3.8	100.0	227.0
6	4825.651	69.1	-15.8	53.3	74.0	20.7	100.0	159.0
7	7234.469	84.6	-10.8	73.8	74.0	0.2	100.0	236.0
8	9649.298	65.0	-8.9	56.1	74.0	17.9	100.0	319.0

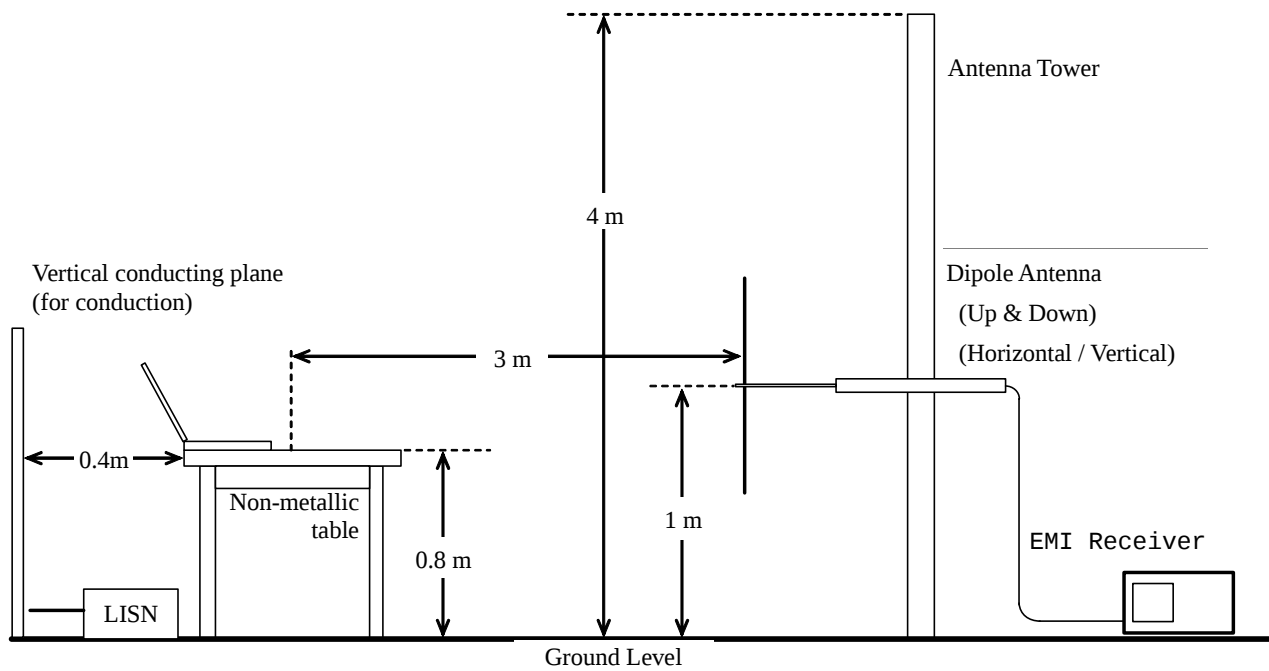
Exploratory Measurement (spectrum graph): (C: Wireless LAN communication mode)

for above 1GHz



4. Measurement setup

4.1. Sketch



- Figure 1, Side view -

4.2. Photographs

4.2.1. Conduction measurement

[Data A]: USB data transfer mode



- Figure 2, Front view -



- Figure 3, Side view -

[Data B]: Video player mode



- Figure 4, Front view -



- Figure 5, Side view -

[Data C]: Wireless LAN communication mode



- Figure 6, Front view -



- Figure 7, Side view -

4.2.2. Radiation measurement

[Data A]: USB data transfer mode



- Figure 8, Front view -



- Figure 9, Rear view -

[Data B]: Video player mode



- Figure 10, Front view -



- Figure 11, Rear view -

[Data C]: Wireless LAN communication mode



- Figure 12, Front view -



- Figure 13, Rear view -

5. Measurement Instrumentation used

Measurement Instrumentation Used (Conduction Measurement for Anechoic Chamber No. 1)

Instrument	Model No.	Serial No.	Manufacturer	Cal ibration Date
* EMI Receiver	ESIB40	100284	ROHDE&SCHWARZ	February, 2006
* LISN (AMN) for EUT	ENV216	100156	ROHDE&SCHWARZ	November, 2005
* LISN (AMN) for Peripherals	KNW-341C	8-797-1	Kyoritsu Electrical Works	May, 2006
* 50Ω termination	65 BNC-50-0-1	#1	SUHNER	August, 2005
* System Loss (150 k - 30 MHz)	TOAC01-01	N/A	TOSHIBA	March, 2006
- Coaxial Cable	RG214	C054	SUHNER	March, 2006
- Coaxial Cable	RG214	C055	SUHNER	March, 2006

Note:

These instruments used for the final measurements.

All instruments used for performing these tests were calibrated in accordance with manufacturer recommendations.

All calibrations were current when the tests were performed and all instruments are calibrated at least once a year.

LISN means Line Impedance Stabilization Network./ AMN means Artificial Mains Network

Measurement Instrumentation Used (Radiation Measurement 30M - 18GHz for Anechoic Chamber No. 1)

Instrument	Model No.	Serial No.	Manufacturer	Cal ibration Date
* EMI Receiver	ESIB40	100284	ROHDE&SCHWARZ	February, 2006
* Dipole Antenna (30 M - 500 MHz)	KBA-511A	0-201-5	Kyoritsu Electrical Works	August, 2005
* Dipole Antenna (500 M - 1 GHz)	KBA-611	0-215-1	Kyoritsu Electrical Works	September, 2005
* BILOG Antenna (30 M - 1 GHz): #	CBL6111A	1784	CHASE	January, 2006
* D.R.W.Horn Antenna (1 G - 18 GHz)	3115	4949	EMCO	August, 2005
* System Loss (30MHz - 1GHz)	TOAC01-02	N/A	TOSHIBA	March, 2006
- Coaxial Cable	RG214	C054	SUHNER	March, 2006
- Coaxial Cable	RG214	C055	SUHNER	March, 2006
* System Loss (1G - 18GHz)	TOAC01-03	N/A	TOSHIBA	March, 2006
- Coaxial Cable	SF102	C017	SUHNER	March, 2006
- Coaxial Cable	SF102	C019	SUHNER	March, 2006
- Coaxial Cable	SF102	C031	SUHNER	March, 2006
- RF Amplifier	83051A	3950M00187	Agilent Technologies	March, 2006
- RF Amplifier	83051A	3950M00189	Agilent Technologies	March, 2006
* Anechoic Chamber No. 1 (NSA Measurement)	N/A	N/A	TDK	January, 2006

Note:

These instruments used for the final measurements. (#: This instruments used only for the exploratory measurement.)

All instruments used for performing these tests were calibrated in accordance with manufacturer recommendations.

All calibrations were current when the tests were performed and all instruments are calibrated at least once a year.

The Anechoic Chamber is calibrated (NSA measurement) at least once three years, for Measurement Facility Registration to the FCC&VCCI.

[Appendix]

[Appendix A] System factor (150k - 30MHz)

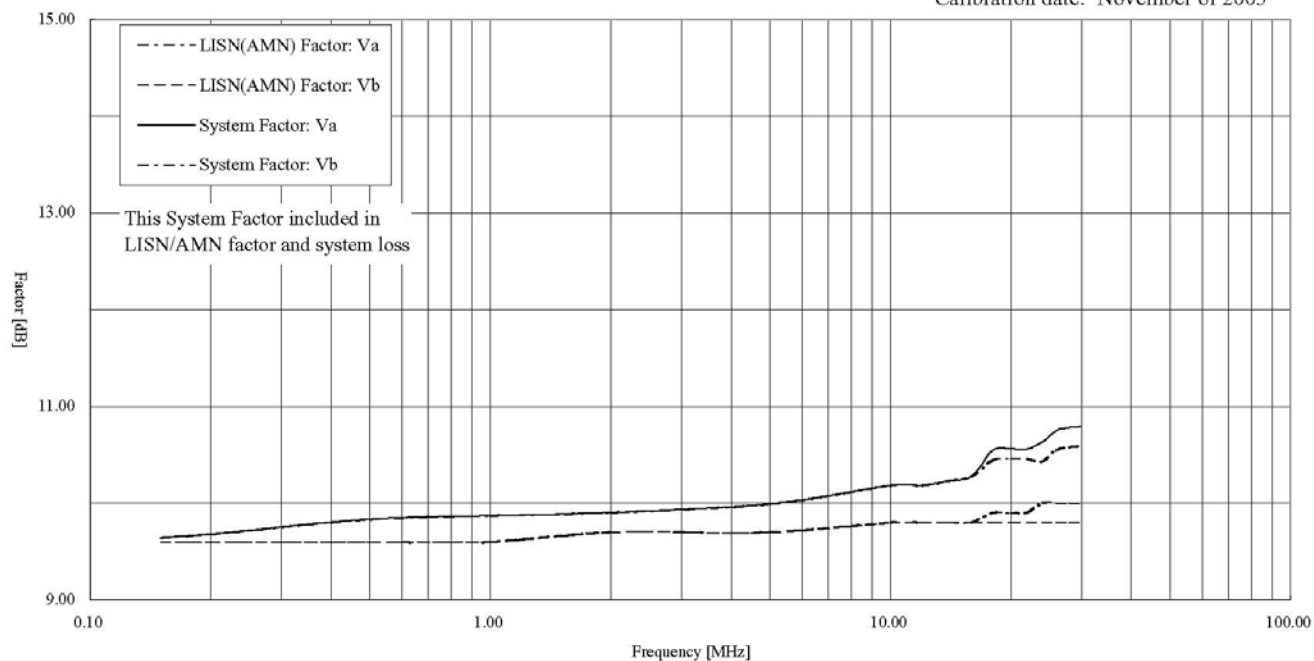
SYSTEM FACTOR

(Conduction Measurement for Anechoic Chamber No. 1)

LISN/AMN Model: ENV216

Serial No.: 100156

Calibration date: November of 2005



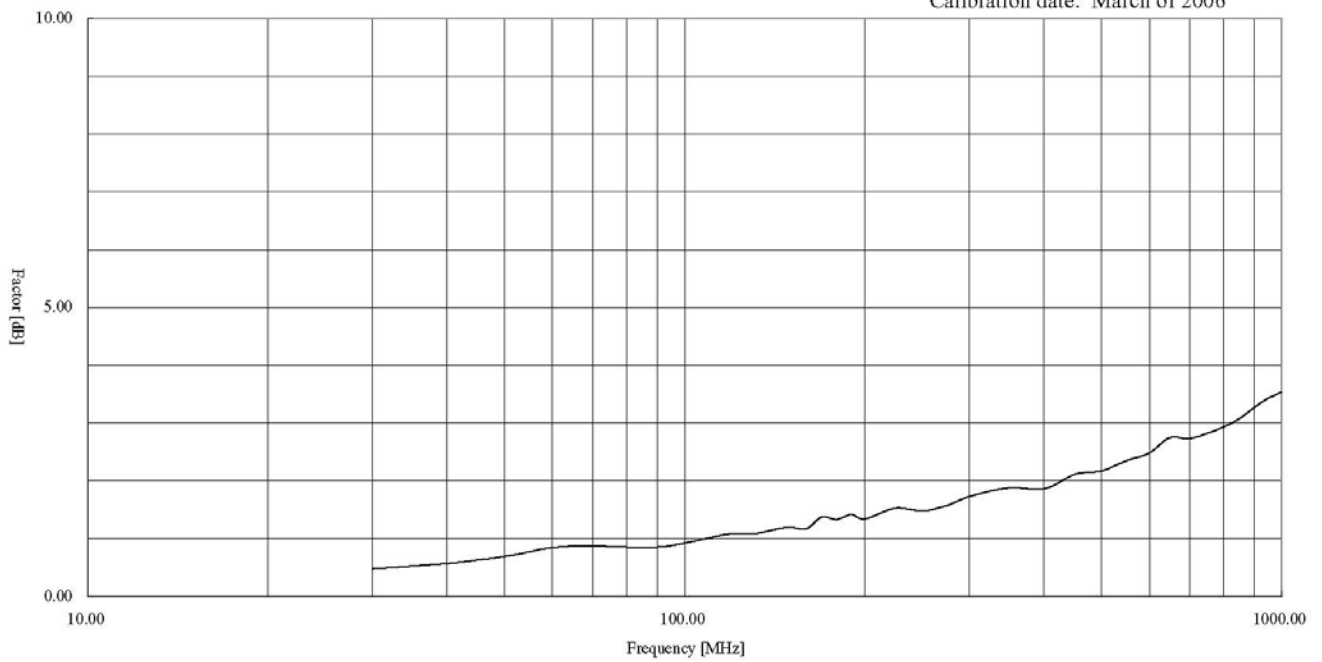
[Appendix B] System loss (30M - 18GHz)

SYSTEM LOSS

30 M - 1 G Hz

(Radiation Measurement for Anechoic Chamber No. 1)

Calibration date: March of 2006

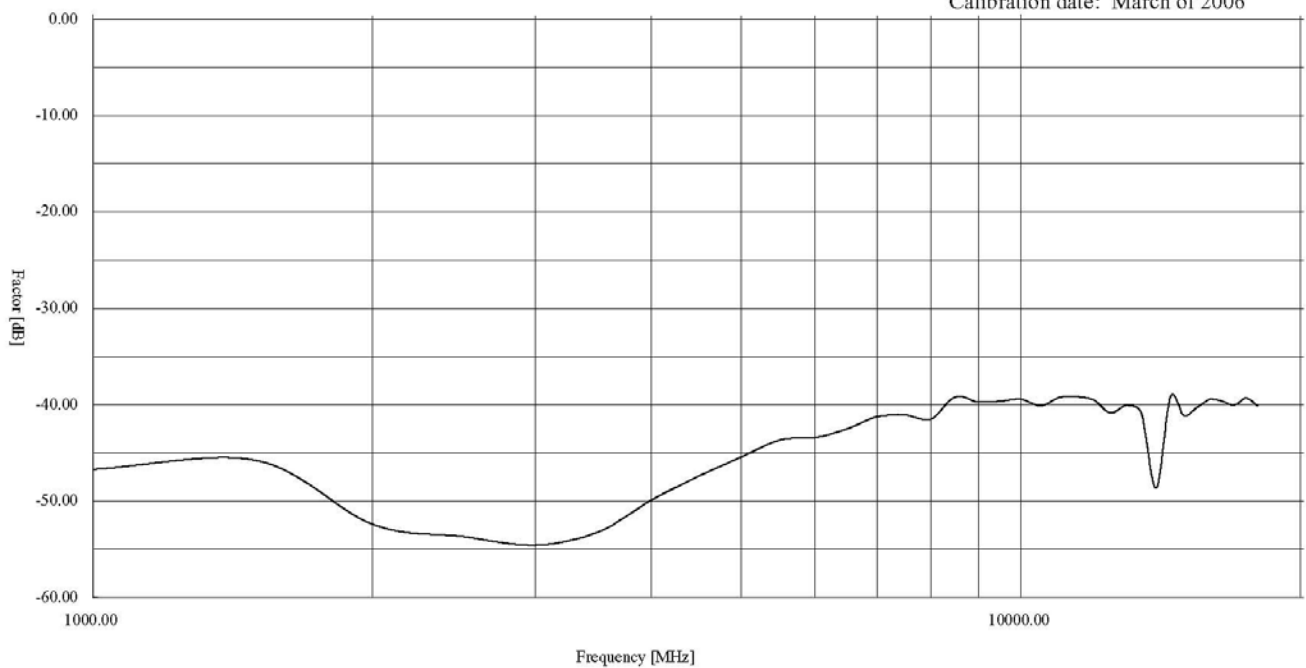


SYSTEM LOSS

1 G - 18 G Hz

(Radiation Measurement for Anechoic Chamber No. 1)

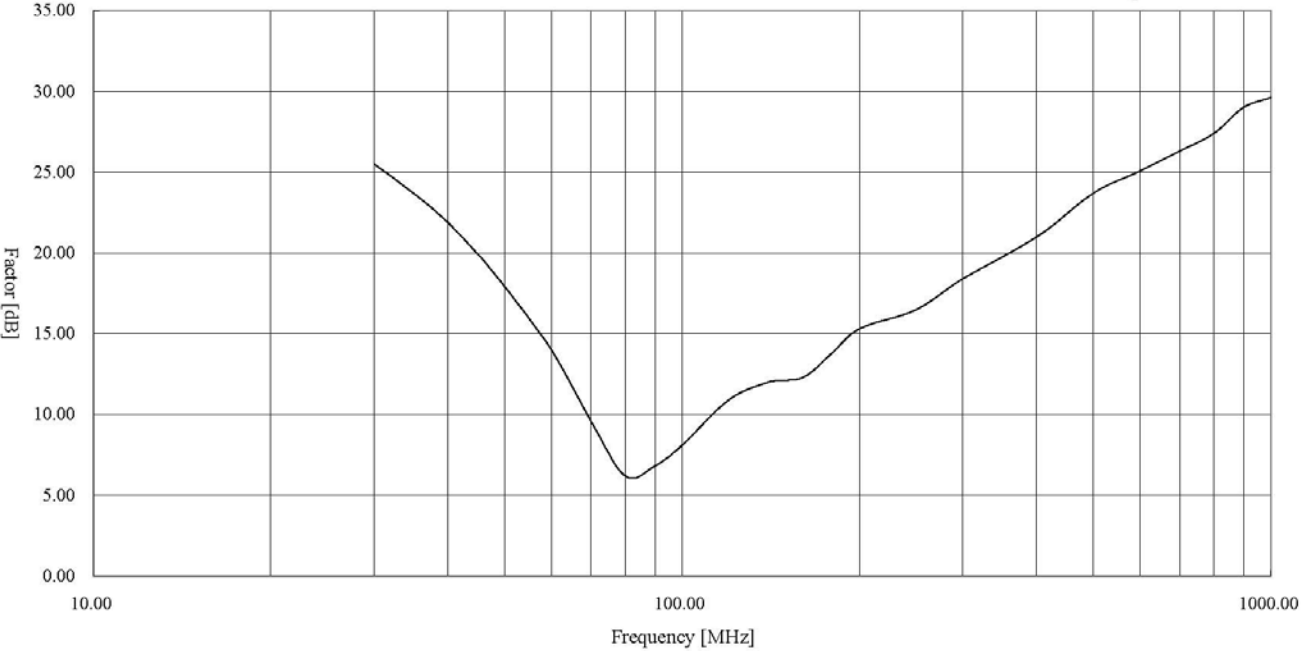
Calibration date: March of 2006



[Appendix C] Antenna factor : Tunable dipole antenna (30M - 1GHz)

ANTENNA FACTOR
(Dipole Antenna for Anechoic Chamber No. 1)

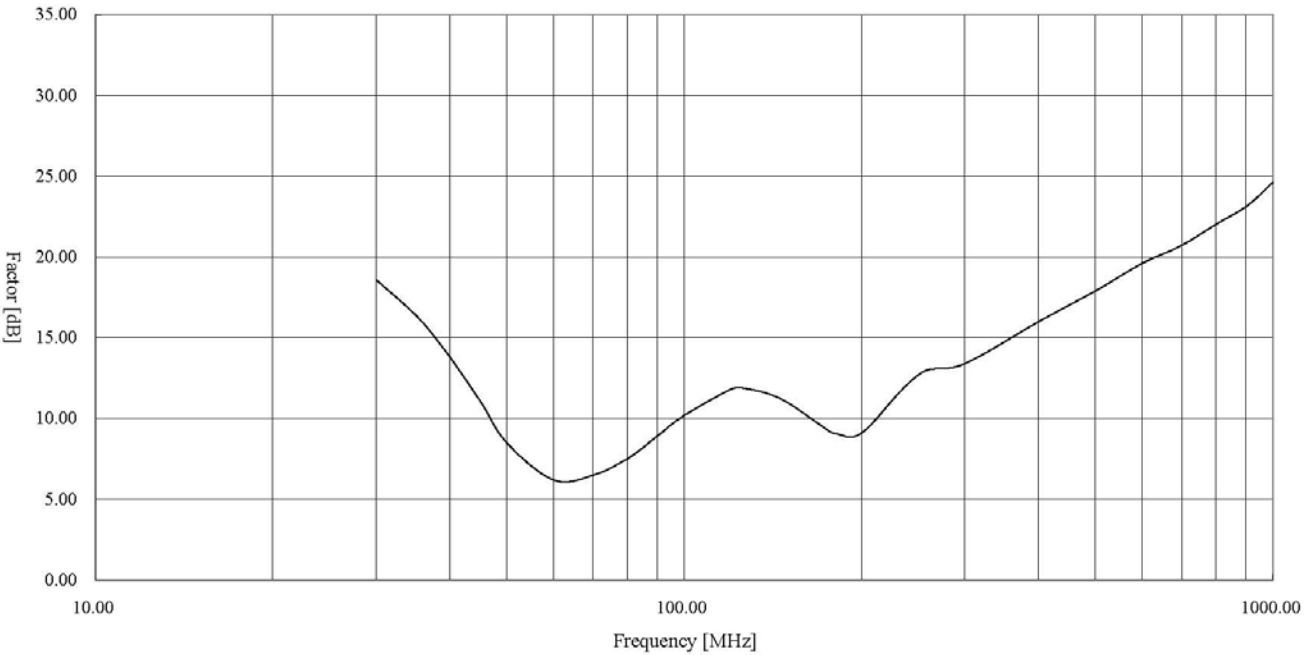
*Model No.:	*Frequency range	*Serial No.:	*Calibration date:
KBA-511A	30M - 500 MHz	0-201-5	August of 2005
KBA-611	500M - 1 GHz	0-215-1	September of 2005



[Appendix D] Antenna factor: Broadband antenna (30M - 18GHz)

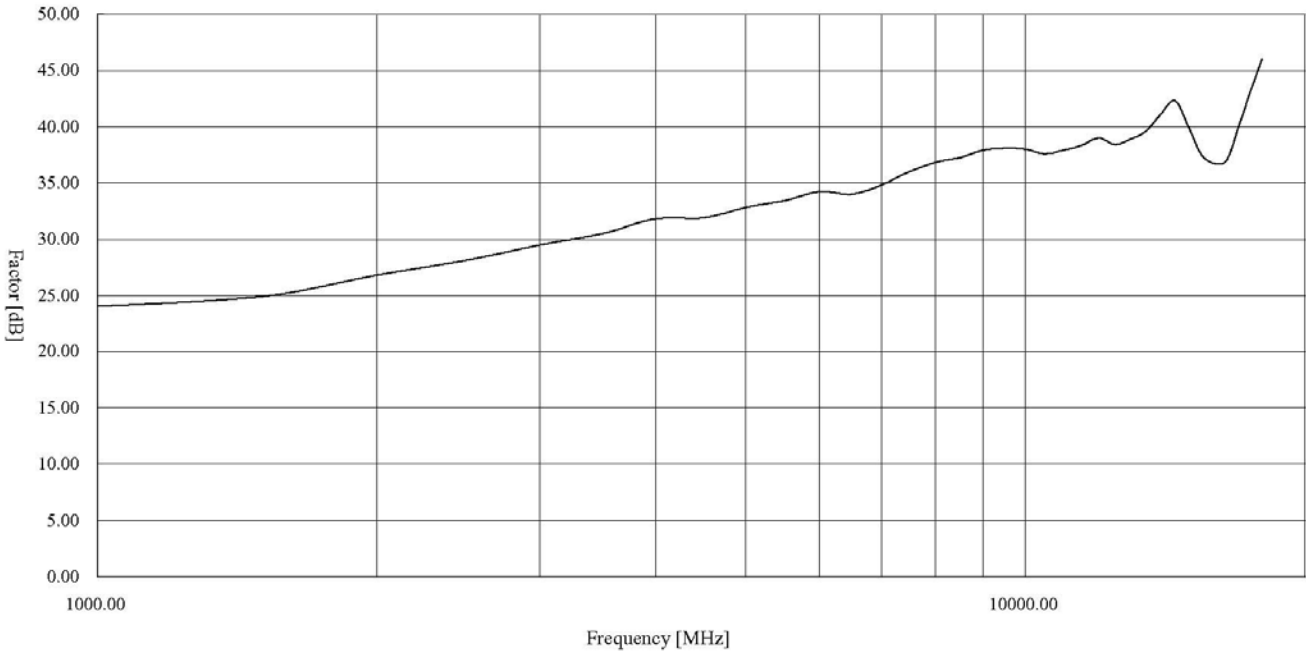
ANTENNA FACTOR
(Broadband Antenna for Anechoic Chamber No. 1)

*Model No.: CBL6111A *Frequency range: 30M - 1 GHz *Serial No.: 1784 *Calibration date: January of 2006

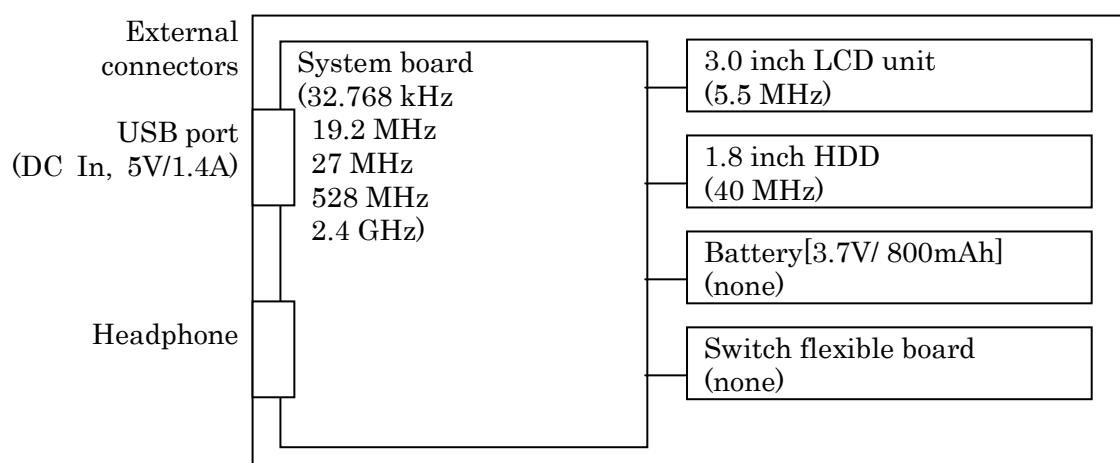


ANTENNA FACTOR
(Broadband Antenna for Anechoic Chamber No. 1)

*Model No.: 3115 *Frequency range: 1 G - 18 GHz *Serial No.: 4949 *Calibration date: August of 2005

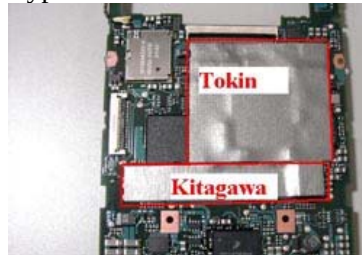


[Appendix E] System block diagram



Information frequencies in each unit is described in the parentheses

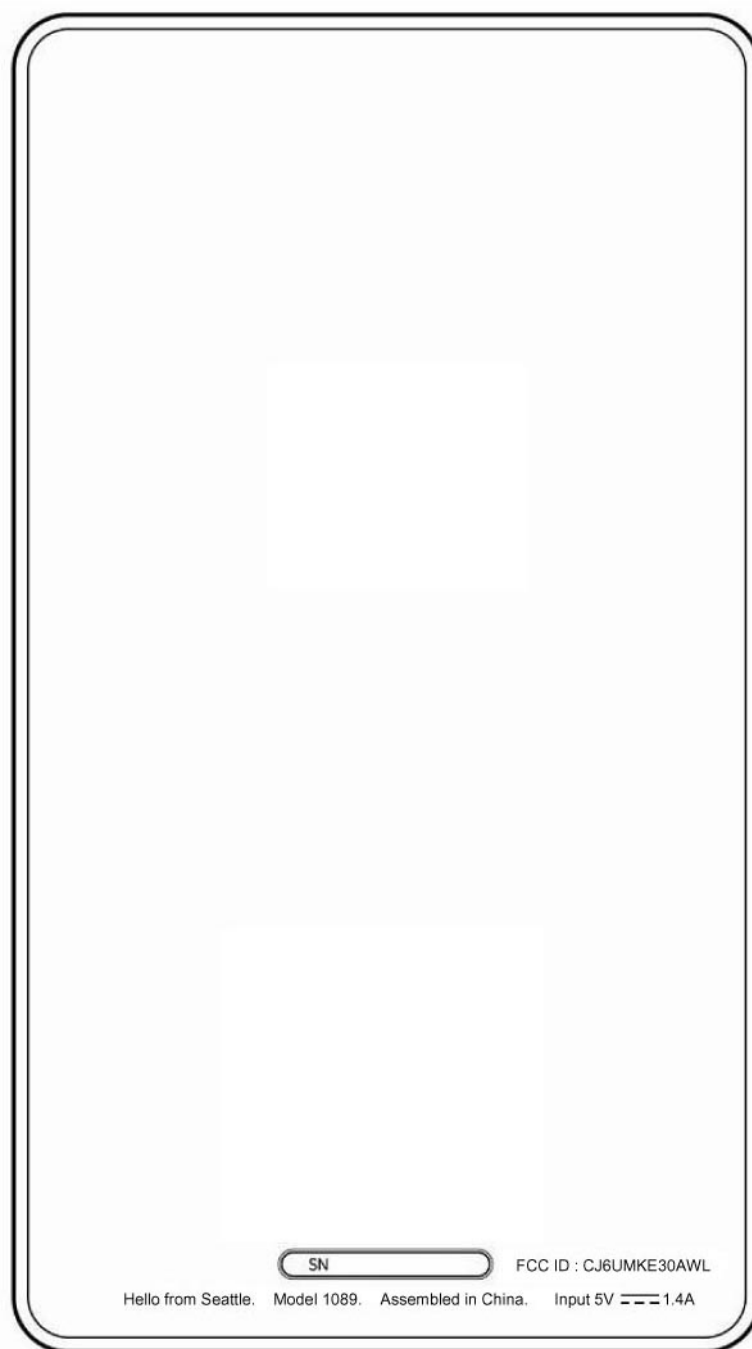
[Appendix F] Detail of units

Designation/ kind of unit	Frequencies generated by these units	Radio interference suppression components used
System board	32.768 kHz 19.2 MHz 27 MHz 528 MHz 2.4 GHz (Wireless LAN)	<u>Electromagnetic absorption sheet:</u> NEC Tokin Corp. Type FK1(02)-33X29T29S Kitagawa Industries Co., Ltd. Type MG-05A-0.25-008045T TO 
Switch flexible board	None	None
3.0 inch LCD unit	5.5 MHz	<u>Electromagnetic absorption sheet:</u> Kitagawa Industries Co., Ltd. Type MG-05A-0.25-008033T TO 
1.8 inch HDD	40 MHz	None
Battery	None	None

[Appendix G] Label information

Name: Toshiba Corporation

Product: HDD portable audio player



BACK SIDE

[Appendix H] Photographs

EUT outline

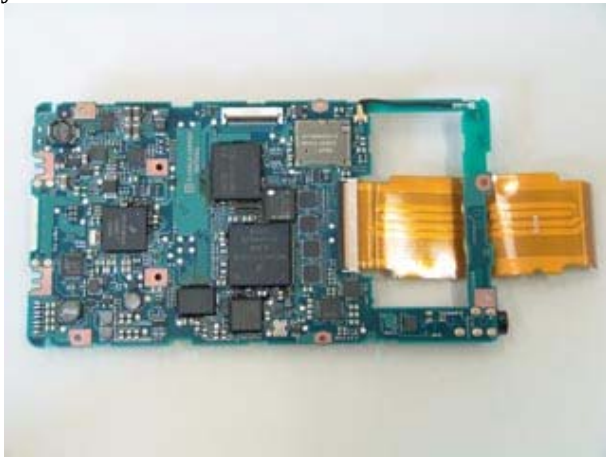


[Front]



[Rear]

System board



[Front]



[Rear]

Switch flexible board

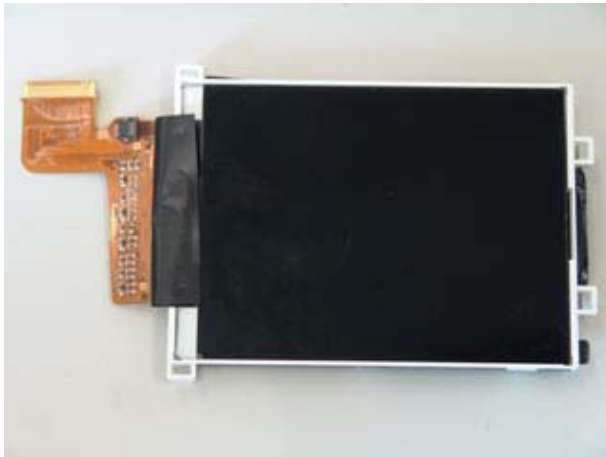


[Front]



[Rear]

3.0 inch LCD unit



[Front]



[Rear]

1.8 inch HDD



[Front]



[Rear]

Battery



[Front]



[Rear]