TOSHIBA

TOSHIBA CORPORATION DIGITAL MEDIA NETWORK COMPANY
OME COMPLEX
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Date : April 3, 2003
Issued in : Tokyo, Japan

REPORT OF MEASUREMENT OF DIGITAL DEVICE

1. Manufacturer : Toshiba Corporation
Digital Media Network company, Ome Operations - Digital Media Equipment
2-9, Suehiro-cho, Ome-shi, Tokyo 198-8710 Japan
and/or
Toshiba America Information Systems, Inc., Irvine Works
9740 Irvine Boulevard, Irvine, CA 92618-1697 USA
and/or
Toshiba Europe GmbH, Regensburg Operations Center
Leibnitzstrasse 2, D-93055, Regensburg, Germany
and/or
Toshiba Computer Systems (Shanghai) Co., Ltd.
No.33 Bldg., 351 Jinzang Road, Pudong New Area, Shanghai, China
and/or
Toshiba Information Equipment (Hangzhou) Co., Ltd.
M12-19-1 Hangzhou Export Processing Zone of Zhejiang,Hanzhong,
The People's Republic of China
and/or
Toshiba Information Equipment (Philippines), Inc.
103 East Main Avenue Extention, Special Export Processing Zone,
Laguna Technopark, Binan, Lagna, The Philippines

2. Description on device : Personal Computer
a) Category : Class B digital device
b) Trade name : TOSHIBA
c) Model No. : PS201U
d) Power supply : 15 Vdc, 3 A (supplied by AC Adaptor)

3. Date of measurement : March 24, 2003 (completed)

4. Regulation applied : FCC rules and regulations Part 15 Subpart B
Canada ICES-003

5. Measurement procedure : ANSI C63.4-1992

6. Measurement place : Anechoic Chamber No. 2 and 3 of Ome Operations, Toshiba Corporation.
(NVLAP Lab Code: 200107-0)

7. 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 C63.4-1992 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-H3630

K. Takenaka, Specialist
Quality Assurance Group
Technology & Quality Management Div.
Identify NVLAP Signatory

NVLAP®
NVLAP LAB CODE 200107-0

"The report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government."

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1. MEASUREMENT CONDITION AND CONFIGURATION OF EUT

The Personal Computer (EUT) with the memory module was measured as a system consisting of the Equipment Under Test (EUT) and a Docking connector, an External Monitor, two USB port, and a LAN jack attached to operating Class B certified peripherals as indicated in the 9/18/86 clarification of rules for measuring computing devices (Public Notice) and a PC Card, a SD card slots, a Microphone, a Headphone, a Modem jacks attached to appropriate operating peripherals or cables.

During the measuring, all available modes, all cabling and peripheral layouts were arranged to achieve the "WORST" case emissions in accordance with FCC recommended notebook computer system measurement configuration. The measurement data presented is representative of the system measurement.

1.1. The Equipment Under Test (EUT) information

The measurement data in this report was taken under the following EUT.

[Product]	[Manufacturer]	[Model No.]
Personal Computer	Toshiba Corporation	PP201U

Notes:
The EUT was operated with an Universal AC Adaptor supplied by Toshiba Corporation.
A non-shielded DC output cable assembled with the Universal AC Adaptor.
A non-shielded AC power cable is provided with the EUT.

Please refer to the Table 1 for EUT measurement configurations

- Table 1, EUT configurations -

Data No.	A
Model No. (Serial No.)	PP201U (CS#1)
Type of Equipment	Pre-Production
CPU module	Pentium III 866 MHz
1.8 inch HDD	40GB: Toshiba Corp. (HDD1524)
AC Adaptor	PA3241U-1ACA

Notes:
Details of alternative units refer to the Table 2.

1.2. Product information

(Model Designation of Personal Computer)

Model Name	:	Portege 2000 and 2010 series
Model No.	:	PP200* and PP201* (*: suffix = U, E, L, Q, C, Z, A, K, T, J or N)
- CPU	:	Pentium III- 866 MHz, 800MHz, 750MHz or Celeron- 650MHz
- Memory	:	128MB or 256MB
- HDD	:	20GB, 30GB or 40GB

(Unit information which constitutes Personal Computer)

This Personal computer consists of the following units.

* System Board	x 1
* Sound Board	x 1
* Sound I/F flexible board	x 1
* Mini-PCI I/F Board	x 1
* Touch Pad module	x 1
* In Touch Button	x 1
* LED flexible board	x 1
* PC card I/F flexible board	x 1
* 12.1 inch Color LCD (Toshiba Corp., Type LTM12C328)	x 1
* FL Inverter	x 1
* LCD cable	x 1
* RTC Battery	x 1
* Speaker	x 1
* CPU Fan	x 1
* 1.8 inch HDD: #	x 1
* HDD I/F flexible board	x 1
* Keyboard unit	x 1
* Main Battery Pack (Model No. PA3154U)	x 1
* Modem module (Model No. 1456VQL4)	x 1
* Modem & LAN Connector cable	x 1
* RX Antenna	x 1
* TX/ RX Antenna	x 1
* Wireless LAN module Kit (Model No. PA3231U)	x 1
* Universal AC Adaptor: #	x 1

Notes:

#: This unit has alternative units. Information of alternative units refers to the Table 2.

Table 2

- Alternative Units -

Units	Description, Manufacture or Distributor (Model No.)		
CPU (on the system board)	Pentium III- 800 MHz	Pentium III- 750 MHz	Celeron- 650 MHz
	Pentium III- 866 MHz		
1.8 inch HDD	20GB: Toshiba Corp. (HDD1364)	30GB: Toshiba Corp. (HDD1384)	40GB: Toshiba Corp. (HDD1524)
AC Adaptor	PA3153U-1ACA	PA3241U-1ACA	

(Details of units)

Generated frequencies and radio suppression components of all units refer to the Appendix G.

Photographs of all units refer to the Appendix H.

(System Block Diagram)

Please refer to the Appendix E

(Label Information)

Please refer to the Appendix F

1.3. The measurement was carried out with the following equipment connected:

- Table 3, Connecting peripherals -

Equipment No.	Kind of Equipment	Manufacturer or Distributor	Model No. (Serial No.)	FCC ID
1	High Capacity Battery Pack	Toshiba Corp.	PA3155U (PCC#1)	N/A
2	External Monitor	EIZO	FlexScanL371 (61996041-JA)	FCC DoC
3*[1]	External CD-RW Drive	PLEXTOR	PXW2410TV (503880045940)	FCC DoC
4	FDD Kit	Toshiba Corp.	PA3109U (1240000651)	FCC DoC
5	Keyboard	Logitech	Y-BE22 (MCT14906958)	FCC DoC
6	Headphone	Toshiba Corp.	HR-SP1-W (PCC#1)	N/A
7	Microphone	Foster Electric	M336E01T1711 (PCC#1)	N/A
8	Line Emulator	Toshiba Corp.	TLE101-II (408549)	N/A
9*[2]	Personal Computer	Toshiba Corp.	PT820U (CS-#1)	FCC DoC
10	PC Card HDD	Calluna	CT260T2 (PCC#1)	N/A
11	SD Bluetooth	Toshiba Corp.	SD-BT2 (0232TC0500A)	CJ6MSDB01
12	Memory Kit (256MB)	Toshiba Corp.	PA3158U (PCC#1)	N/A

Notes:

*[1] The external CD-RW Drive was operated with an AC Adaptor (Model No. SQ36W12P-03) supplied by PLEXTOR.

*[2] The Personal Computer was operated with an AC Adaptor (Model No. PA3048U-1ACA) supplied by Toshiba Corporation.

1.4. Information of installed or connected peripherals

- Table 4, Connecting information for peripherals and interface cables -

Connector name of EUT:	Connected peripherals (Equipment No.*[1])	Interface cable information		
		Cable type	Connector type	Length [m]
	Data	Supply method		
Docking connector	1	N/A	Metallic	Direct
		N/A		
External Monitor *[2]	2	Shielded	Metallic	1.7
		Provided with External Monitor		
USB port 1 *[2]	3	Shielded	Metallic	1.0
		General USB cable		
USB port 2 *[2]	4	Shielded	Metallic	1.7
		Assembled with USB Mouse		
Headphone	5	Non-shielded	N/A	1.5
		Assembled with Headphone		
Microphone	6	Shielded	N/A	2.0
		Assembled with Microphone		
Modem	7	Non-shielded	Plastic	2.0
		General Modular cable		
(RJ11 port of Line Emulator)	8	Non-shielded	Plastic	2.0
		General Modular cable		
LAN *[2]	9	Non-shielded	Plastic	2.0
		General LAN cable		
PC card slot	10	N/A	N/A	Installed
		N/A		
SD card slot	11	N/A	N/A	Installed
		N/A		
Memory Slot	12	N/A	N/A	Installed
		N/A		

Notes:
*[1] The Equipment numbers refers to the Table 3.
*[2] when the connected to the Slime Port Replicator (Equipment No. 1- Table 2), this port cannot be used physically. Therefore, peripherals were not connected to this port, in the measurement data.

1.5. Operating conditions

(CPU clock speeds)

The EUT has two kinds of processing speed, however the CPU clock speed is not changed, only 650 MHz , 750 MHz, 800 MHz or 866 MHz. And also input clock speed is not changed only 133 MHz. The users can choose the processing speed by keyboard operation. Therefore, the following conditions were checked to maximize emission.

(1) Processing speed: Low mode
(2) Processing speed: High mode

The measurement data in our report represents emissions at High mode and 133MHz input clock (worst case).

(Display modes and Video modes)

This EUT supports many video modes. The users can choose the video mode by keyboard operation. Therefore, the following conditions were checked to maximize emission. Our report represents measurement data taken during the worst case EUT operations.

- SXGA video mode, 1024 X 768 (non-interlaced, maximum resolution)

(Operating programs)

- Table 5, Operation items -

Item	Operation
LCD	display "H" (on full screen)
External Monitor	display "H" (on full screen)
FDD	write and read data
HDD	write and read data
HDD (PC Card)	write and read data
External CD-RW	write and read data
LAN	send and receive data (100MBPS transfer rate)
Modem	send and receive data (56 KBPS transfer rate)
Bluetooth and Wireless LAN	Transmitting test

Notes:
These operations are performed repeatedly by program in order.

(Operating environment)

Power Supply
- EUT : 120 Vac, 60 Hz
- Peripherals : 120 Vac, 60 Hz

(Measurement set-up)

Please refer to page 21 and 22
- Sketches : Figure 1 and 2
- Photographs : Figure 3 and 4

2. COMMENT ON THE MEASUREMENT

2.1. Measurement methodology

Both conduction and radiation measurement are performed in accordance with the procedures in ANSI 63.4-1992.

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 pre-measurement and final measurement 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.

(Conduction measurement)

The investigated frequency range was 450 kHz to 30 MHz.
The pre-measurement was performed by peak detector function to determine the emission characteristics of the EUT. Based on the measurement results of the pre-measurement, the one EUT configuration, cable or wire configuration, and mode of operation that produces the emission that has the highest amplitude relative to the limit is selected for the final measurement by quasi-peak detector function.
The signal out port of the LISN (Model No. KNW341C) for peripherals was terminated with a 50-ohms termination.

(Radiation measurement)

The investigated frequency range was 30 MHz to 25 GHz.
The radiation measurement was performed at the measurement distance of 3 meter.
The pre-measurement was performed by peak detector function to determine the emission characteristics of the EUT. Based on the measurement results of the pre-measurement, the one EUT configuration, cable or wire configuration, and mode of operation that produces the emission that has the highest amplitude relative to the limit is selected for the final measurement by peak, quasi-peak and average detector functions.

2.4. Measurement place

Both conduction and radiation measurement was performed in the Anechoic Chamber as follows.
- Conduction Measurement : Anechoic Chamber No. 2
- Radiation Measurement : Anechoic Chamber No. 2 and 3

2.5. Ambient condition

The ambient conditions at the time the measurement was conducted were as follows:
- Temperature / Relative humidity: Please sees [Measurement Results] in this report.

2.6. Uncertainty

Derived from ISO Guide to the Determination of Uncertainties with a Coverage Factor K=2.
- Conduction measurement : +/- 2 dB
- Radiation measurement : +/- 4 dB

2.7. Reference page of measurement results

(Conduction measurement)

- Final measurement: refer to page 11
- Pre-measurement: refer to page 12 and 13

(Radiation measurement)

- Final measurement: refer to page 14
- Pre-measurement: refer to page 15 to 18

2.9. Minimum margin to the limits

- Table 6, Minimum margin for Conduction Measurement

Data	Ranking	Margin (dB)	Frequency (MHz)	Line	Detector	Operating frequency
A	1	10.0	0.15088	L2	QP	Un-known
	2	10.3	0.1505	L1	QP	Un-known
	3	14.1	0.15088	L2	AV	Un-known
	4	19.6	4.09531	L2	QP	Un-known
	5	19.8	4.09589	L1	QP	Un-known
	6	20.7	6.14362	L1	QP	Un-known
	6	20.7	6.14296	L2	QP	Un-known

- Table 7, Minimum margin for Radiation Measurement

Data	Ranking	Margin (dB)	Frequency (MHz)	Polarization	Detector	Operating frequency
A	1	2.0	260.117	Horizontal	QP	Un-known
	2	4.1	7215.231	Vertical	PK	Un-known
	3	6.0	266.096	Horizontal	QP	Un-known
	3	6.0	794.503	Vertical	QP	Un-known
	5	6.1	799.498	Vertical	QP	Un-known
	6	6.3	260.117	Horizontal	QP	Un-known

2.10. Sample of calculation

(Conduction Measurement)

The emission level on page 11 to 13 in the measurement data includes the following system factor.

- Final measurement and Pre-measurement

* System Factor (includes the LISN factor and system loss) : Appendix A
150 kHz - 30 MHz

- Example

Sample of calculation at 0.1505 MHz (L1/QP):

Receiver reading		System Factor		Emission level
55.3	+	0.4	=	55.7 [dBuV] #

#: Refer to page 11.

(Radiation measurement)

The emission level on page 14 to 18 in the measurement data includes the following system factors.

- Final measurement

* System loss (includes the cable loss and/ or selector loss and / or Amplifier) : Appendix B
30 MHz - 40 GHz

* Antenna factor for:
- Tunable dipole antenna : Appendix C
  30 MHz - 500 MHz (Dipole Antenna: KBA-511A)
  500 MHz - 1 GHz (Dipole Antenna: KBA-611)
- Broadband antenna : Appendix D
  1 GHz - 18 GHz (Double Ridged Waveguide Horn Antenna: 3115)
  18 GHz - 26.5 GHz (Standard Gain Horn Antenna: 3160-9)
  26.5 GHz - 40 GHz (Standard Gain Horn Antenna: 3160-10)

- Example

Sample of calculation at 45.708MHz (Horizontal):

Receiver reading		System loss + Antenna factor		Emission level
23.6	+	3.2	=	26.8 [dBuV/m] ##

##: Refer to page 15.

- Pre-measurement

* System loss (includes the cable loss and/or selector loss and/or Amplifier) : Appendix B
30 MHz - 40 GHz

* Antenna factor for broadband antenna : Appendix D
30 MHz - 1 GHz (BILOG Antenna: CBL6111A)
1 GHz - 18 GHz (Double Ridged Waveguide Horn Antenna: 3115)
18 GHz - 26.5 GHz (Standard Gain Horn Antenna: 3160-9)
26.5 GHz - 40 GHz (Standard Gain Horn Antenna: 3160-10)

- Example

Sample of calculation at 45.925 MHz (Horizontal):

Receiver reading		System loss + Antenna factor		Emission level
20.1	+	13.7	=	33.8 [dBuV/m] ###

###: Refer to page 16.

Conduction Measurement Results

********** OME Operations **********
<<Conducted Emission>>

20 March,2003 21:58
C-Guam WLAN.dat

Standard : C.I.S.P.R. Pub. 22 Class B
Model Name : PORTEGE 2010
Model No. : PP201U
Serial No. : CS#1
Operator : M.Watanabe
ACPower : 120Vac / 60Hz
Temp, Humid : 23.7deg. / 48.0%
Remark1 :
Remark2 :
Remark3 :

****

Final Result

--- L1 Phase ---

	No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
#	1	0.1505	55.3	- -	0.4	55.7	- -	66.0	56.0	10.3	- -
	2	0.2875	37.9		0.3	38.2		60.6	50.6	22.4	
	3	2.04876	33.8		0.5	34.3		56.0	46.0	21.7	
	4	4.09589	35.6		0.6	36.2		56.0	46.0	19.8	
	5	6.14362	38.5		0.8	39.3		60.0	50.0	20.7	
	6	14.680	37.1		1.3	38.4		60.0	50.0	21.6	

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.15088	55.6	41.5	0.4	56.0	41.9	66.0	56.0	10.0	14.1
2	0.2875	37.6	- -	0.3	37.9		60.6	50.6	22.7	- -
3	2.0495	33.7		0.5	34.2		56.0	46.0	21.8	
4	4.09531	35.8		0.6	36.4		56.0	46.0	19.6	
5	6.14296	38.5		0.8	39.3		60.0	50.0	20.7	
6	14.680	37.4		1.3	38.7		60.0	50.0	21.3	

********** OME Operations **********
<<Conducted Emission>>

20 March,2003 21:58
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Standard : C.I.S.P.R. Pub. 22 Class B
Model Name : PORTEGE 2010
Model No. : PP201U
Serial No. : CS#1
Operator : M.Watanabe
ACPower : 120Vac / 60Hz
Temp, Humid : 23.7deg. / 48.0%
Remark1 :
Remark2 :
Remark3 :

****

Spectrum Selection

--- L1 Phase ---

No.	Frequency	Reading	c.f	Result PK	Limit QP	Limit AV	Margin QP	Margin AV	Remark
	[MHz]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]	
1	0.28475	41.9	0.3	42.2	60.7	50.7	18.5	8.5	
2	0.30138	40.2	0.3	40.5	60.2	50.2	19.7	9.7	
3	2.045	33.9	0.5	34.4	56.0	46.0	21.6	11.6	
4	4.1075	37.0	0.6	37.6	56.0	46.0	18.4	8.4	
5	6.155	39.8	0.8	40.6	60.0	50.0	19.4	9.4	
6	6.9725	39.4	0.8	40.2	60.0	50.0	19.8	9.8	
7	6.995	39.9	0.8	40.7	60.0	50.0	19.3	9.3	
8	7.220	37.4	0.8	38.2	60.0	50.0	21.8	11.8	
9	12.055	39.1	1.2	40.3	60.0	50.0	19.7	9.7	
10	12.0825	39.4	1.2	40.6	60.0	50.0	19.4	9.4	
11	12.12375	37.1	1.2	38.3	60.0	50.0	21.7	11.7	
12	14.255	42.7	1.3	44.0	60.0	50.0	16.0	6.0	
13	14.73625	43.0	1.3	44.3	60.0	50.0	15.7	5.7	
14	15.9325	40.6	1.4	42.0	60.0	50.0	18.0	8.0	
15	16.44125	38.3	1.4	39.7	60.0	50.0	20.3	10.3	

--- L2 Phase ---

No.	Frequency	Reading	c.f	Result PK	Limit QP	Limit AV	Margin QP	Margin AV	Remark
	[MHz]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]	
1	0.2725	37.8	0.3	38.1	61.0	51.0	22.9	12.9	
2	0.28213	38.7	0.3	39.0	60.8	50.8	21.9	11.9	
3	0.29263	41.5	0.3	41.8	60.4	50.4	18.7	8.7	
4	2.045	35.2	0.5	35.7	56.0	46.0	20.3	10.3	
5	3.6725	31.5	0.6	32.1	56.0	46.0	23.9	13.9	
6	4.1075	36.9	0.6	37.5	56.0	46.0	18.5	8.5	
7	4.4825	31.6	0.7	32.3	56.0	46.0	23.7	13.7	
8	4.5425	32.5	0.7	33.2	56.0	46.0	22.8	12.8	
9	4.685	31.5	0.7	32.2	56.0	46.0	23.8	13.8	
10	4.8875	33.6	0.7	34.3	56.0	46.0	21.7	11.7	
11	5.315	35.4	0.7	36.1	60.0	50.0	23.9	13.9	
12	6.155	40.7	0.8	41.5	60.0	50.0	18.6	8.6	
13	7.1975	38.9	0.8	39.7	60.0	50.0	20.3	10.3	
14	14.6125	42.4	1.3	43.7	60.0	50.0	16.3	6.3	
15	17.07375	37.8	1.4	39.2	60.0	50.0	20.8	10.8	

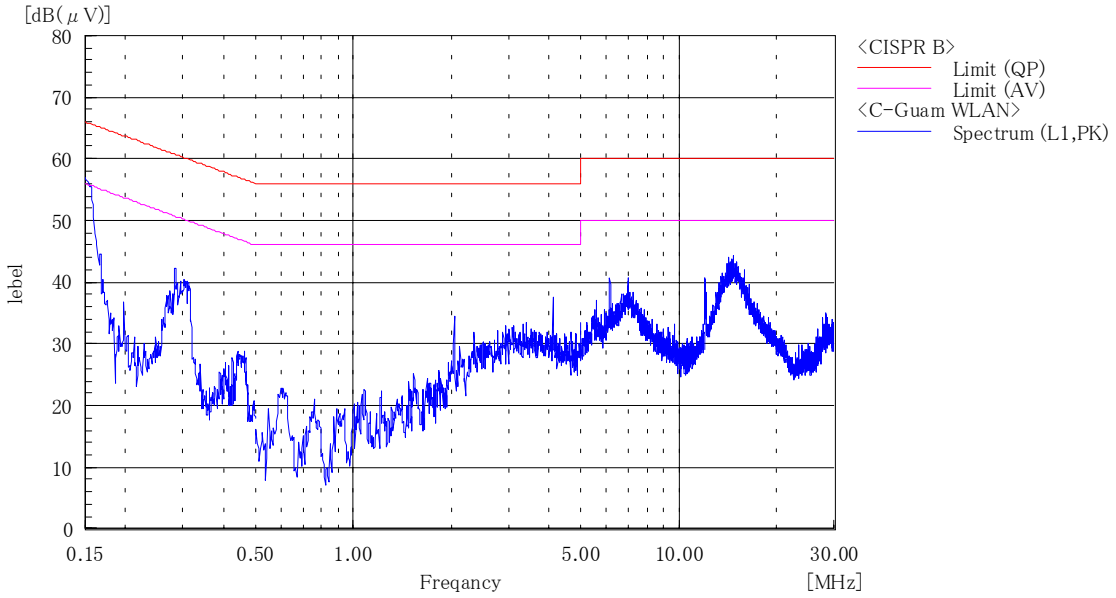
OME Operations
Anechoic chamber 2

<<Conducted Emission>>

20 March,2003 21:58
C-Guam WLAN.dat

Model Name : PORTEGE 2010
Model No. : PP201U
Serial No. : CS#1
Operator : M.Watanabe
ACPower : 120Vac / 60Hz

Standard : C.I.S.P.R. Pub. 22 Class B
Temp, Humid : 23.7deg. / 48.0%
Remark1 :
Remark2 :
Remark3 :



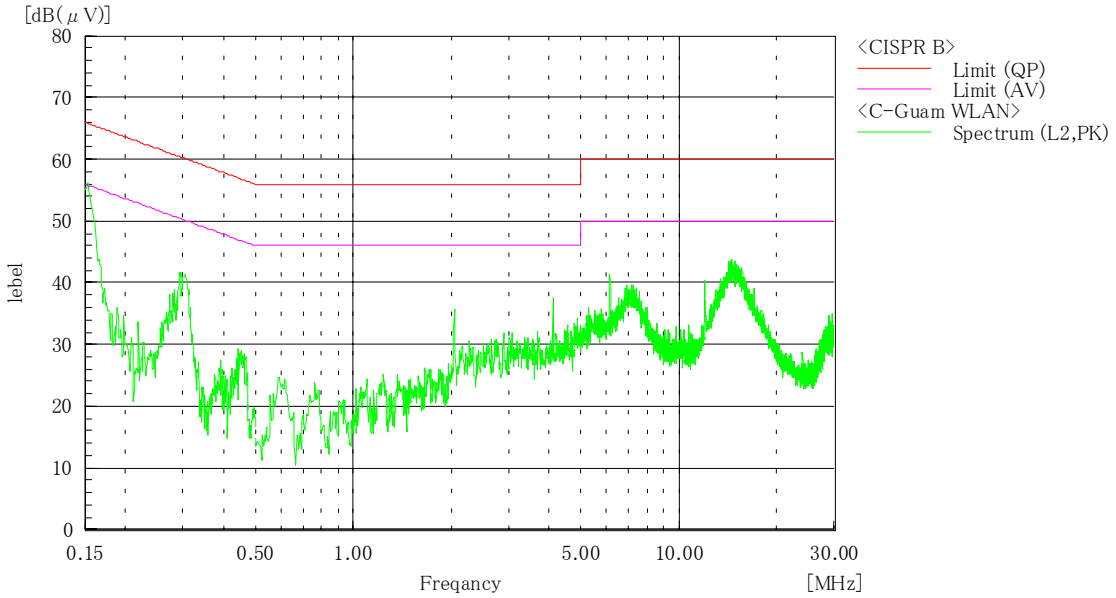
OME Operations
Anechoic chamber 2

<<Conducted Emission>>

20 March,2003 21:58
C-Guam WLAN.dat

Model Name : PORTEGE 2010
Model No. : PP201U
Serial No. : CS#1
Operator : M.Watanabe
ACPower : 120Vac / 60Hz

Standard : C.I.S.P.R. Pub. 22 Class B
Temp, Humid : 23.7deg. / 48.0%
Remark1 :
Remark2 :
Remark3 :



Radiation Measurement Results

********** OME Operations **********
<<Radiated Emission>> 20 March,2003 20:46
Guam WLAN.dat

Standard : FCC Part 15B Class B (3m)
Model Name : PORTEGE 2010
Model No. : PP201U
Serial No. : CS#1
Operator : M.Watanabe
AC Mains : AC 120Vac / 60 Hz
Temp, Humid : 22.8 deg. / 48.0%
Remark1 :
Remark2 :
Remark3 :

****

Final Result

--- Horizontal Polarization (QP)---

	No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
##	1	45.708	23.6	3.2	26.8	40.0	13.2	
	2	195.084	18.8	17.6	36.4	43.5	7.1	
	3	243.863	18.3	19.9	38.2	46.0	7.8	
	4	260.117	23.5	20.5	44.0	46.0	2.0	
	5	266.096	19.2	20.8	40.0	46.0	6.0	
	6	799.498	2.8	34.5	37.3	46.0	8.7	

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	33.613	23.2	0.5	23.7	40.0	16.3	
2	45.708	25.8	3.2	29.0	40.0	11.0	
3	260.117	19.2	20.5	39.7	46.0	6.3	
4	632.000	3.6	30.7	34.3	46.0	11.7	
5	794.503	5.6	34.4	40.0	46.0	6.0	
6	799.498	5.4	34.5	39.9	46.0	6.1	

********** OME Operations **********
<<Radiated Emission>> 20 March,2003 20:46
Guam WLAN.dat

Standard : FCC Part 15B Class B (3m)
Model Name : PORTEGE 2010
Model No. : PP201U
Serial No. : CS#1
Operator : M.Watanabe
AC Mains : AC 120Vac / 60 Hz
Temp, Humid : 22.8 deg. / 48.0%
Remark1 :
Remark2 :
Remark3 :

****

Spectrum Selection

--- Horizontal Polarization ---

	No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
###	1	45.925	20.1	13.7	33.8	40.0	6.3	
	2	66.575	22.3	10.3	32.6	40.0	7.4	
	3	152.000	17.1	17.8	34.9	43.5	8.6	
	4	195.500	18.1	19.6	37.7	43.5	5.8	
	5	241.000	16.6	21.9	38.5	46.0	7.5	
	6	245.000	17.6	22.1	39.7	46.0	6.3	
	7	261.000	22.1	23.1	45.2	46.0	0.8	
	8	267.000	16.8	23.5	40.3	46.0	5.7	
	9	374.500	18.3	19.6	37.9	46.0	8.1	
	10	399.000	19.3	19.7	39.0	46.0	7.0	
	11	431.500	18.3	20.1	38.4	46.0	7.6	
	12	625.500	14.1	24.3	38.4	46.0	7.7	
	13	799.000	11.4	28.1	39.5	46.0	6.5	
	14	860.500	9.1	30.0	39.1	46.0	6.9	
	15	926.500	6.1	31.6	37.7	46.0	8.3	

--- Vertical Polarization ---

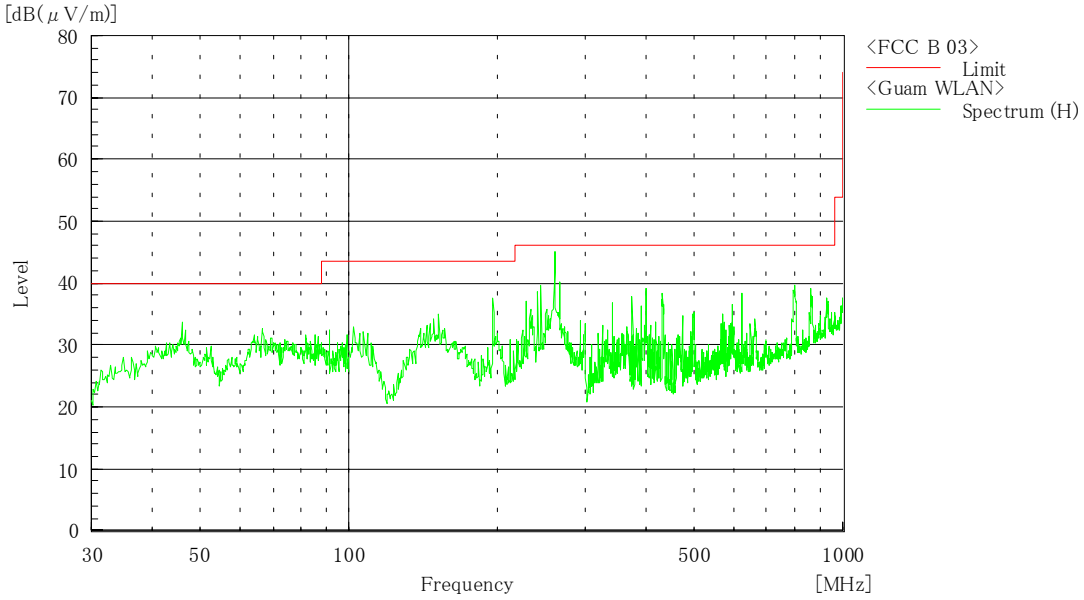
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	45.925	21.5	13.7	35.2	40.0	4.8	
2	195.500	15.5	19.6	35.1	43.5	8.4	
3	261.000	17.3	23.1	40.4	46.0	5.6	
4	543.000	15.1	22.9	38.0	46.0	8.0	
5	550.500	16.0	23.0	39.0	46.0	7.0	
6	559.500	15.3	23.1	38.4	46.0	7.6	
7	563.000	16.2	23.1	39.3	46.0	6.7	
8	588.000	15.2	23.4	38.6	46.0	7.4	
9	603.500	15.8	23.7	39.5	46.0	6.5	
10	625.500	13.0	24.3	37.3	46.0	8.7	
11	633.500	15.8	24.5	40.3	46.0	5.7	
12	646.000	13.0	24.9	37.9	46.0	8.1	
13	665.500	12.4	25.7	38.1	46.0	7.9	
14	794.500	13.4	28.0	41.4	46.0	4.6	
15	927.250	6.5	31.6	38.1	46.0	7.9	

OME Operations
Anechoic chamber 2

<<Radiated Emission>>

20 March,2003 20:46
Guam WLAN.dat

Model Name	: PORTEGE 2010	Standard	: FCC Part 15B Class B (3m)
Model No.	: PP201U	Temp, Humid	: 22.8 deg. / 48.0%
Serial No.	: CS#1	Remark1	:
Operator	: M.Watanabe	Remark2	:
AC Mains	: AC 120Vac / 60 Hz	Remark3	:

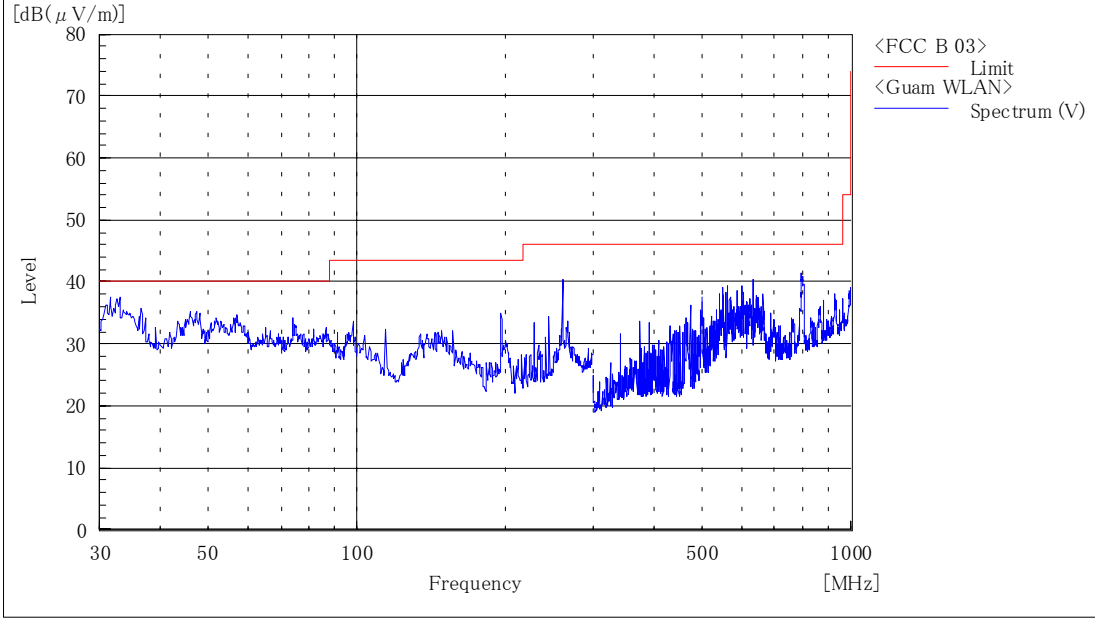


OME Operations
Anechoic chamber 2

<<Radiated Emission>>

20 March,2003 20:46
Guam WLAN.dat

Model Name	: PORTEGE 2010	Standard	: FCC Part 15B Class B (3m)
Model No.	: PP201U	Temp, Humid	: 22.8 deg. / 48.0%
Serial No.	: CS#1	Remark1	:
Operator	: M.Watanabe	Remark2	:
AC Mains	: AC 120Vac / 60 Hz	Remark3	:



Standard : FCC Part 15B Class B (3m)
Model Name : PORTEGE 2010
Model No. : PP201U
Serial No. : #1
Operator : M.Watanabe
AC Power : 120Vac/60Hz
Temp,Humid : 22.7deg./ 37%
Remark1 :
Remark2 :
Remark3 :

****

Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	1260.120	56.4	-25.3	31.1	74.0	42.9	
2	7215.231	39.6	-8.9	30.7	74.0	43.3	
3	9636.643	36.2	-6.0	30.2	74.0	43.8	

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	1260.120	73.9	-25.3	48.6	74.0	25.4	
2	7215.231	74.0	-8.9	65.1	74.0	8.9	
3	9636.643	51.5	-6.0	45.5	74.0	28.5	

--- Vertical Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	1260.120	59.5	-25.3	34.2	74.0	39.8	
2	1326.322	56.3	-25.2	31.1	74.0	42.9	
3	4874.449	41.8	-15.3	26.5	74.0	47.5	
4	7215.231	41.3	-8.9	32.4	74.0	41.6	
5	9636.643	41.3	-6.0	35.3	74.0	38.7	

--- Vertical Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	1260.120	77.0	-25.3	51.7	74.0	22.3	
2	1326.322	71.1	-25.2	45.9	74.0	28.1	
3	4874.449	59.9	-15.3	44.6	74.0	29.4	
4	7215.231	78.8	-8.9	69.9	74.0	4.1	
5	9636.643	68.1	-6.0	62.1	74.0	11.9	

********** OME Operations **********
<<Radiated Emission>> 24 March,2003 12:17
Guam SDBT.dat

Standard : FCC Part 15B Class B (3m)
Model Name : PORTEGE 2010
Model No. : PP201U
Serial No. : #1
Operator : M.Watanabe
AC Power : 120Vac/60Hz
Temp,Humid : 22.7deg./ 37%
Remark1 :
Remark2 :
Remark3 :

****

Spectrum Selection

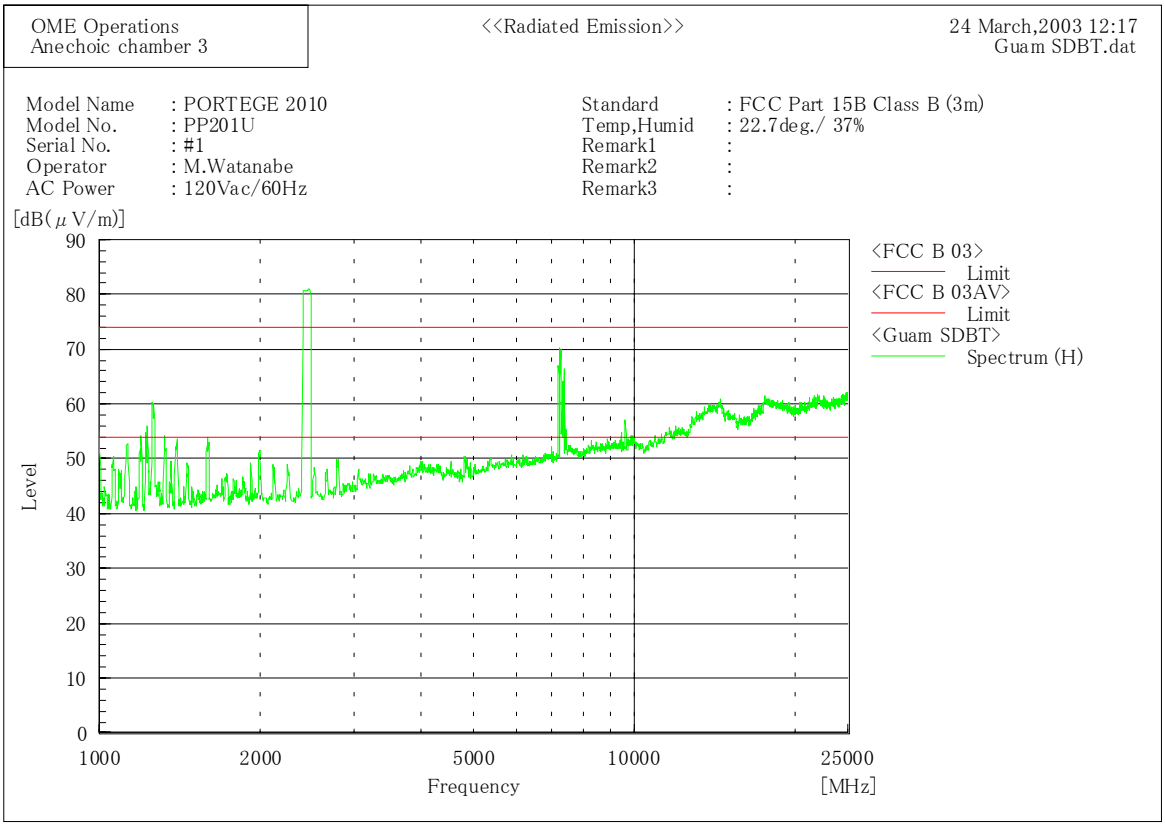
--- Horizontal Polarization ---

	No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
	1	1258.517	85.5	-25.3	60.2	74.0	13.8	
*	2	2474.950	100.5	-19.6	80.9	74.0	-6.9	
	3	7224.449	79.0	-8.9	70.1	74.0	3.9	
	4	7264.529	78.5	-8.7	69.8	74.0	4.2	
	5	7334.669	72.4	-8.4	64.0	74.0	10.0	
	6	7364.730	74.9	-8.3	66.6	74.0	7.4	
	7	7404.810	68.0	-8.3	59.7	74.0	14.3	
	8	17535.068	59.6	1.7	61.3	74.0	12.7	

--- Vertical Polarization ---

	No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
	1	1258.517	89.2	-25.3	63.9	74.0	10.1	
	2	1320.641	83.0	-25.2	57.8	74.0	16.2	
*	3	2474.950	100.5	-19.6	80.9	74.0	-6.9	
	4	4843.687	77.7	-15.4	62.3	74.0	11.7	
	5	7204.409	85.0	-9.0	76.0	74.0	-2.0	
	6	7304.609	85.3	-8.5	76.8	74.0	-2.8	
	7	7384.770	76.8	-8.3	68.5	74.0	5.5	
	8	7414.830	76.6	-8.3	68.3	74.0	5.7	
	9	9629.258	66.5	-6.0	60.5	74.0	13.5	
	10	9689.378	70.0	-6.0	64.0	74.0	10.0	
	11	9729.459	67.8	-6.0	61.8	74.0	12.2	
	12	17599.196	60.2	1.8	62.0	74.0	12.0	

*: This frequency is operation frequency of the Wireless module.


OME Operations
Anechoic chamber 3
<<Radiated Emission>>
24 March,2003 12:17
Guam SDBT.dat
Model Name : PORTEGE 2010
Model No. : PP201U
Serial No. : #1
Operator : M.Watanabe
AC Power : 120Vac/60Hz
Standard : FCC Part 15B Class B (3m)
Temp,Humid : 22.7deg./ 37%
Remark1 :
Remark2 :
Remark3 :
[dB(μV/m)]
Level
Frequency
[MHz]
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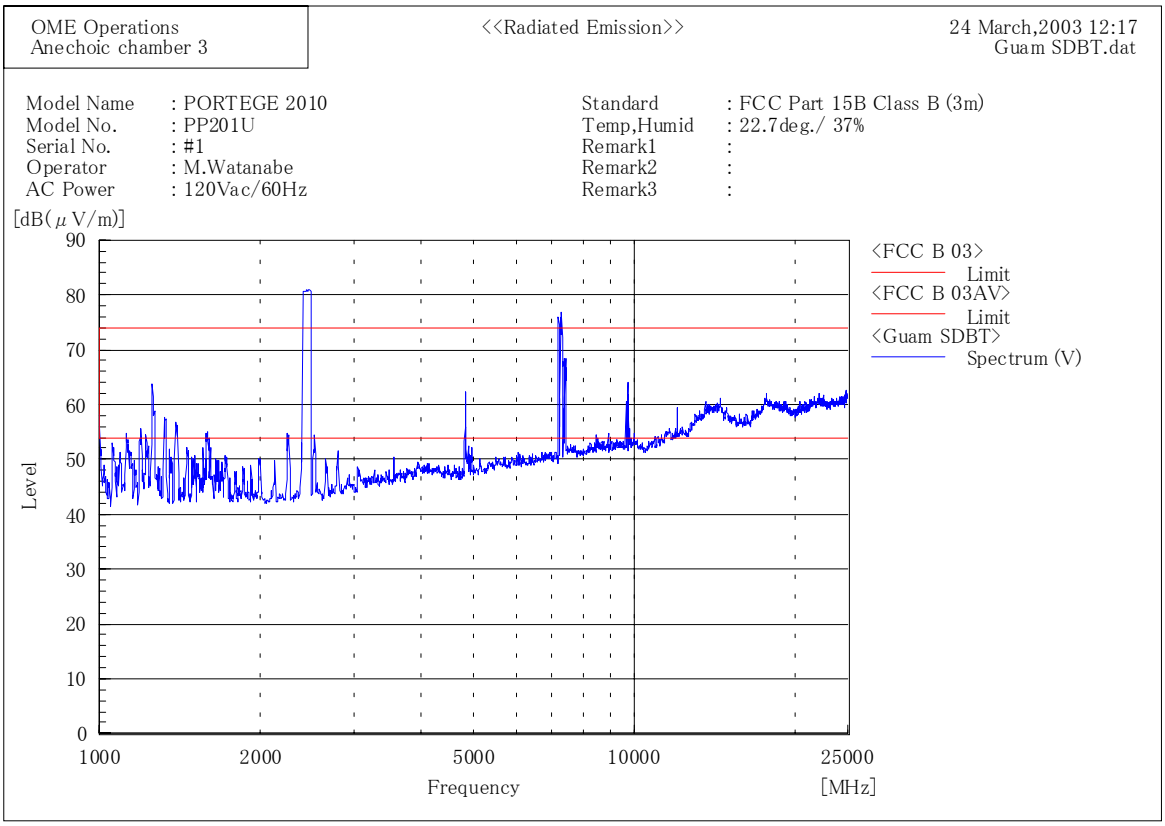
Limit
<FCC B 03AV>
Limit
<Guam SDBT>
Spectrum (H)


OME Operations
Anechoic chamber 3
<<Radiated Emission>>
24 March,2003 12:17
Guam SDBT.dat
Model Name : PORTEGE 2010
Model No. : PP201U
Serial No. : #1
Operator : M.Watanabe
AC Power : 120Vac/60Hz
Standard : FCC Part 15B Class B (3m)
Temp,Humid : 22.7deg./ 37%
Remark1 :
Remark2 :
Remark3 :
[dB(μV/m)]
Level
Frequency
[MHz]
<FCC B 03>
Limit
<FCC B 03AV>
Limit
<Guam SDBT>
Spectrum (V)

MEASUREMENT SET-UP
(Sketches)

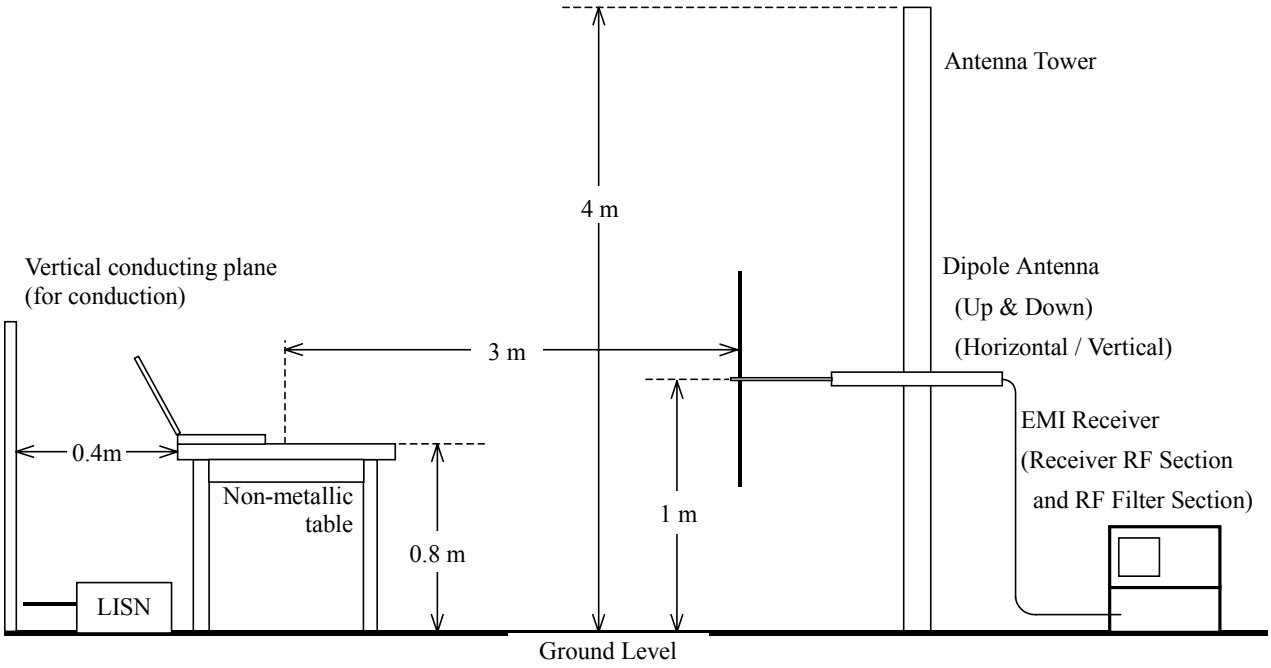


Figure 1, Side View

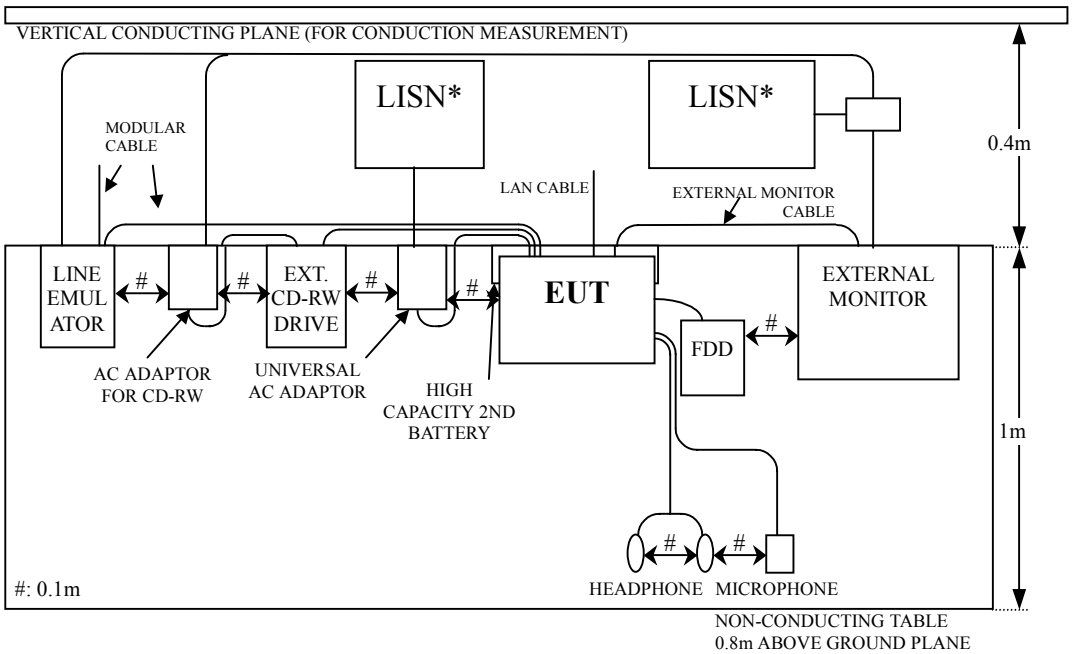


Figure 2, Top view

MEASUREMENT SET-UP
(Photographs)

Figure 3, Front View

Figure 4, Rear View

MEASUREMENT INSTRUMENTATION USED

(Conduction Measurement)

	Instrument	Manufacturer	Model No.	Serial No.
*	EMI Receiver	Hewlett Packard - Japan, Ltd	8546A	3549A00285
	- Receiver RF Section		85462A	3549A00285
	- RF Filter Section		85460A	3548A00254
	Frequency range	: 9 k - 6.5 GHz		
	Detector function	: CISPR Quasi Peak, Peak and Average		
	IF bandwidth	: 9 kHz		
	Calibration date	: May of 2002		
*	Line Inpeadance Stabilization Network (LISN) (50uH / 50ohm), (for EUT)	Kyoritsu Electrical Works, Ltd.	KNW-407	8-794-14
	Calibration date	: September of 2002		
*	Line Inpeadance Stabilization Network (LISN) (50uH / 50ohm), (for peripherals)	Kyoritsu Electrical Works, Ltd.	KNW-341C	8-853-3
	Calibration date	: September of 2002		
*	System Loss	Toshiba Corp., Ome Operations	TOAC02-001	N/A
	- Coaxial Cable	FUJIKURA	30-2W	C004
	Frequency range	: 150 k - 30 MHz		
	Calibration date	: December of 2002		

All measurement 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.

These measurement instruments used for the final measuremet and pre-measurement in the Anechoic Chamber No. 2.

MEASUREMENT INSTRUMENTATION USED

(Radiation Measurement)

	Instrument	Manufacturer	Model No.	Serial No.
*	EMI Receiver	Hewlett Packard - Japan, Ltd	8546A	3549A00285
	- Receiver RF Section		85462A	3549A00285
	- RF Filter Section		85460A	3548A00254
	Frequency range	: 9 k - 6.5 GHz		
	Detector function	: CISPR Quasi Peak, Peak and Average		
	IF bandwidth	: 9 kHz		
	Calibration date	: May of 2002		
*	Dipole antenna	Kyoritsu Electrical Works, Ltd.	KBA-511A	0-201-6
	Tuning range	: 25 - 500MHz		
	Calibration date	: July of 2002		
*	Dipole antenna	Kyoritsu Electrical Works, Ltd.	KBA-611	0-215-1
	Tuning range	: 500 - 1000MHz		
	Calibration date	: July of 2002		
*	Biconical antenna: #	CHASE	11966C	3110
	Tuning Range	: 30 - 300 MHz		
	Calibration date	: July of 2002		
*	Log periodic antenna: #	CHASE	3146	1592
	Tuning Range	: 200 - 1000 MHz		
	Calibration date	: September of 2002		
*	System Loss	Tohsiba Corp., Ome Operations	TOAC02-002	N/A
	- Coaxial cable (2 cables)	SUHNER	S 04272 B	C005
			S 04272 B	C006
	Frequency range	: 30 M - 2 GHz		
	Calibration date	: December of 2002		

All measurement 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.
These measurement instruments used for the final measurements.
(#: This measurement instruments used only for the pre-measurements.)

*	Anechoic Chamber No. 2 (NSA measurement)	TDK Corp.	N/A	N/A
	Calibration date	: August of 2001		

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

MEASUREMENT INSTRUMENTATION USED

(Radiation Measurement: above 1 GHz)

Instrument	Manufacturer	Model No.	Serial No.
* EMI Tset Receiver	ROHDE&SCHWARZ	ESIB40	100127
Frequency range	: 20 Hz - 40 GHz		
Detector function	: CISPR Quasi Peak, Peak and Average		
IF bandwidth	: 9 kHz		
Calibration date	: September of 2002		
* Double Redged Waveguide Horn Antenna	EMCO	3115	4949
Tuning Range	: 1 - 18 GHz		
Calibration date	: August of 2002		
* Standard Gain Horn Antenna	EMCO	3160-9	9910-1185
Tuning Range	: 18 - 26.5 GHz		
* Standard Gain Horn Antenna	EMCO	3160-10	1153
Tuning Range	: 26.5 - 40 GHz		
Tuning Range	: 26.5 - 40 GHz		
* System Loss	Tohsiba Corp., Ome Operations	TOAC03-003	N/A
- Coaxial cable (5 cables)	SUHNER	SF102	C028
		SF102	C030
		SF102	C031
		SF102	C032
		SF102	C033
- Microwave System Amlifer	Agilent Technologies	83051A	3950M00213
		83051A	MY39500304
Frequency range	: 1 - 1 8GHz		
Calibration date	: December of 2002		
* System Loss	Tohsiba Corp., Ome Operations	TOAC03-003	N/A
- Coaxial cable (5 cables)	SUHNER	SF102	C029
		SF102	C030
		SF102	C031
		SF102	C032
		SF102	C033
- Microwave System Amlifer	Agilent Technologies	83051A	3950M00213
		83051A	MY39500304
Frequency range	: 18 - 40GHz		
Calibration date	: December of 2002		

All measurement 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.
These measurement instruments used for the final measurements.

* Anechoic Chamber No. 3 (NSA measurement)	TDK Corp.	N/A	N/A
Calibration date	: April of 2002		

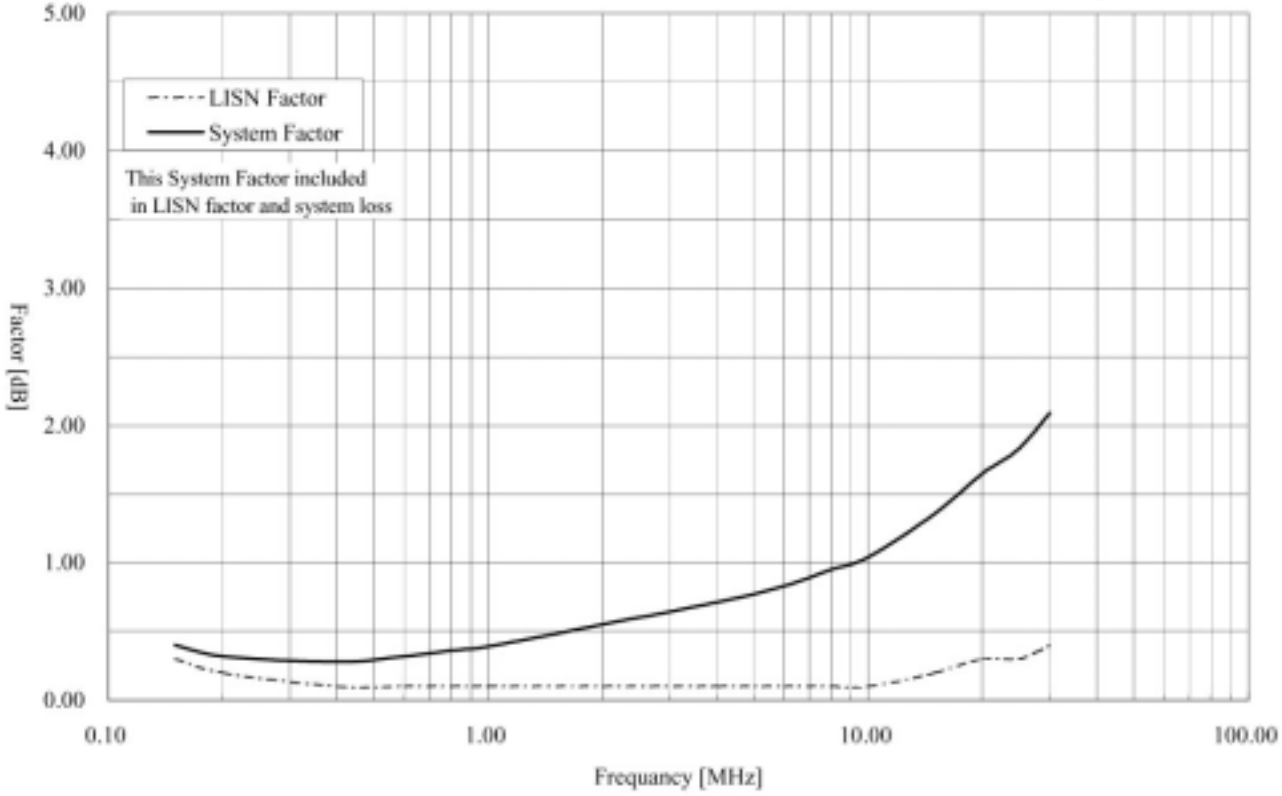
The Anechoic Chamber is calibrated (NSA measurement) at least once three years, for Registration of Measurement Facility to the FCC or VCCI.

[Appendix A]

SYSTEM FACTOR
(Conduction Measurement)
for Anechoic Chamber No.2

LISN: Model KNW-407

Serial No.: 8-794-14
Calibration date: September of 2002



SYSTEM LOSS

(Radiation measurement)

30MHz - 1GHz

for Anechoic Chamber No. 2

Frequency [MHz]	System Loss [dB]	Frequency [MHz]	System Loss [dB]
30	0.9	225	2.9
40	1.1	250	3.1
50	1.1	275	3.4
60	1.4	300	3.6
70	1.5	350	4.0
80	1.6	400	4.2
90	1.7	450	4.5
100	1.8	500	4.8
110	1.9	550	5.0
120	2.0	600	5.3
130	2.1	650	5.9
140	2.2	700	6.1
150	2.3	750	6.4
160	2.4	800	6.5
170	2.4	850	6.8
180	2.6	900	7.3
190	2.6	950	7.4
200	2.7	1000	7.7

SYSTEM LOSS
(Radiation measurement)
18GHz - 40GHz

for Anechoic Chamber No. 3

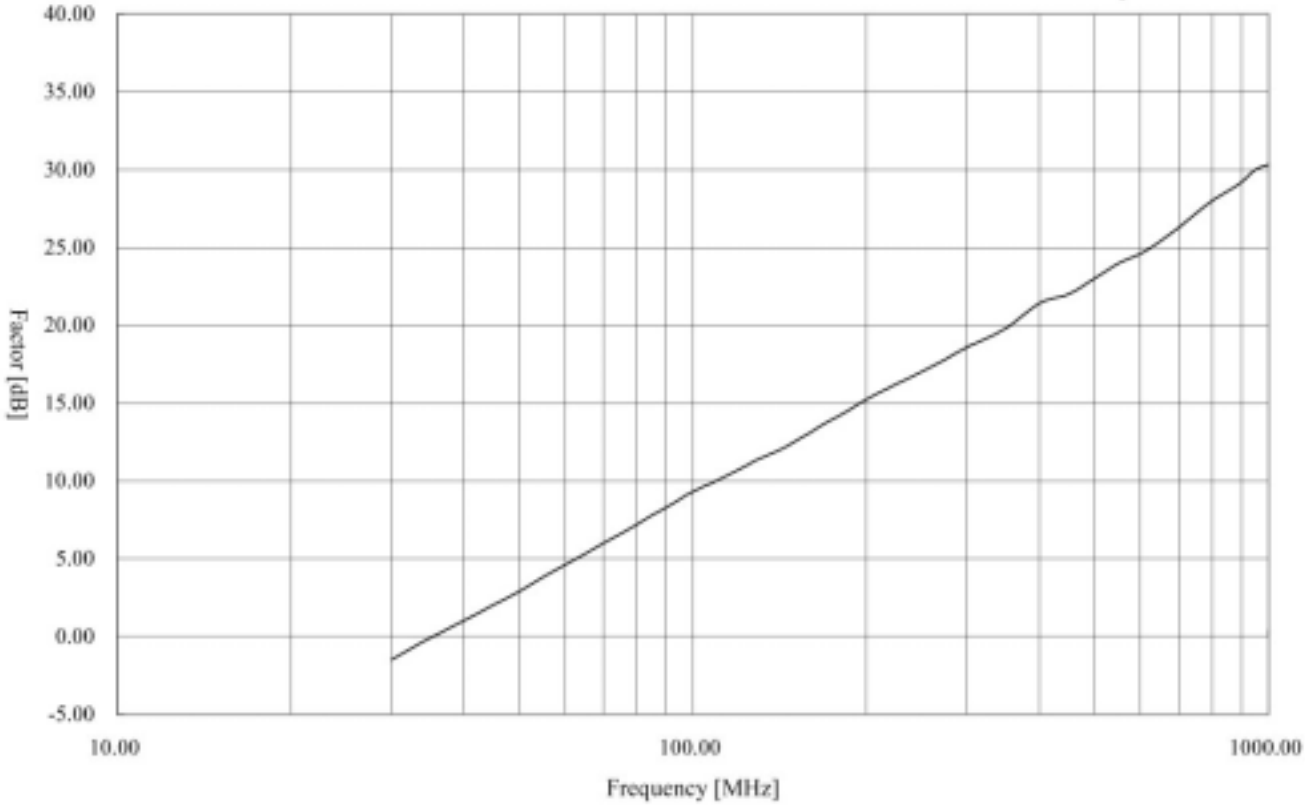
Frequency [MHz]	System Loss [dB]	Frequency [MHz]	System Loss [dB]	Frequency [MHz]	System Loss [dB]
18000	-38.3	25500	-37.2	33000	-35.7
18250	-38.1	25750	-37.5	33250	-35.8
18500	-37.6	26000	-37.7	33500	-35.6
18750	-38.0	26250	-37.3	33750	-35.8
19000	-37.5	26500	-36.7	34000	-35.7
19250	-37.1	26750	-36.8	34250	-36.0
19500	-37.5	27000	-36.5	34500	-35.9
19750	-36.0	27250	-36.6	34750	-36.0
20000	-37.8	27500	-36.6	35000	-36.1
20250	-36.1	27750	-37.0	35250	-35.6
20500	-37.0	28000	-37.4	35500	-35.6
20750	-37.7	28250	-37.2	35750	-35.7
21000	-37.0	28500	-37.2	36000	-36.2
21250	-37.3	28750	-37.3	36250	-35.8
21500	-36.5	29000	-36.9	36500	-36.3
21750	-36.7	29250	-37.2	36750	-36.0
22000	-36.1	29500	-36.6	37000	-36.0
22250	-36.4	29750	-36.7	37250	-35.9
22500	-36.3	30000	-36.6	37500	-36.1
22750	-36.2	30250	-36.4	37750	-35.7
23000	-36.8	30500	-36.5	38000	-35.7
23250	-36.4	30750	-36.5	38250	-35.3
23500	-36.3	31000	-36.2	38500	-35.1
23750	-36.5	31250	-36.4	38750	-35.2
24000	-36.2	31500	-36.3	39000	-34.8
24250	-36.4	31750	-35.9	39250	-34.7
24500	-37.0	32000	-36.1	39500	-34.9
24750	-36.7	32250	-36.2	39750	-34.9
25000	-37.1	32500	-36.1	40000	-34.8
25250	-36.9	32750	-36.0		

[Appendix C]

ANTENNA FACTOR

(Dipole Antenna)
for Anechoic Chamber No. 2

*Model No.:	*Tuninng range:	*Serial No.:	*Calibration date:
KBA-511A	25 - 500 MHz	0-201-6	July of 2002
KBA-611	500 - 1000 MHz	0-215-1	July of 2002



[Appendix D]

ANTENNA FACTOR

(Broadband Antenna)

for Anechoic Chamber No. 2

BICONICAL ANTENNA: MODEL 11966C

Serial No.: 3110

Calibration date: July of 2002

Frequency [MHz]	Antenna Factor[dB]	Frequency [MHz]	Antenna Factor[dB]
30	16.2	140	14.9
40	14.4	150	15.4
50	11.4	160	15.6
60	9.4	170	15.9
70	8.8	180	16.2
80	9.0	190	16.6
90	10.0	200	17.2
100	11.9	225	18.2
110	12.2	250	19.3
120	13.2	275	20.7
130	14.1	300	22.0

LOG PERIODIC ANTENNA: MODEL

Serial No.: 1592

Calibration date: July of 2002

Frequency [MHz]	Antenna Factor[dB]	Frequency [MHz]	Antenna Factor[dB]
300	13.8	700	20.8
350	15.2	750	21.4
400	15.6	800	21.6
450	16.0	850	22.8
500	17.6	900	24.0
550	18.0	950	24.4
600	18.4	1000	25.4
650	19.2		

ANTENNA FACTOR

(Broadband Antenna)

for Anechoic Chamber No.3

DOUBLE RIDGED WAVEGUIDE HORN ANTENNA: MODEL 3115

Serial No.: 4949

Calibration date: August of 2002

Frequency [MHz]	Antenna Factor[dB]	Frequency [MHz]	Antenna Factor[dB]
1000	24.3	10000	38.9
1500	25.5	10500	38.6
2000	27.6	11000	38.6
2500	28.7	11500	39.4
3000	30.7	12000	39.2
3500	31.8	12500	39.1
4000	33.0	13000	40.8
4500	32.9	13500	41.2
5000	34.0	14000	41.5
5500	34.8	14500	41.0
6000	35.1	15000	39.0
6500	35.3	15500	38.0
7000	36.4	16000	38.3
7500	37.5	16500	39.6
8000	37.5	17000	41.9
8500	38.2	17500	44.7
9000	38.5	18000	45.3
9500	38.7		

STANDARD GAIN HORN ANTENNA: MODEL 3160-9

Serial No.: 9910-1185

Frequency [MHz]	Antenna Factor[dB]	Frequency [MHz]	Antenna Factor[dB]
18000	40.2	22500	40.4
18500	40.2	23000	40.4
19000	40.2	23500	40.4
19500	40.3	24000	40.4
20000	40.3	24500	40.4
20500	40.3	25000	40.4
21000	40.3	25500	40.5
21500	40.3	26000	40.5
22000	40.3	26500	40.5

STANDARD GAIN HORN ANTENNA: MODEL 3160-10

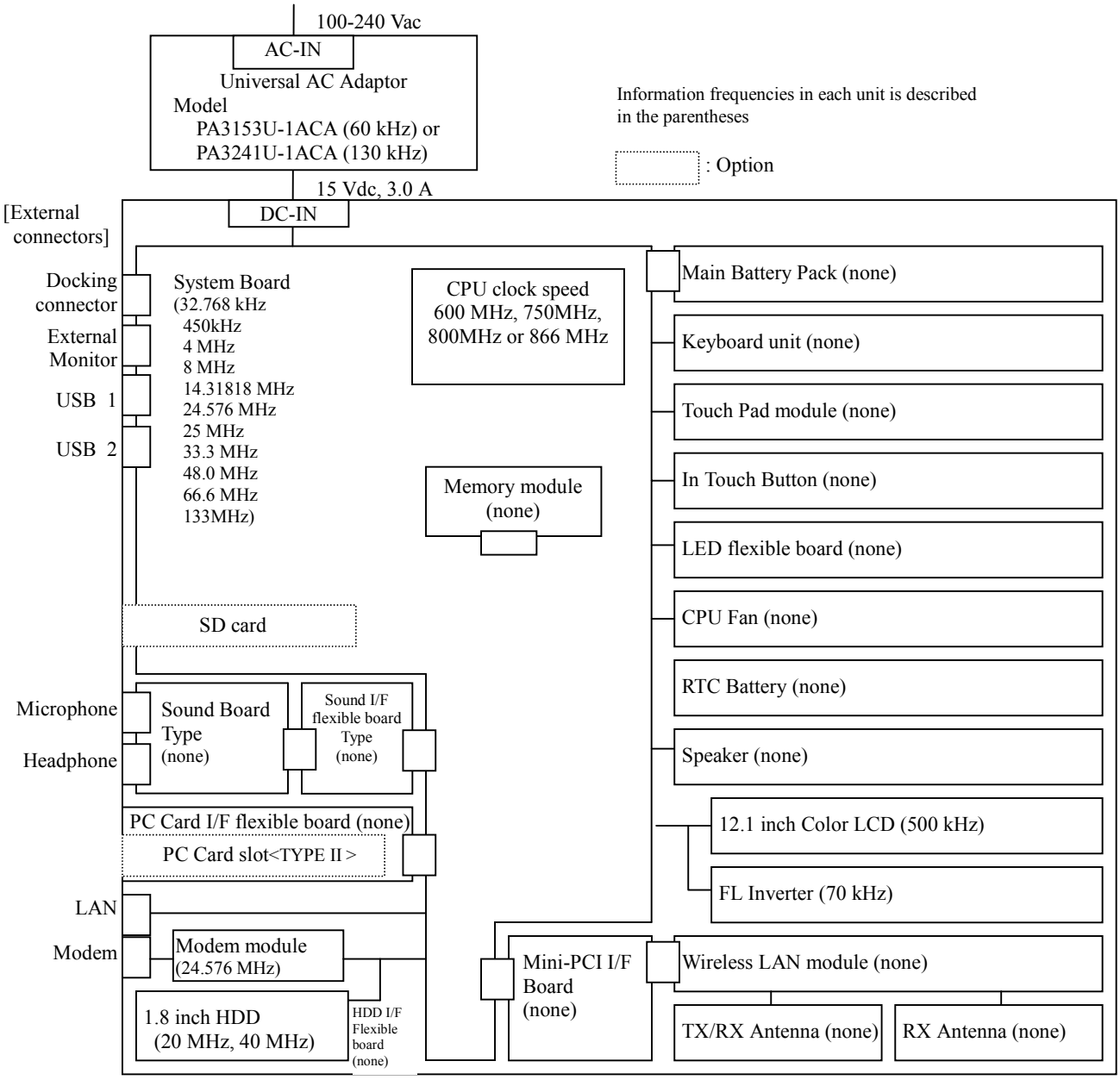
Serial No.: 1153

Frequency [MHz]	Antenna Factor[dB]	Frequency [MHz]	Antenna Factor[dB]
26500	43.4	34000	43.6
27000	43.4	35000	43.6
28000	43.4	36000	43.6
29000	43.5	37000	43.7
30000	43.5	38000	43.7
31000	43.5	39000	43.7
32000	43.5	40000	43.8
33000	43.6	---	---

[Appendix E]

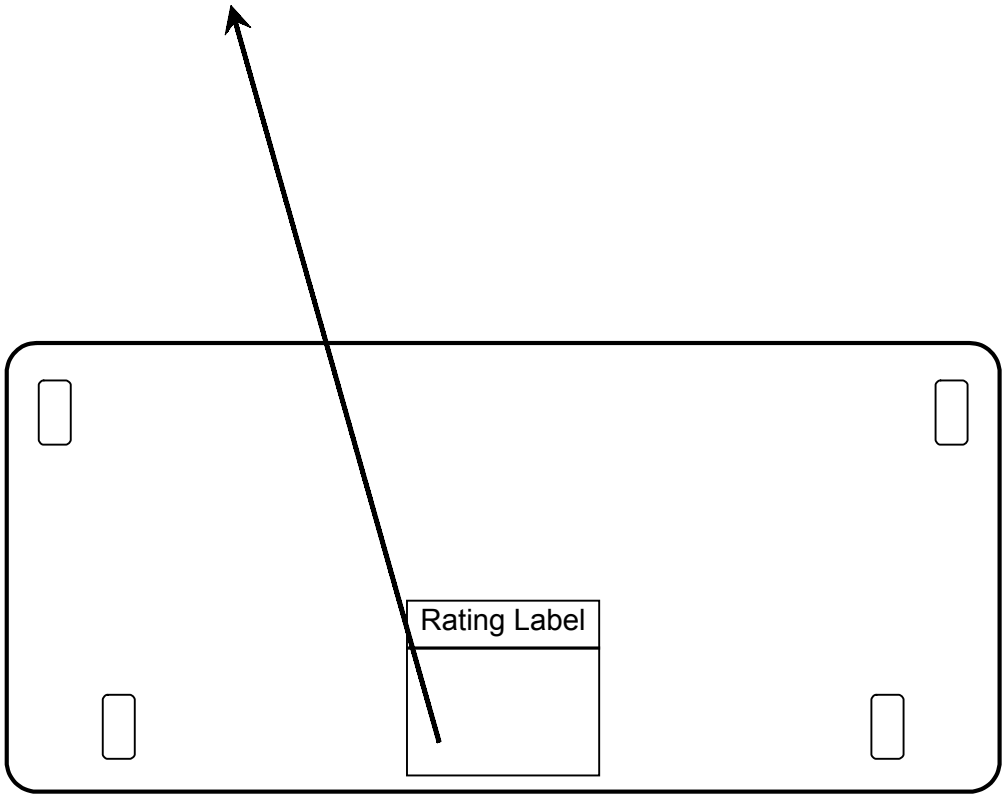
SYSTEM BLOCK DIAGRAM

Portege 2000/ 2010 series (Model PP200* and PP201*)



[Appendix F]

LABEL INFORMATION



BOTTOM VIEW

[Appendix G]

DETAILES OF UNITS

Designation / Kind of unit	Frequencies generated by this unit	Radio interference suppression components used
System Board	32.768 kHz 450 kHz 4 MHz 8 MHz 14.31818 MHz 24.576 MHz 25 MHz 33.3 MHz 48 MHz 66 MHz 133 MHz	**EMI filters:** **FL9, 11, 13** Murata Manufacturing Co., Ltd. Type NMF51R20P207 Rated 25 V, 200 mA **FL835, 836, 846, 907** Taiyo Yuden Co., Ltd. Type FBMJ3216HS800-T Rated 4 A, 80 ohm **FL15, 16** Taiyo Yuden Co., Ltd. Type BK1608HW470-T Rated 100 mA, 47 ohm **L800** TDK Corp. Type ACM0908-801-2P-TLE01 Rated 800 ohm at 100 MHz, 4 A **Inductors:** **FL19** Taiyo Yuden Co., Ltd. Type BK1608HW101-T Rated 100 mA, 100 ohm **L1** TDK Corp. Type NL453232T-4R7J Rated 4.7 uH **L7, 8** TDK Corp. Type NL453232T-1R0M Rated 4.7 uH **L11** TDK Corp. Type ACM4532-801-2P-T001 Rated 800 ohm, at 100 MHz, 4 A **L 845, 908** Tokin Corp. Type PLFC0735P-3R3B Rated 4 A, 3.3 uH **L 890** Tokin Corp. Type PLFC0735P-100A Rated 2 A, 10 uH
CPU	650 MHz or 750 MHz or 800 MHz or 866 MHz	none

Designation / Kind of unit	Frequencies geneRated by this unit	Radio interference suppression components used
Sound Board	none	**EMI filters (beads):** **FL998, 999** TDK Corp. Type ACM4532-701-3P-T Rated 700 ohm at 100MHz, 20V, 0.2A
Sound I/F flexible board	none	none
Mini-PCI I/F board	none	none
Touch Pad module	none	none
In Touch Button	none	none
LED flexible board	none	none
PC Card I/F flexible board	none	none
12.1 inch Color LCD - Toshiba Corp., Type LTM12C328	500 kHz	**EMI filter:** **FL100** Sumitomo Metal Industrial Type SGM32C1E222-2A Rated 25V, 2A, 2200 pF
FL Inverter (Nagano Japan Radio, Type NJD- 7099)	70 kHz	none
LCD cable	none	none
RTC Battery	none	none
Speaker	none	none
CPU Fan	none	none
1.8 inch HDD - (20GB) Toshiba Corp., Type HDD1364 - (30GB) Toshiba Corp., Type HDD1384 - (40GB) Toshiba Corp., Type HDD1524	 20 MHz 40 MHz 20 MHz 40 MHz 20 MHz 40 MHz	 none none none
HDD I/F flexible board	none	none
Keyboard unit	none	none
Main Battery Pack	none	none
Modem module **(Model No. 1456VQL4)**	24.576 MHz	**Chip coils:** **FB1- 4** Murata Manufacturing Co., Ltd. Type BLM31A601SPT Rated 600ohm at 100 MHz, 200mA

Designation / Kind of unit	Frequencies geneRated by this unit	Radio interference suppression components used
Modem & LAN connector cable	none	**Ferrite core:** Kitagawa Type BE-4-10-2
RX Antenna	none	none
TX/RX Antenna	none	none
Wireless LAN module	none	none
For Modular cable	none	**Ferrite core:** Kitagawa Type RFC-10
Universal AC Adaptor -Model PA3153U-1ACA	60 kHz	**Capacitors:** **CY1** Matsushita Electric Ind. Co., Ltd. Type DE0910E102M-KX Rated 1000 pF or TDK Corp. Type CD85-E2GA102MYNS Rated 1000 pF **CX1** ISKRA Type KNB1560 Rated 0.33 uF or ARCOTRONICS Type R46 Rated 0.33 uF or BC Components Type 222233820334 Rated 0.33 uF **Choke coils:** **FL1** DELTA Type CR-10-NB31 Rated 600 uH, at 40kHz, 1V **FL51** DELTA Type CR-10-NB20 Rated 110 uH, at 40kHz, 1V **Line filter:** **FL2** DELTA Type LFZ2004H09A Rated 5.6 mH, at 40kHz, 1V

Designation / Kind of unit	Frequencies geneRated by this unit	Radio interference suppression components used
Model PA3241U-1ACA, Toshiba Corp.	130kHz	**Choke coils:** **L1** Tokin Corp. Type 4476P04968 Rated 1A, 10mH **L2** Tokin Corp. Type SBCS-0806-3R0 Rated 3A **L3** Tokin Corp. Type 4476P04965A Rated 1A, 10mH **EMI Filters (Beads):** **FB1** Taiyo Yuden Co., Ltd. Type CP22RA030010020M Rated 2A **FB2** Taiyo Yuden Co., Ltd. Type FBR06HA121NA Rated 6A

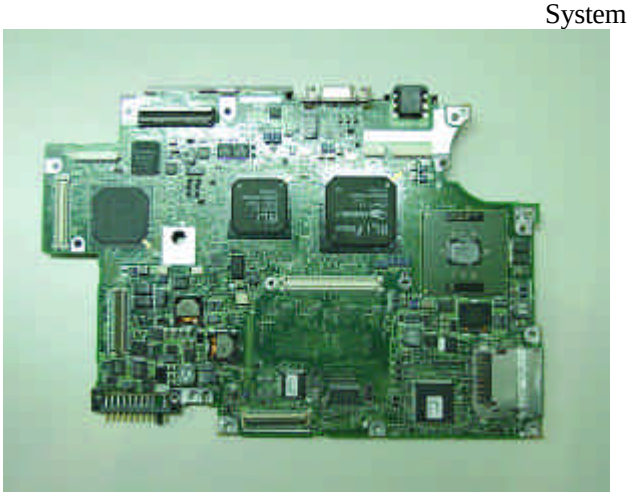
PHOTOGRAPHS
OF
COMPONENTS OR UNITS

EUT

[Front View]

[Rear View]

System Board



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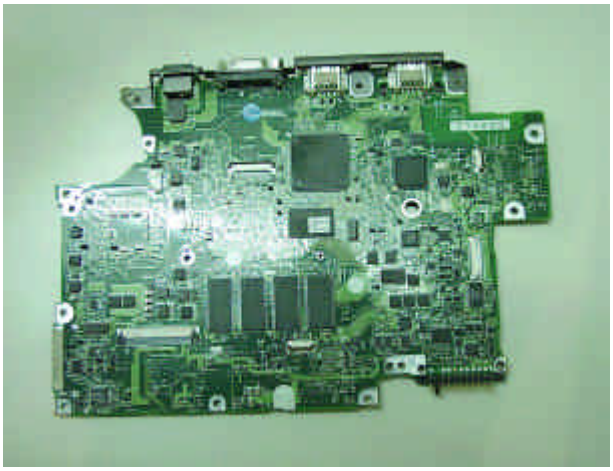

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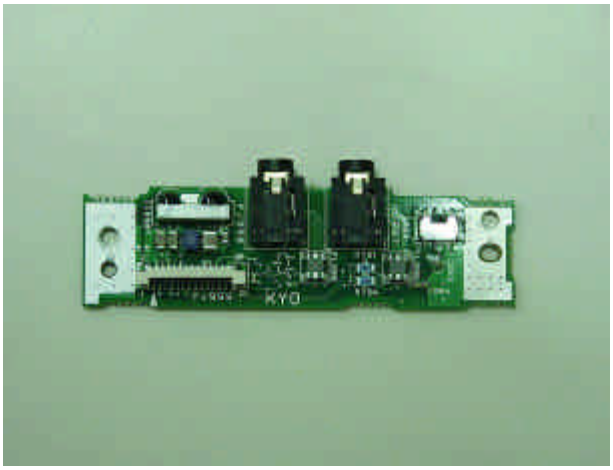
Sound Board



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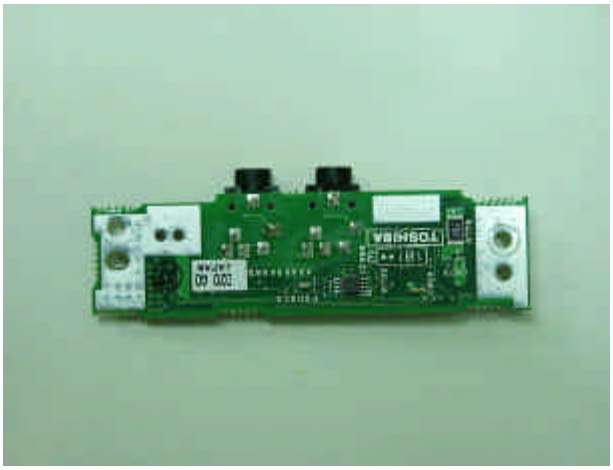

[Back]

Sound I/F flexible board

[Front]

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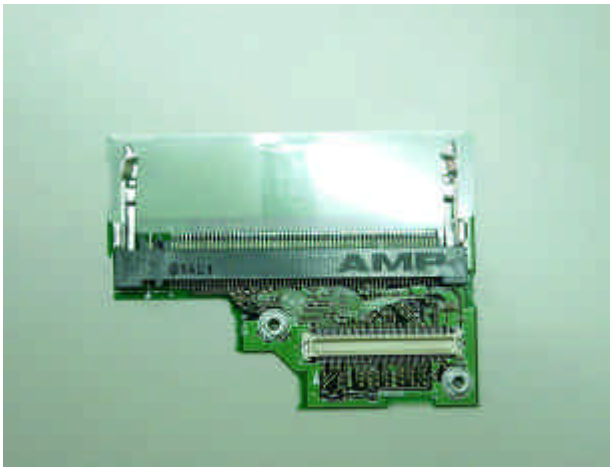
Mini-PCI IF/ Board



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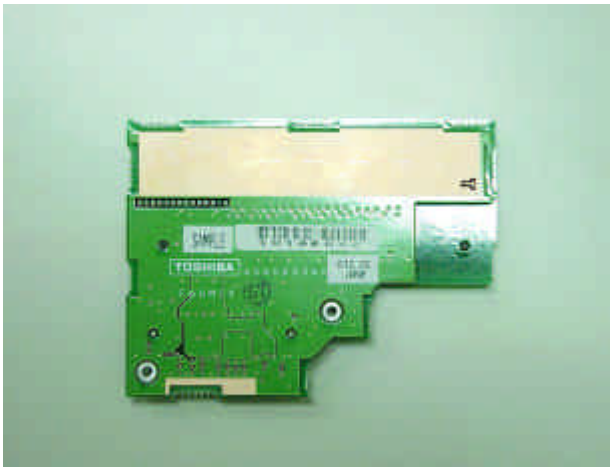

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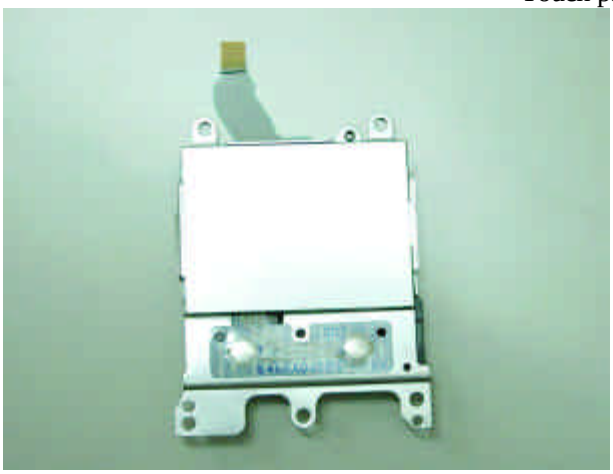
Touch pad module



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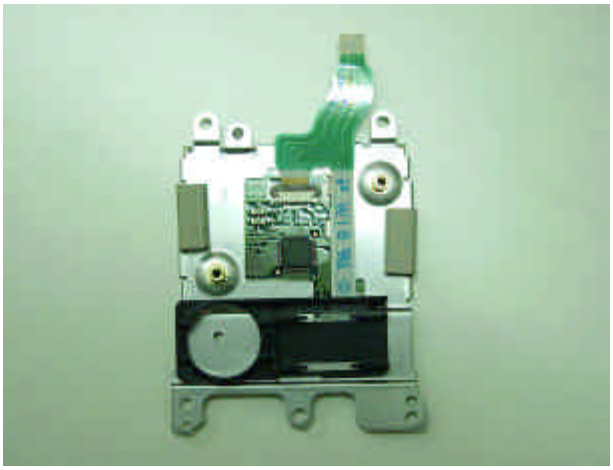

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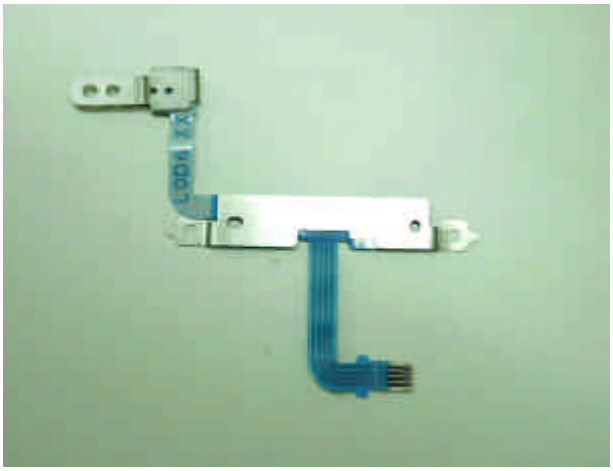
In Touch Button

[Front]



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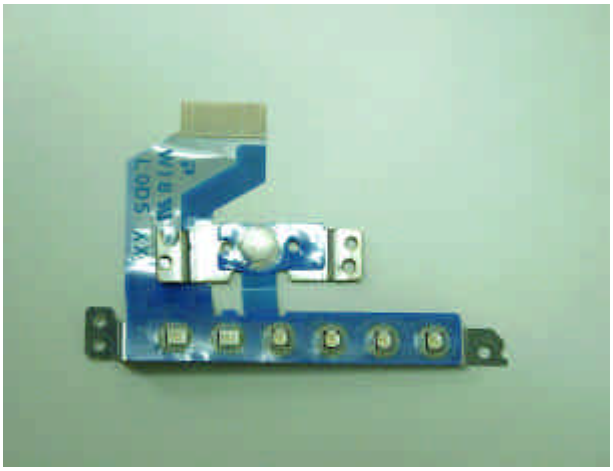
LED flexible board



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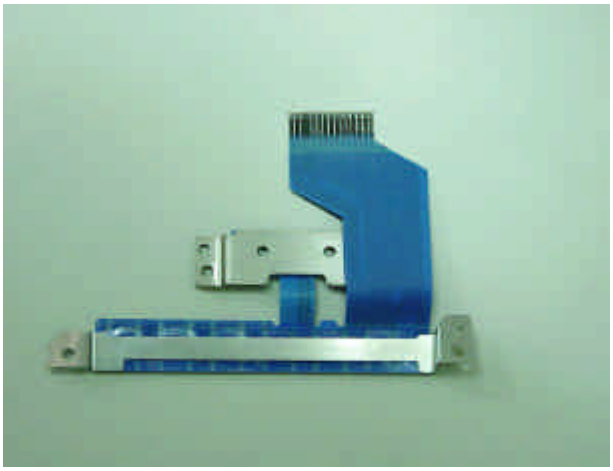

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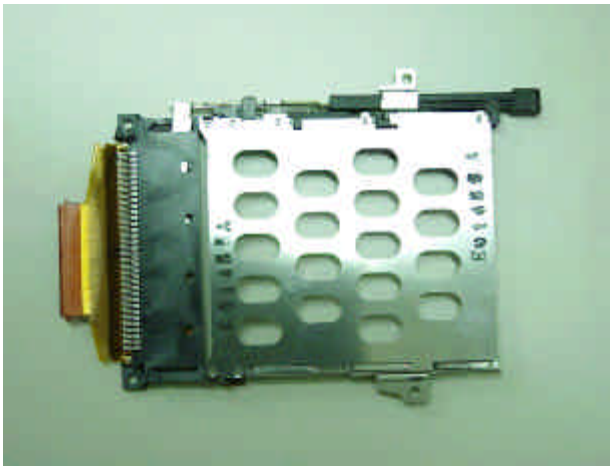
PC card I/F flexible board



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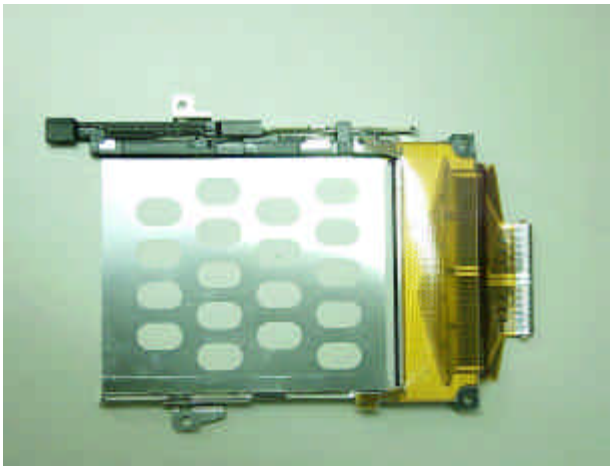

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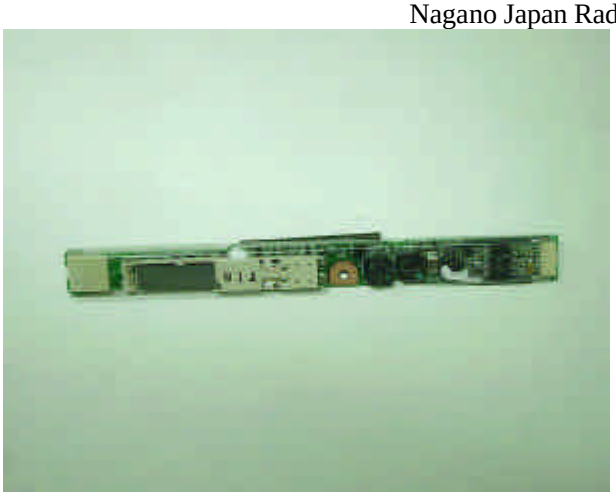
12.1 inch Color LCD
Toshiba Corp., Type LTM12C328

[Front]

[Back]

FL Inverter
Nagano Japan Radio, Type NJD-7099



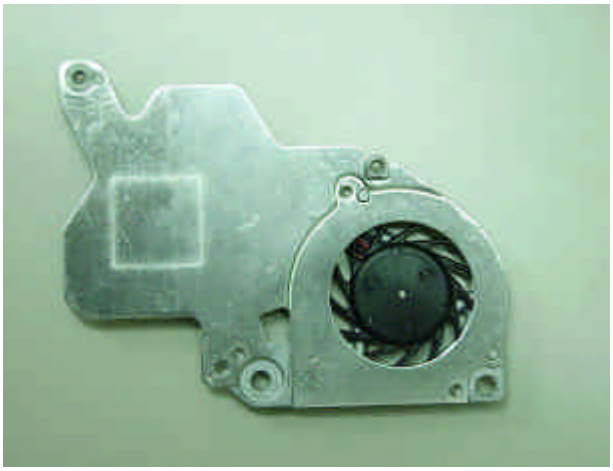
[Front]

[Back]

LCD cable

RTC Battery & Speaker

CPU Fan



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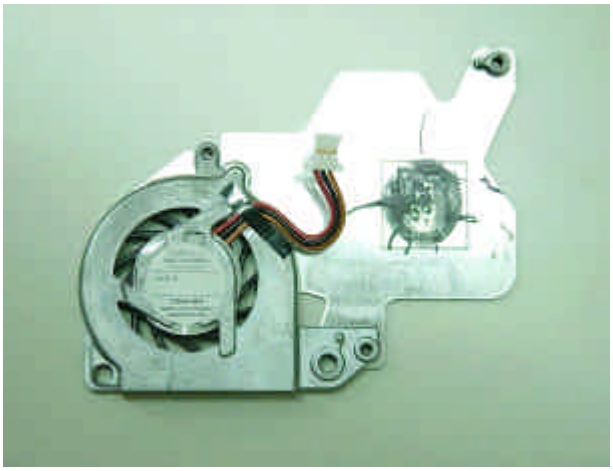

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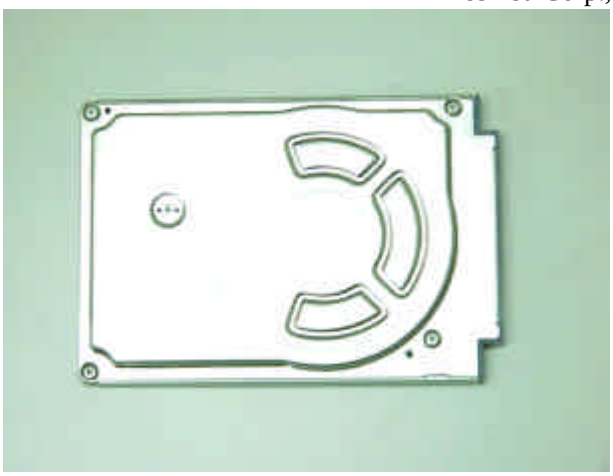
1.8 inch HDD (20GB)
Toshiba Corp., Type HDD1364



[Front]

[Back]

1.8 inch HDD (30 GB)
Toshiba Corp., Type HDD1384

[Front]

[Back]

1.8 inch HDD (40 GB)
Toshiba Corp., Type HDD1524

[Front]

[Back]

HDD I/F flexible board

[Front]

[Back]

Keyboard unit

[Front]

[Back]

Main Battery Pack

[Front]

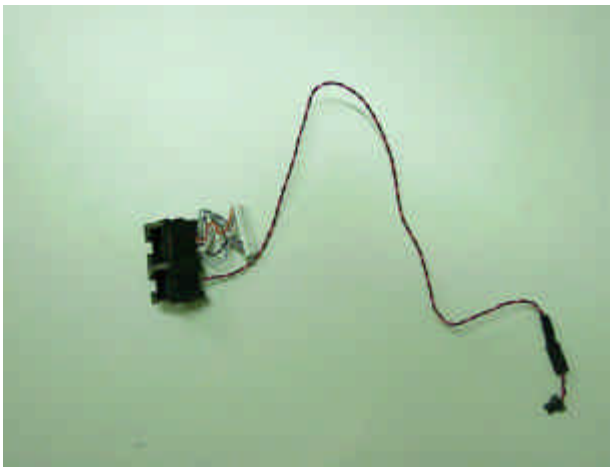
[Back]

Modem Module

[Front]

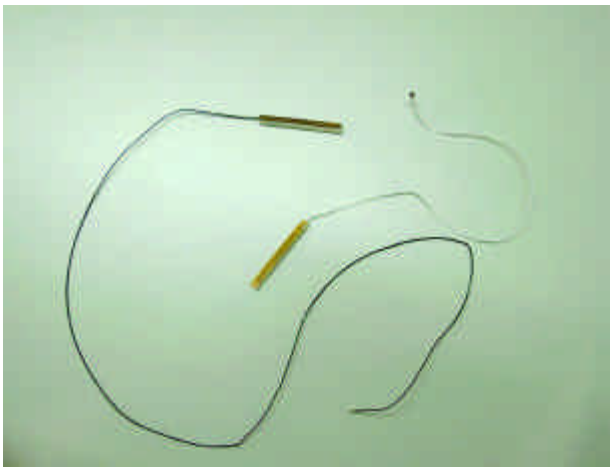
[Back]

Modem & LAN connector cable



[Front]

RX antenna & RX/TX antenna



[Back]

Wireless LAN module
Model No. PA3231U

[Front]

[Back]

Universal AC Adaptor
Model PA3153U-1ACA

[Front]

[Back]

Universal AC Adaptor
Model PA3241U-1ACA

[Front]

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