

Measurement Results for Radiation Measurement

EUT Name : PORTEGE 3500
 Type : PP350U
 Serial No. : #6, Normal mode
 Memo : AC Adaptor: PA3241U-1ACA
 Data No. : F
 Limit : FCC Part 15 Class B (3m)

Frequency [MHz]	Receiver Reading [dBuV/m]		System Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
	Horizontal	Vertical		Horizontal	Vertical		Horizontal	Vertical
59.40		26.6	5.9		32.5	40.0		7.5
73.73	25.4	27.7	8.4	33.8	36.1	40.0	6.2	3.9
98.45	22.5		11.4	33.9		43.5	9.6	
101.88	24.3		12.0	36.3		43.5	7.2	
148.12	18.3		15.3	33.6		43.5	9.9	
211.33	13.4	9.9	19.1	32.5	29.0	43.5	11.0	14.5
500.63	6.3	5.5	29.5	35.8	35.0	46.0	10.2	11.0
540.49		2.2	29.5		31.7	46.0		14.3
570.90		0.0	30.4		30.4	46.0		15.6

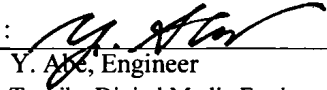
Note : 1) The emission level is including the system factor that consists of system loss and Antenna facto
 2) Sample of calculation at 59.4 MHz (Vertical):

$$26.6 + 5.9 = 32.5 \text{ [dBuV/m]}$$

Comments : HDD: 20 GB, Toshiba

Place : Anechoic Chamber No. 3

Date : October 7, 2002

Operator : 
 Y. Abe, Engineer
 Toshiba Digital Media Engineering Corp.

Ver. 4.1c

[Pre-measurement result (pick-up list)] [Data F]

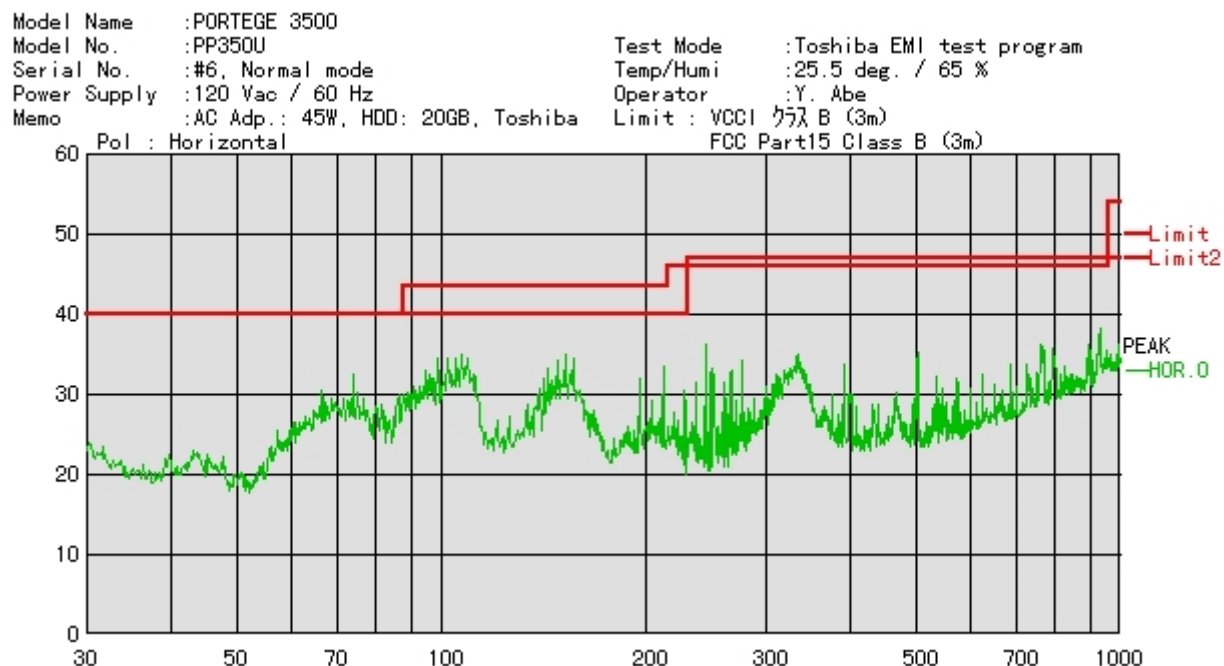
for 30 MHz – 1000 MHz

Model Name : PORTEGE 3500
 Model No. : PP350U
 Serial No. : #6, Normal mode
 Power Supply : 120Vac / 60 Hz
 Test Mode : Toshiba Windows EMI test program
 Temp/Humi : 25.5 deg / 60.0 %
 Operator : Y. Abe
 Memo : AC ADP.: 45W, HDD: 20 GB
 Limit1 : VCCI Class B (3m)
 Limit2 : FCC Part 15 Class B (3m)
 Date : 10/07/2002

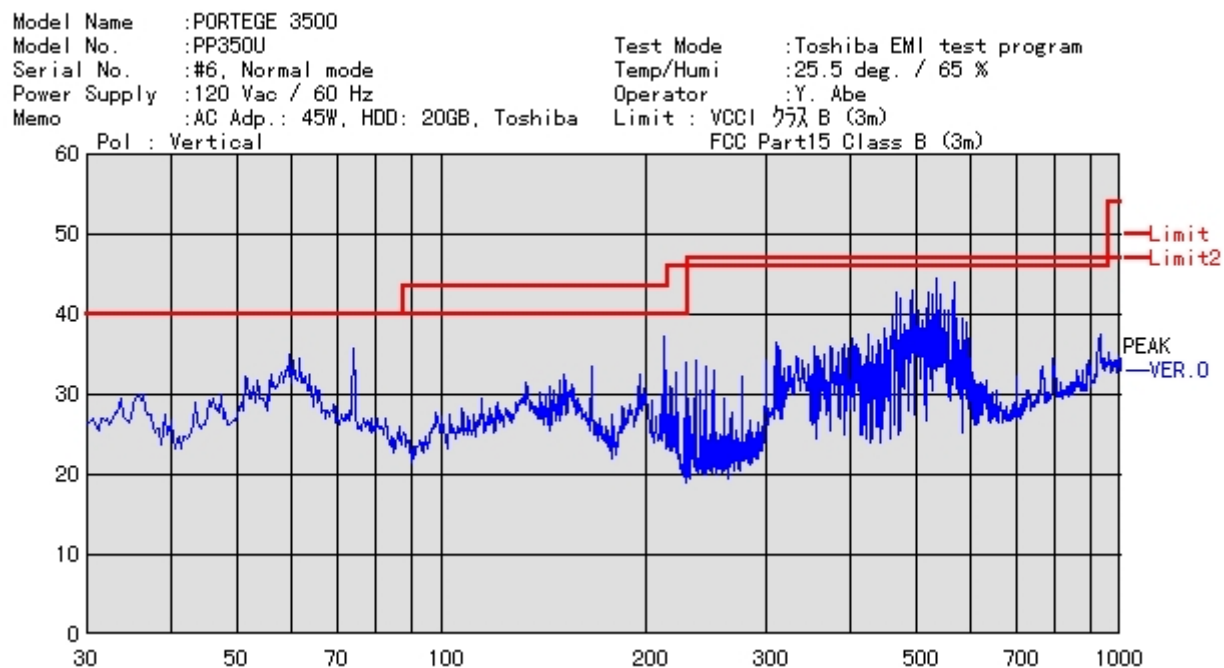
<< Peak List-Up Data List>>

Freq. [MHz]	H/V	Level [dBuV/m]	Limit [dBuV/m]	Margin [dB]
59.700	V	35.1	40.0	4.9
74.100	V	35.8	40.0	4.2
98.775	H	34.6	40.0	5.4
107.000	H	34.9	40.0	5.1
152.000	H	35.0	40.0	5.0
156.000	H	34.5	40.0	5.5
165.750	V	33.4	40.0	6.6
195.375	V	32.5	40.0	7.5
212.000	H	33.5	40.0	6.5
212.625	V	37.3	40.0	2.7
213.375	V	33.0	40.0	7.0
221.625	V	32.7	40.0	7.3
229.500	V	34.1	40.0	5.9
459.750	V	39.7	47.0	7.3
466.500	V	42.7	47.0	4.3
473.250	V	42.1	47.0	4.9
494.250	V	43.1	47.0	3.9
496.500	V	40.0	47.0	7.0
502.500	V	40.4	47.0	6.6
519.750	V	40.9	47.0	6.1
522.000	V	42.8	47.0	4.2
528.000	V	41.5	47.0	5.5
529.500	V	42.5	47.0	4.5
536.250	V	44.6	47.0	2.4
542.250	V	41.5	47.0	5.5
543.750	V	42.5	47.0	4.5
551.250	V	40.6	47.0	6.4
555.750	V	40.4	47.0	6.6
565.500	V	41.8	47.0	5.2
570.750	V	44.1	47.0	2.9

[Pre-measurement result (spectrum graph)] [Data F]
for 30 MHz – 1000 MHz
-Horizontal



-Vertical



[Pre-measurement result (pick-up list)] [Data F]

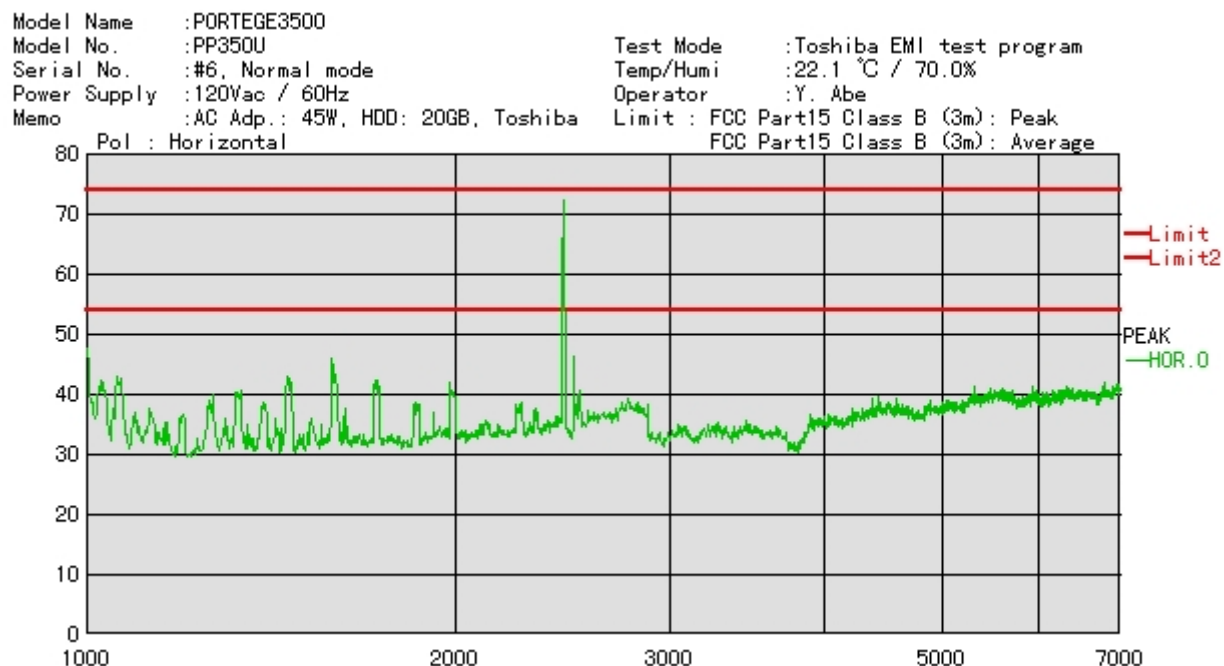
for 1 GHz – 7 GHz

Model Name : PORTEGE 3500
 Model No. : PP350U
 Serial No. : #6, Normal mode
 Power Supply : 120Vac / 60 Hz
 Test Mode : Toshiba Windows EMI test program
 Temp/Humi : 22.1 deg / 70.0 %
 Operator : Y. Abe
 Memo : AC ADP.: 45W, HDD: 20 GB
 Limit1 : FCC Part 15 Class B (3m): Peak
 Limit2 : FCC Part 15 Class B (3m): Average
 Date : 10/09/2002

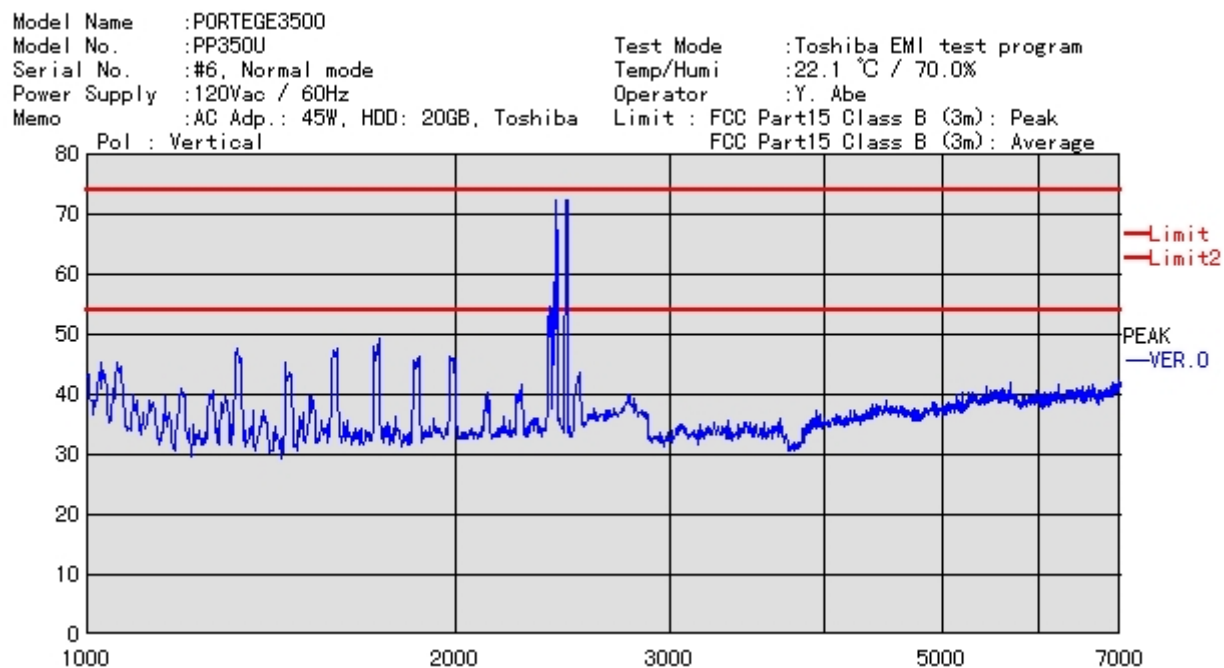
<< Peak List-Up Data List>>

Freq. [MHz]	H/V	Level [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1000.000	H	47.6	74.0	26.4
1027.500	V	45.3	74.0	28.7
1060.000	V	45.4	74.0	28.6
1325.000	V	47.7	74.0	26.3
1452.500	V	45.3	74.0	28.7
1585.000	H	45.9	74.0	28.1
1592.500	H	44.9	74.0	29.1
1602.500	V	47.5	74.0	26.5
1735.000	V	49.2	74.0	24.8
1867.500	V	46.4	74.0	27.6
1982.500	V	46.4	74.0	27.6
2387.500	V	54.5	74.0	19.5
2395.000	V	54.3	74.0	19.7
2410.000	V	58.6	74.0	15.4
2417.500	V	72.2	74.0	1.8
2425.000	V	67.2	74.0	6.8
2457.500	H	72.2	74.0	1.8
2470.000	V	72.3	74.0	1.7
2500.000	H	46.2	74.0	27.8
2525.002	V	43.7	74.0	30.3

[Pre-measurement result (spectrum graph)] [Data F]
for 1 GHz – 7 GHz
- Horizontal



- Vertical



Measurement Results for Radiation Measurement

EUT Name : PORTEGE 3500
Type : PP350U
Serial No. : #7, Tablet mode
Memo : AC Apdator: PA3241U-1ACA
Data No. : E
Limit : FCC Part 15 Class B (3m)

Frequency [MHz]	Receiver Reading [dBuV/m]		System Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
	Horizontal	Vertical		Horizontal	Vertical		Horizontal	Vertical
60.23		23.9	6.9		30.8	40.0		9.2
73.73	23.0	24.0	8.4	31.4	32.4	40.0	8.6	7.6
98.44	21.6		11.4	33.0		43.5	10.5	
101.88	23.7		12.0	35.7		43.5	7.8	
137.20		19.7	14.6		34.3	43.5		9.2
151.54	20.5	16.2	16.0	36.5	32.2	43.5	7.0	11.3
249.38	17.2		20.4	37.6		46.0	8.4	
313.24		11.6	23.3		34.9	46.0		11.1
501.13	2.1	8.3	29.5	31.6	37.8	46.0	14.4	8.2

Note : 1) The emission level is including the system factor that consists of system loss and Antenna factor
2) Sample of calculation at 60.23 MHz (Vertical):

$$23.9 + 6.9 = 30.8 \text{ [dBuV/m]}$$

Comments : HDD: 60 GB, Toshiba

Place : Anechoic Chamber No. 3
Date : October 7, 2002

Operator : 
Y. Abe, Engineer
Toshiba Digital Media Engineering Corp.

Ver. 4.1c

[Pre-measurement result (pick-up list)] [Data G]

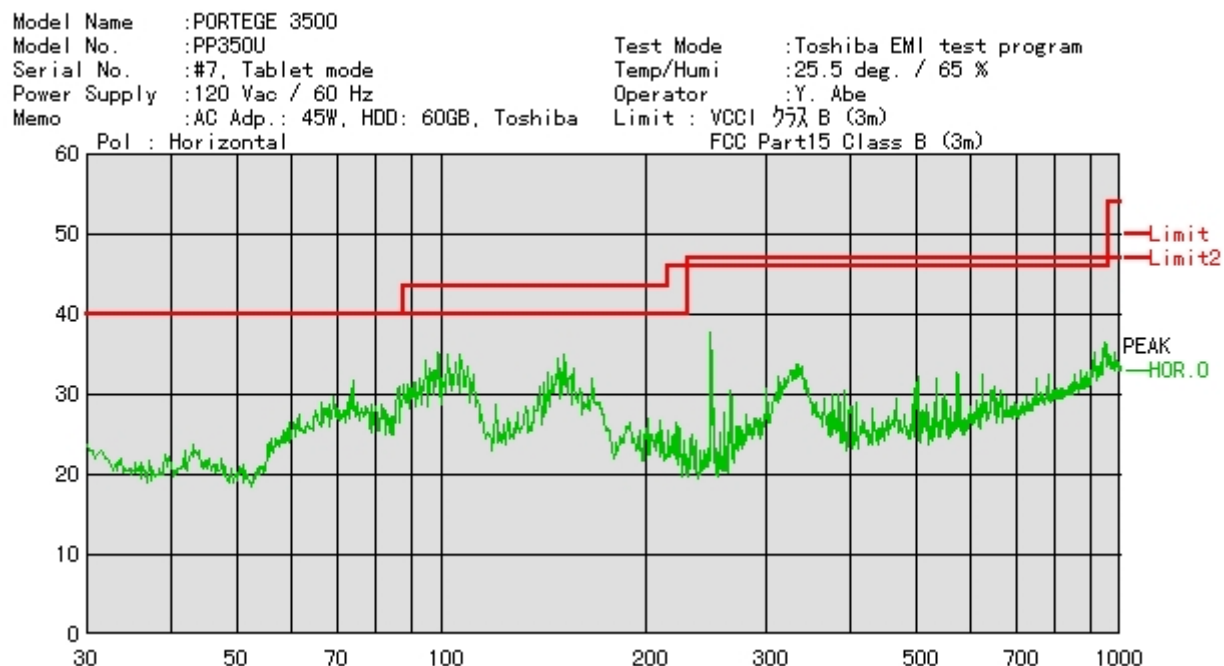
for 30 MHz – 1000 MHz

Model Name : PORTEGE 3500
 Model No. : PP350U
 Serial No. : #7, Tablet mode
 Power Supply : 120Vac / 60 Hz
 Test Mode : Toshiba Windows EMI test program
 Temp/Humi : 25.5 deg / 60.0 %
 Operator : Y. Abe
 Memo : AC ADP.: 45W, HDD: 60 GB
 Limit1 : VCCI Class B (3m)
 Limit2 : FCC Part 15 Class B (3m)
 Date : 10/07/2002

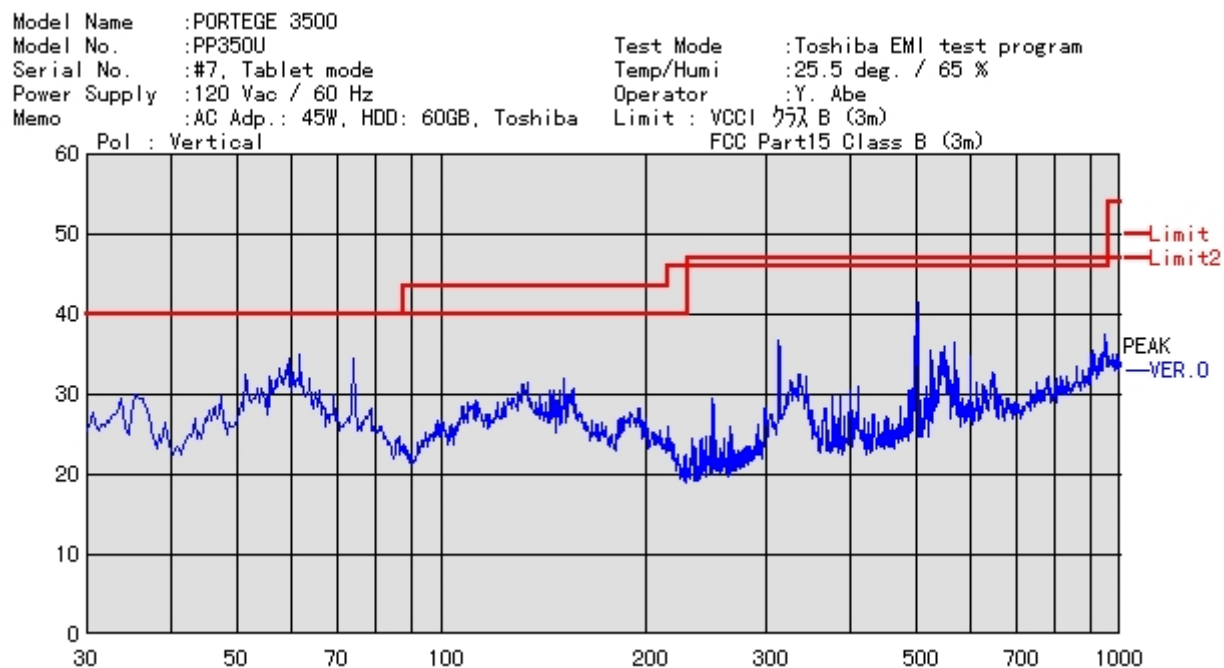
<< Peak List-Up Data List>>

Freq. [MHz]	H/V	Level [dBuV/m]	Limit [dBuV/m]	Margin [dB]
35.400	V	29.9	40.0	10.1
61.800	V	35.0	40.0	5.0
63.900	V	31.9	40.0	8.1
73.925	H	31.8	40.0	8.2
74.100	V	34.6	40.0	5.4
78.600	V	28.2	40.0	11.8
94.750	H	34.3	40.0	5.7
98.775	H	35.2	40.0	4.8
102.000	H	35.0	40.0	5.0
111.000	H	32.6	40.0	7.4
120.000	H	28.8	40.0	11.2
133.800	V	31.4	40.0	8.6
151.500	H	34.9	40.0	5.1
151.500	V	32.1	40.0	7.9
156.000	V	30.7	40.0	9.3
156.000	H	33.3	40.0	6.7
166.500	H	32.1	40.0	7.9
195.000	V	28.2	40.0	11.8
200.500	H	27.1	40.0	12.9
221.500	H	26.6	40.0	13.4
248.500	H	37.8	47.0	9.2
250.000	H	35.5	47.0	11.5
313.500	V	36.8	47.0	10.2
333.000	H	33.8	47.0	13.2
502.500	V	41.5	47.0	5.5
524.250	V	35.4	47.0	11.6
526.500	V	34.2	47.0	12.8
549.000	V	36.1	47.0	10.9
556.500	V	33.6	47.0	13.4
569.250	V	36.6	47.0	10.4

[Pre-measurement result (spectrum graph)] [Data G]
for 30 MHz – 1000 MHz
-Horizontal



-Vertical



[Pre-measurement result (pick-up list)] [Data G]

for 1 GHz – 7 GHz

Model Name : PORTEGE 3500
 Model No. : PP350U
 Serial No. : #7, Tablet mode
 Power Supply : 120Vac / 60 Hz
 Test Mode : Toshiba Windows EMI test program
 Temp/Humi : 22.1 deg / 70.0 %
 Operator : Y. Abe
 Memo : AC ADP.: 45W, HDD: 60 GB
 Limit1 : FCC Part 15 Class B (3m): Peak
 Limit2 : FCC Part 15 Class B (3m): Average
 Date : 10/09/2002

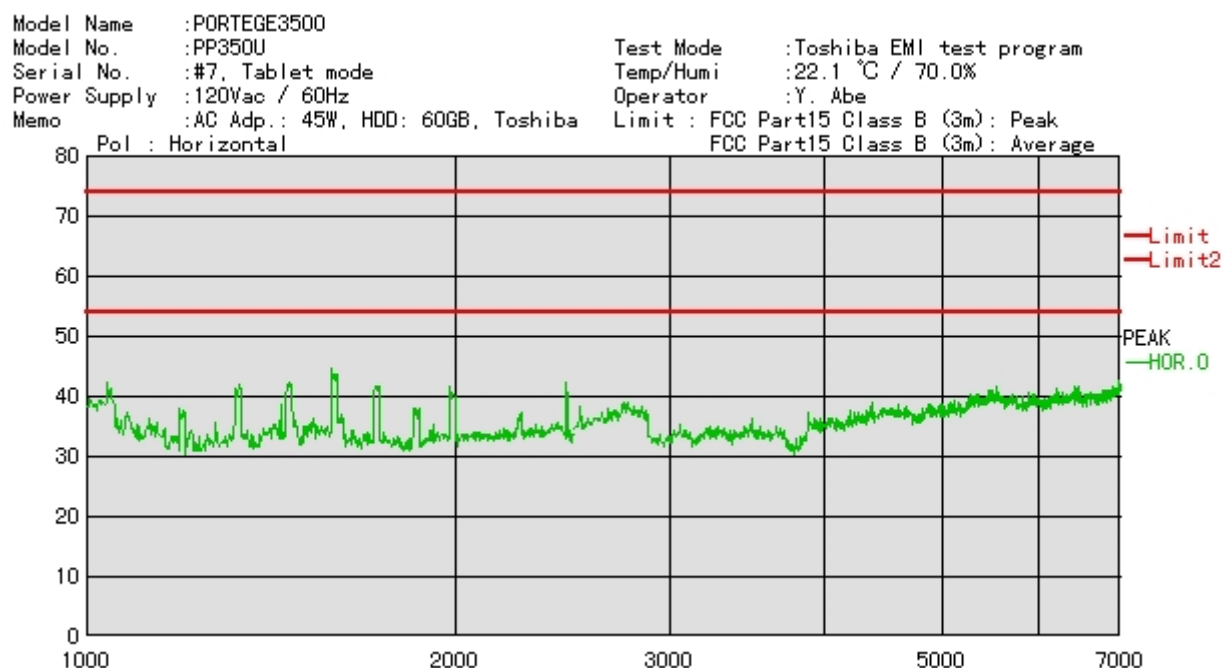
<< Peak List-Up Data List>>

Freq. [MHz]	H/V	Level [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1037.500	V	43.7	74.0	30.3
1040.000	H	42.4	74.0	31.6
1065.000	V	42.6	74.0	31.4
1082.500	V	42.1	74.0	31.9
1172.500	V	42.6	74.0	31.4
1332.500	H	41.9	74.0	32.1
1335.000	V	44.7	74.0	29.3
1462.500	H	42.3	74.0	31.7
1467.500	V	43.1	74.0	30.9
1585.000	H	44.7	74.0	29.3
1600.000	V	44.1	74.0	29.9
1735.000	V	49.3	74.0	24.7
1867.500	V	44.1	74.0	29.9
1980.000	V	48.3	74.0	25.7
2000.000	V	45.1	74.0	28.9
2255.000	V	42.1	74.0	31.9
2465.000	H	42.2	74.0	31.8
5550.000	H	41.8	74.0	32.2
6166.667	V	41.9	74.0	32.1
6470.000	H	41.8	74.0	32.2

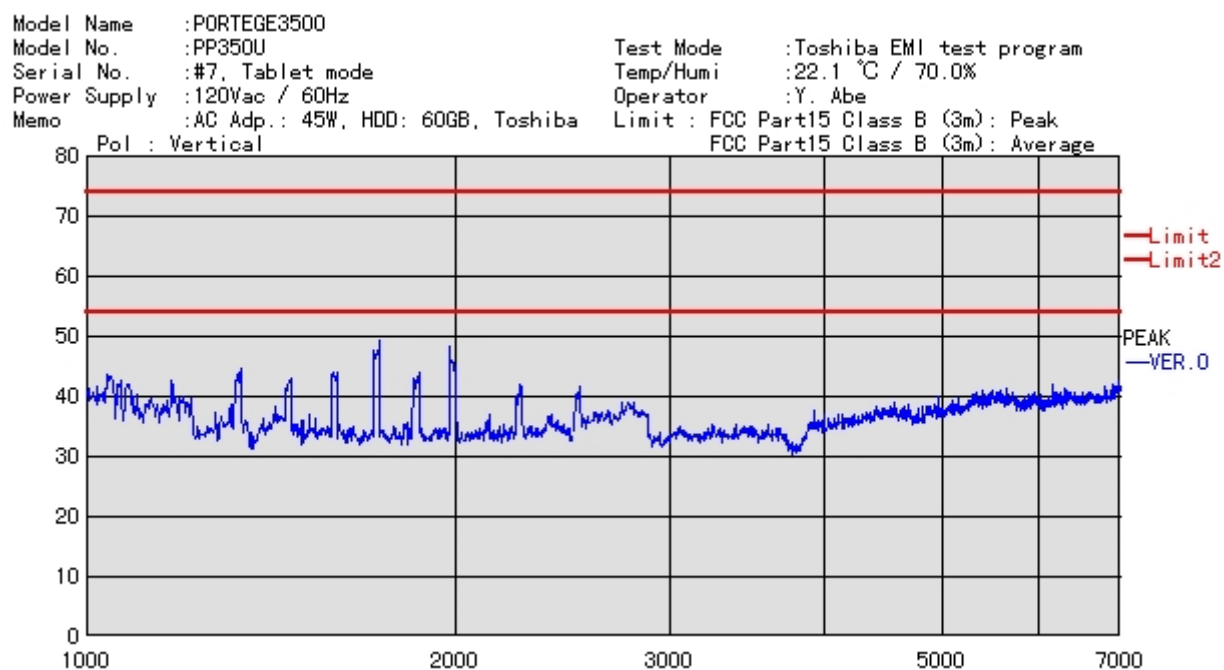
[Pre-measurement result (spectrum graph)] [Data G]

for 1 GHz – 7 GHz

- Horizontal



- Vertical



[Measurement setup]

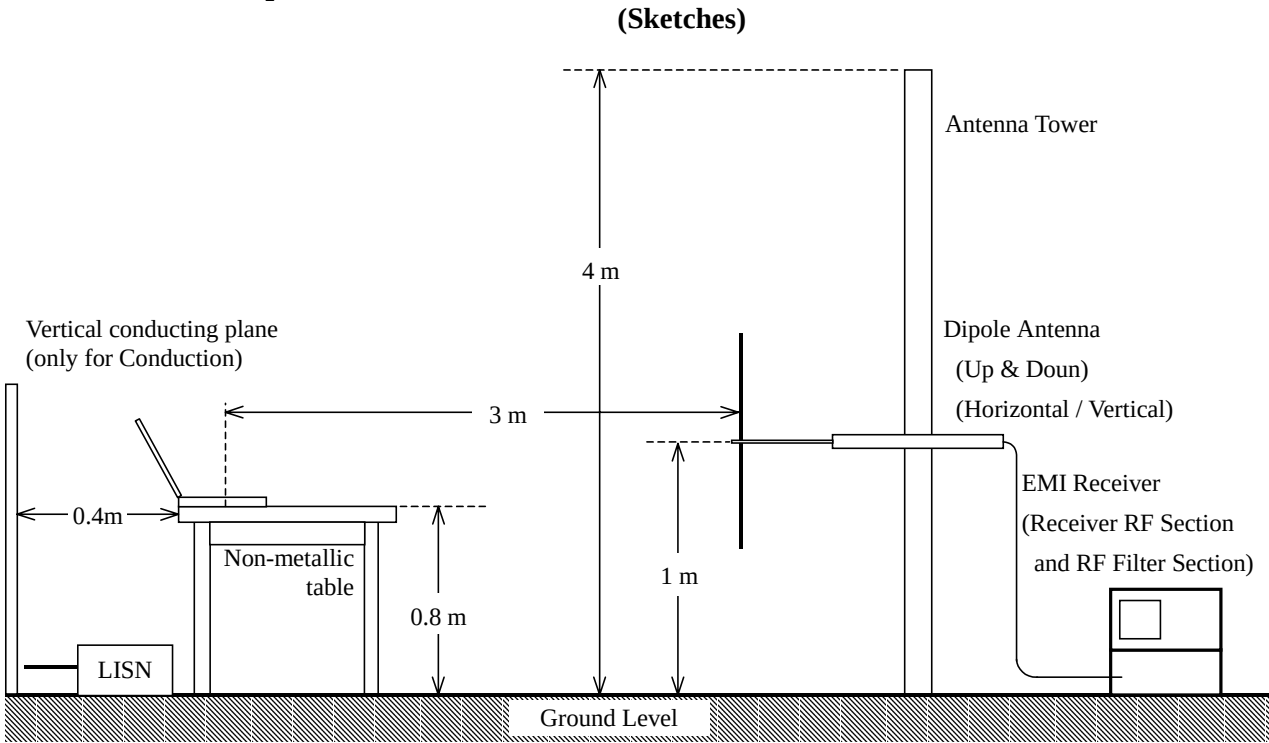
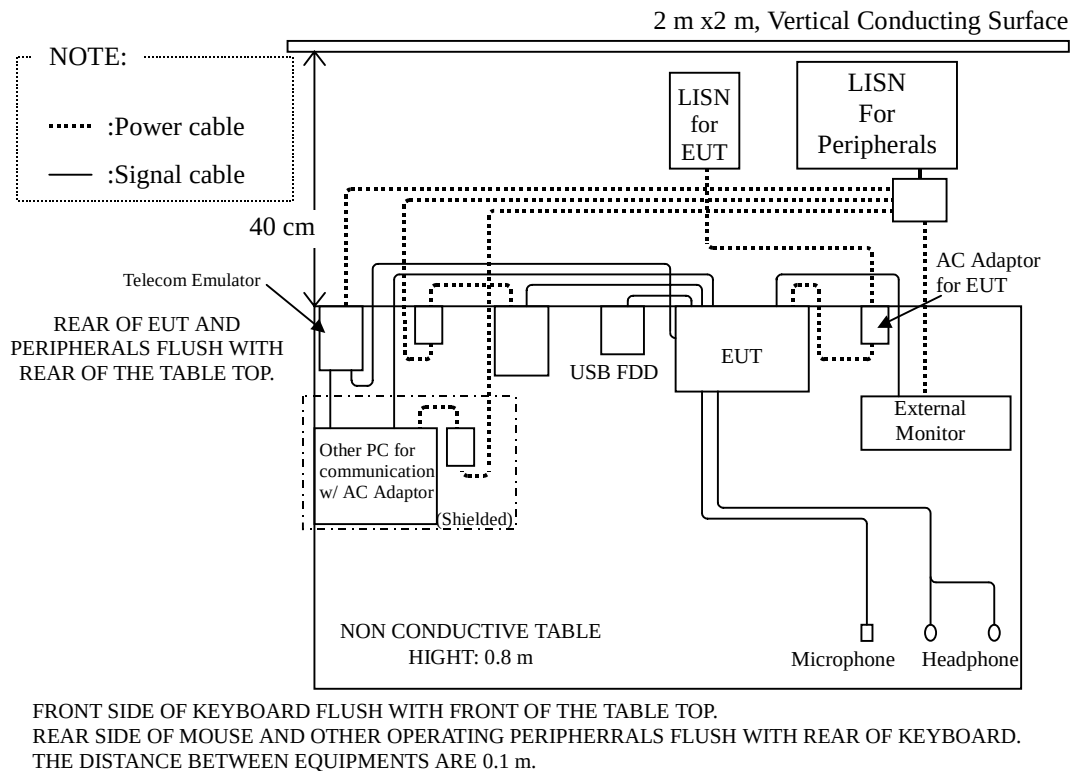


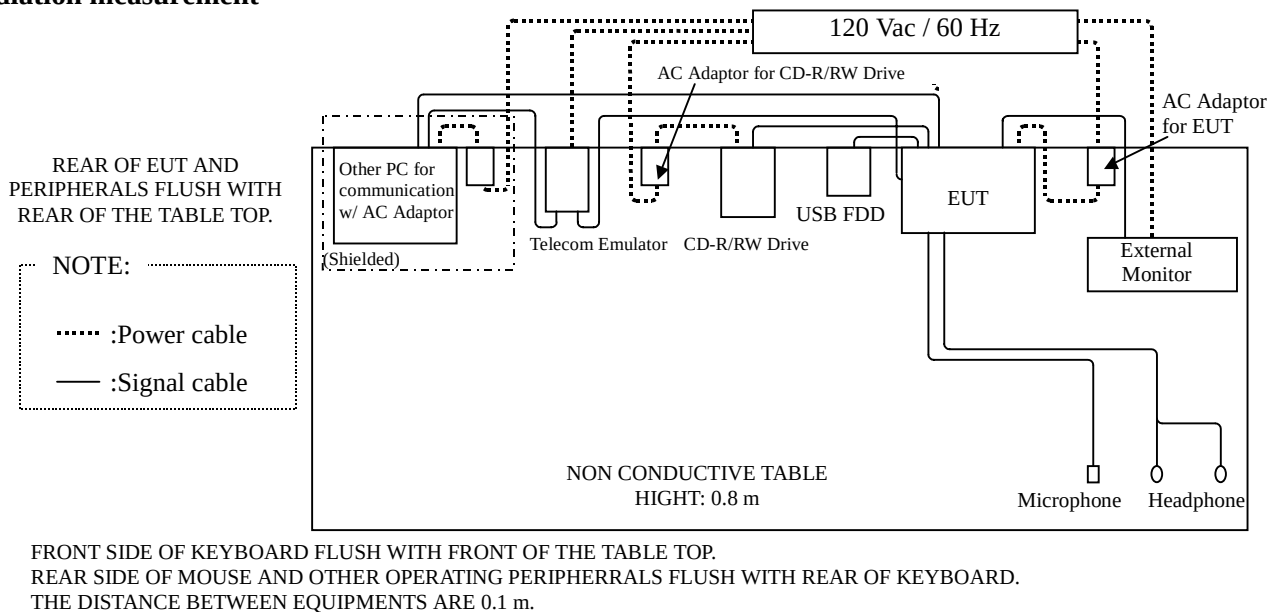
Figure 1, Side View

Conduction measurement



- Figure 2, Top view -

Radiation measurement



- Figure 3, Top view -

(Photographs)

Conduction Measurement



Figure 4, Front View



Figure 5, Rear View

Radiation Measurement



Figure 6, Front View

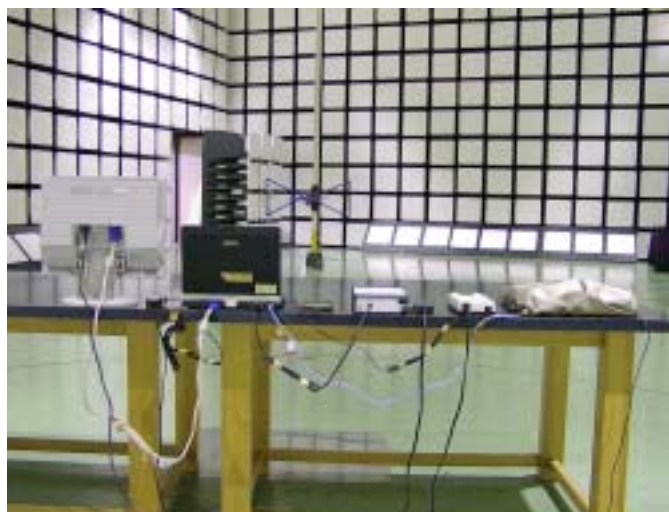


Figure 7, Rear View

[Measurement instrumentation used]

(Conduction)

(for Anechoic Chamber No. 3)

<u>Instrument</u>	<u>Manufacturer</u>	<u>Model No.</u>	<u>Serial No.</u>
* EMI Receiver	Hewlett Packard - Japan, Ltd	8546A	3625A00346
- Receiver RF Section		85462A	3625A00346
- RF Filter Section		85460A	3448A00317
Frequency range	: 9 k - 6.5 GHz		
Detector function	: CISPR Quasi Peak, Peak and Average		
IF bandwidth	: 9 kHz		
Date of last calibration	: November of 2001		
Date of next calibration	: November of 2002		
* Line Impedance Stabilization Network (LISN) (50uH / 50ohm), (for EUT)	Kyoritsu Electrical Works, Ltd.	KNW-407	8-1280-10
Date of last calibration	: February of 2002		
Date of next calibration	: February of 2003		
* Line Impedance Stabilization Network (LISN) (50uH / 50ohm), (for peripherals)	Kyoritsu Electrical Works, Ltd.	KNW-341C	8-1252-5
Date of last calibration	: February of 2002		
Date of next calibration	: February of 2003		
* System Loss - Coaxial cable (3 cables)	Toshiba Corp., Ome Operations SUHNER	TOAC03-001 S 04272 B	N/A C007 and C008 and C009
Date of last calibration	: April of 2002		
Date of next calibration	: April of 2003		

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 measurement and pre-measurement in the Anechoic Chamber No. 3.

(Radiation)
(for Anechoic Chamber No. 1)

<u>Instrument</u>	<u>Manufacturer</u>	<u>Model No.</u>	<u>Serial No.</u>
* EMI Receiver (for 150kHz - 1GHz)	Hewlett Packard - Japan, Ltd	8546A	3617A00313
- Receiver RF Section		85462A	3617A00313
- RF Filter Section		85460A	3448A00285
Frequency range	: 9 kHz - 6.5 GHz		
Detector function	: CISPR Quasi Peak, Peak and Average		
IF bandwidth	: 9 kHz		
Date of last calibration	: May of 2002		
Date of next calibration	: May of 2003		
* EMI Receiver (for 1GHz to 40GHz)	Agilent Technologies	8564EC	4123A00590
Frequency range	: 45MHz - 40 GHz		
Detector function	: CISPR Quasi Peak, Peak and Average		
IF bandwidth	: 9 kHz		
Date of last calibration	: October of 2001		
Date of next calibration	: October of 2002		
* Dipole antenna	Kyoritsu Electrical Works, Ltd.	KBA-511A	0-201-6
Tuning range	: 25 - 500MHz		
Date of last calibration	: July of 2002		
Date of next calibration	: July of 2003		
* Dipole antenna	Kyoritsu Electrical Works, Ltd.	KBA-611	0-215-1
Tuning range	: 500 - 1000MHz		
Date of last calibration	: July of 2002		
Date of next calibration	: July of 2003		
* BILOG antenna: #	CHASE	CBL6111A	1753
Tuning Range	: 30 - 1000		
Date of last calibration	: December of 2001		
Date of next calibration	: December of 2002		
* Double Redged Waveguide Horn Antenna	EMCO	3115	4695
Tuning Range	: 1 - 18 GHz		
Date of last calibration	: January of 2002		
Date of next calibration	: January of 2003		
* System Loss	Tohsiba Corp., Ome Operations	TOAC01-002	N/A
- Coaxial cable (2 cables)	SUHNER	S 04272 B	C016 and C003
Date of last calibration	: April of 2002		
Date of next calibration	: April of 2003		
* System Loss (above 1GHz)	Agilent Technologies	N/A	N/A
- Coaxial cable (3 cables)	SUHNER	SUCOFLEX102	19801/2 and 19802/2
		SUCOFLEX102A	645/2A
- Microwave System Amlifer	Agilent Technologies	83051A	3950M00187 and 3950M00189
Date of last calibration	: October of 2001		
Date of next calibration	: October 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.1	TDK Corp.	N/A	N/A
(NSA measurement)			
Date of last calibration	: April of 2000		
Date of next calibration	: April of 2003		

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

(for Anechoic Chamber No. 3)

<u>Instrument</u>	<u>Manufacturer</u>	<u>Model No.</u>	<u>Serial No.</u>
* EMI Receiver	Hewlett Packard - Japan, Ltd	8546A	3625A00346
- Receiver RF Section		85462A	3625A00346
- RF Filter Section		85460A	3448A00317
Frequency range	: 9 k - 6.5 GHz		
Detector function	: CISPR Quasi Peak, Peak and Average		
IF bandwidth	: 9 kHz		
Date of last calibration	: November of 2001		
Date of next calibration	: November of 2002		
* Dipole antenna	Kyoritsu Electrical Works, Ltd.	KBA-511A	0-322-1
Tuning range	: 25 - 500MHz		
Date of last calibration	: February of 2002		
Date of next calibration	: February of 2003		
* Dipole antenna	Kyoritsu Electrical Works, Ltd.	KBA-611	0-328-1
Tuning range	: 500 - 1000MHz		
Date of last calibration	: February of 2002		
Date of next calibration	: February of 2003		
* BILOG antenna: #	CHASE	CBL6111A	1784
Tuning Range	: 30 - 1000		
Date of last calibration	: April of 2002		
Date of next calibration	: April of 2003		
* Double Redged Waveguide Horn Antenna	EMCO	3115	4949
Tuning Range	: 1 - 18 GHz		
Date of last calibration	: August of 2002		
Date of next calibration	: August of 2003		
* System Loss	Tohsiba Corp., Ome Operations	TOAC03-002	N/A
- Coaxial cables (4 cables)	SUHNER	S 04272 B	C007 and C010 and C011 and C012
- RF Relais Matrix PSU	ROHDE & SCHWARZ	290.8014.02	843526/012
Date of last calibration	: April of 2002		
Date of next calibration	: April of 2003		

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. 3 (NSA measurement)	TDK Corp.	N/A	N/A
Date of last calibration	: April of 2002		
Date of next calibration	: April of 2005		

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

[Appendix]

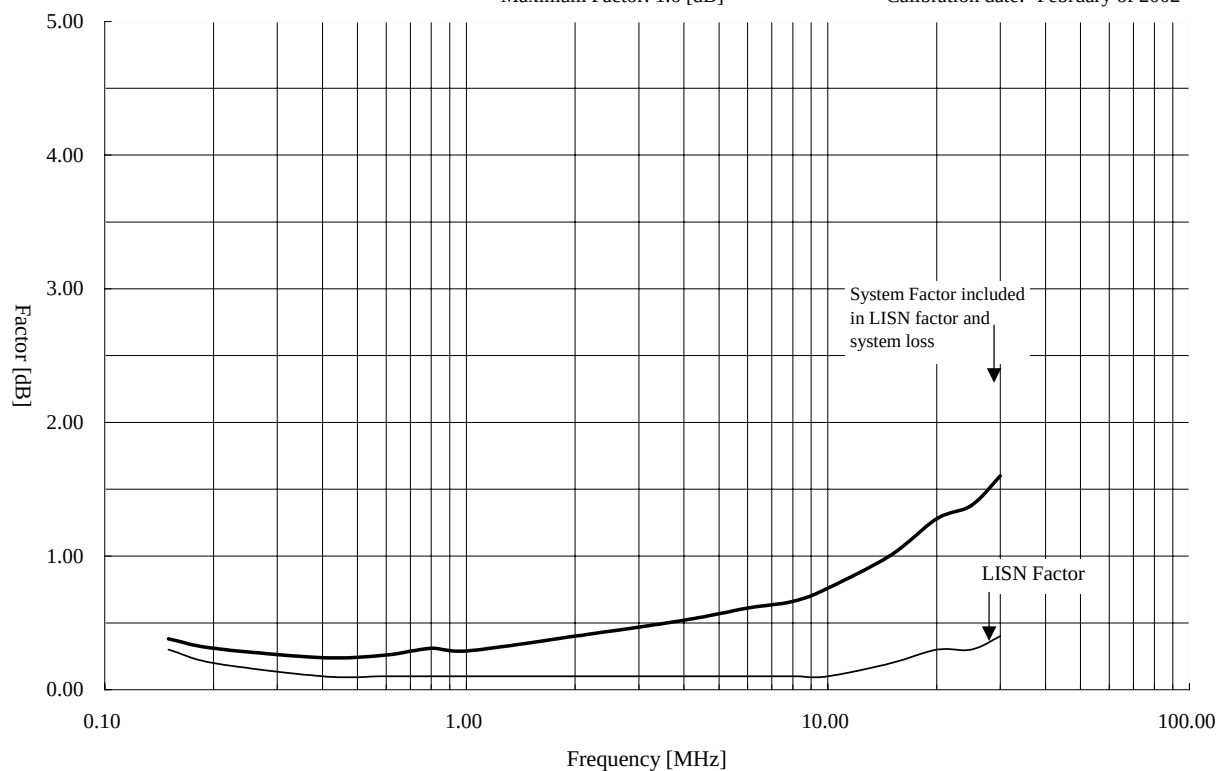
[Appendix A]: System factor (for conduction): 150 kHz - 30 MHz (for Anechoic Chamber No. 3)

LISN: Model KNW-407

Maximum Factor: 1.6 [dB]

Serial No.: 8-1280-10

Calibration date: February of 2002



[Appendix B]: System loss (for radiation):
30 MHz - 1 GHz (for Anechoic Chamber No. 3)

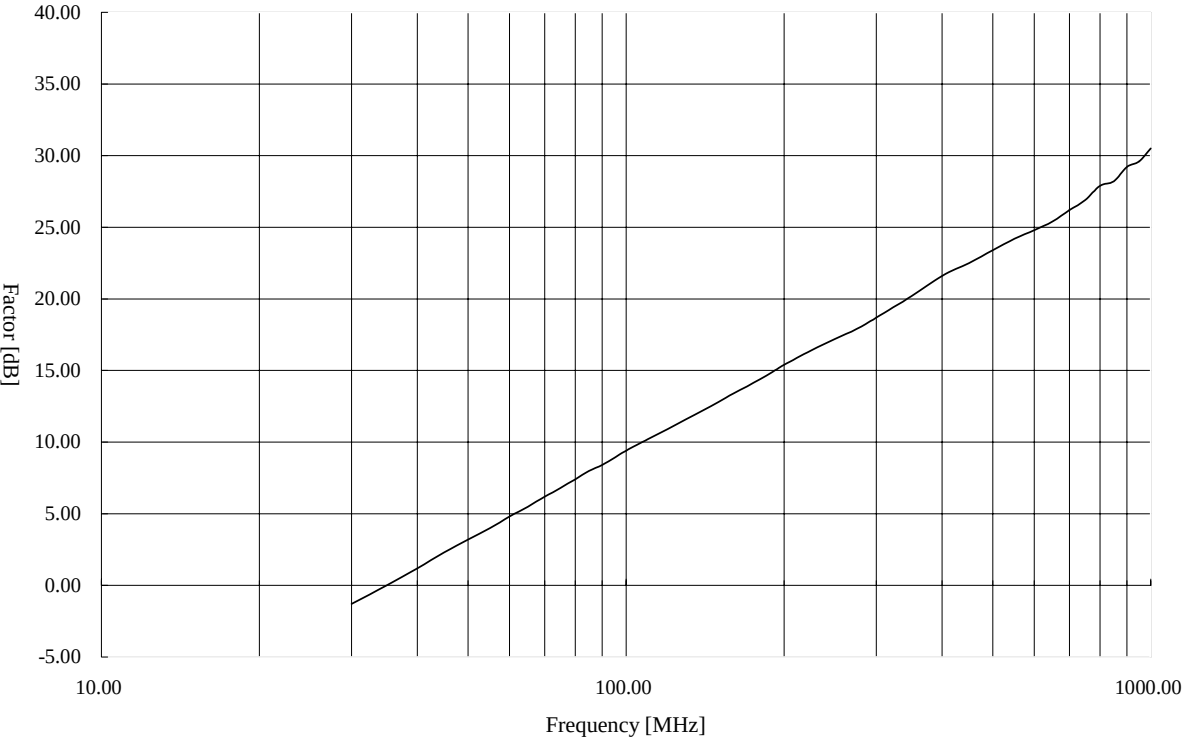
Frequency [MHz]	System Loss [dB]	Frequency [MHz]	System Loss [dB]
30	1.4	350	5.0
35	1.6	400	5.4
40	1.7	450	5.7
45	1.8	500	6.1
50	1.8	550	6.2
55	1.9	600	6.5
60	2.1	650	7.2
70	2.2	700	7.0
80	2.4	750	7.5
90	2.5	800	7.7
100	2.6	850	8.2
110	2.9	900	8.4
120	2.9	950	8.7
130	3.0	1000	8.8
140	3.1	1100	9.4
150	3.2	1200	9.8
160	3.5	1300	10.4
170	3.4	1400	10.8
180	3.6	1500	11.8
190	3.6	1600	11.7
200	3.7	1700	12.0
225	4.0	1800	11.9
250	4.1	1900	12.9
275	4.4	2000	13.5
300	4.6	-----	-----

1 GHz - 18 GHz (for Anechoic Chamber No. 1)

Frequency [MHz]	System Loss [dB]	Frequency [MHz]	System Loss [dB]	Frequency [MHz]	System Loss [dB]
1000	-60.6	7000	-54.7	13000	-55.1
1500	-60.5	7500	-53.3	13500	-56.3
2000	-58.3	8000	-52.7	14000	-57.2
2500	-56.9	8500	-52.4	14500	-58.1
3000	-55.6	9000	-52.1	15000	-58.4
3500	-56.7	9500	-51.5	15500	-58.3
4000	-57.1	10000	-51.2	16000	-57.8
4500	-57.4	10500	-52.3	16500	-56.5
5000	-57.8	11000	-52.5	17000	-54.6
5500	-56.8	11500	-52.9	17500	-52.5
6000	-55.3	12000	-53.8	18000	-52.2
6500	-54.5	12500	-54.3	-----	-----

**[Appendix C]: Antenna factor (for tunable dipole antenna): 30 MHz - 1 GHz
(for Anechoic Chamber No. 1)**

*Model No.:	*Tuning range:	*Serial No.:	*Date of calibration:
KBA-511A	25 - 500 MHz	0-322-1	February of 2002
KBA-611	500 - 1000 MHz	0-328-1	February of 2002



**[Appendix D]: Antenna factor (for broadband antenna): 30 MHz - 18 GHz
(for Anechoic Chamber No. 3)**

BILOG ANTENNA: MODEL CBL6111A

Serial No.: 1784

Date of Calibration: April of 2002

Frequency [MHz]	Antenna Factor[dB]	Frequency [MHz]	Antenna Factor[dB]
30	20.1	240	11.6
40	14.7	250	12.7
50	9.4	260	13.5
60	6.4	270	13.3
70	6.7	280	13.4
80	7.7	290	13.7
90	8.9	300	13.8
100	10.2	350	15.3
110	11.4	400	16.6
120	12.1	450	17.4
130	12.4	500	18.3
140	12.2	550	19.0
150	11.8	600	19.7
160	11.2	650	20.5
170	10.4	700	20.8
180	9.7	750	22.0
190	9.7	800	22.4
200	10.2	850	23.1
210	10.5	900	23.2
220	10.2	950	25.2
230	10.9	1000	24.8

(for Anechoic Chamber No. 1)

DOUBLE RIDGED WAVEGUIDE HORN ANTENNA: MODEL 3115

Serial No.: 4862

Date of Calibration: January of 2002

Frequency [MHz]	Antenna Factor[dB]	Frequency [MHz]	Antenna Factor[dB]
1000	24.5	10000	38.9
1500	25.6	10500	39.2
2000	27.8	11000	39.8
2500	28.9	11500	40.3
3000	30.7	12000	39.6
3500	31.9	12500	39.3
4000	33.1	13000	40.2
4500	32.9	13500	41.0
5000	34.0	14000	41.1
5500	34.7	14500	40.7
6000	35.1	15000	39.1
6500	35.3	15500	37.7
7000	36.5	16000	38.1
7500	37.5	16500	39.9
8000	37.6	17000	41.9
8500	38.1	17500	44.0
9000	38.4	18000	46.4
9500	38.5		

Appendix B

Display Controller and Modes

APPENDIX B

Display controller

The display controller interprets software commands into hardware commands that turn particular pels on or off.

The controller is an advanced Video Graphics Array (VGA) that provides Super VGA (SVGA) and Extended Graphics Array (XGA) support for the internal LCD and external monitors. The displays up to 1024x 768 (XGA). The controller also supports simultaneous display on the internal LCD and on an external monitor.

A high-resolution external monitor connected to the computer can display up to 1600 horizontal and 1200 vertical pixels and up to 64K colors.

The display controller also controls the video mode, which uses industry standard rules to govern the screen resolution and the maximum number of colors that can be displayed on screen.

Software written for a given video mode will run on any computer that supports the mode.

The computer's display controller supports all VGA and SVGA modes, the most widely used industry standards.

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Video modes

The computer supports video modes defined in the table below. If your application offers a selection of mode numbers that do not match the numbers on the table, select a mode based on mode type, resolution, character matrix, number of colors and refresh rates. Also, consider the following points:

- ☐ If your software supports both graphics and text modes, the screen display may appear to operate faster using a text mode.
- ☐ The LCD's highest graphics resolution is 1024 horizontal x 768 vertical lines.
- ☐ If a resolution greater than the display's physical capacity is selected, the display driver renders a virtual display.

APPENDIX B

Table Video modes (Landscape)

Video mode	Type	Resolution	Character matrix (pels)	LCD colors	CRT colors	Scanning frequency Vertical
0, 1	VGA Text	40 x 25 Characters	8 x 8	16 of 256K	16 of 256K	70Hz
2, 3	VGA Text	80 x 25 Characters	8 x 8	16 of 256K	16 of 256K	70Hz
0*, 1*	VGA Text	40 x 25 Characters	8 x 14	16 of 256K	16 of 256K	70Hz
2*, 3*	VGA Text	80 x 25 Characters	8 x 14	16 of 256K	16 of 256K	70Hz
0+, 1+	VGA Text	40 x 25 Characters	8(9) x 16	16 of 256K	16 of 256K	70Hz
2+, 3+	VGA Text	80 x 25 Characters	8(9) x 16	16 of 256K	16 of 256K	70Hz
4, 5	VGA Grph	320 x 200 Pixels	8 x 8	4 of 256K	4 of 256K	70Hz
6	VGA Grph	640 x 200 Pixels	8 x 8	2 of 256K	2 of 256K	70Hz
7	VGA Text	80 x 25 Characters	8(9) x 14	Mono	Mono	70Hz
7+	VGA Text	80 x 25 Characters	8(9) x 16	Mono	Mono	70Hz

B-2

Table Video modes continued (Landscape)

Video mode	Type	Resolution	Character matrix (pels)	LCD colors	CRT colors	Scanning frequency Vertical
D	VGA Grph	320 x 200 Pixels	8 x 8	16 of 256K	16 of 256K	70Hz
E	VGA Grph	640 x 200 Pixels	8 x 8	16 of 256K	16 of 256K	70Hz
F	VGA Grph	640 x 350 Pixels	8 x 14	Mono	Mono	70Hz
10	VGA Grph	640 x 350 Pixels	8 x 14	16 of 256K	16 of 256K	70Hz
11	VGA Grph	640 x 480 Pixels	8 x 16	2 of 256K	2 of 256K	60Hz
12	VGA Grph	640 x 480 Pixels	8 x 16	16 of 256K	16 of 256K	60Hz
13	VGA Grph	320 x 200 Pixels	8 x 8	256 of 256K	256 of 256K	70Hz
	SVGA Grph	640 x 480 Pixels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	800 x 600 Pixels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	1024 x 768 Pixels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	1280 x 1024 Pixels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	1600 x 1200 Pixels		256 of 256K	256 of 256K	60Hz

Table Video modes continued (Landscape)

<i>Video mode</i>	<i>Type</i>	<i>Resolution</i>	<i>Character matrix (pels)</i>	<i>LCD colors</i>	<i>CRT colors</i>	<i>Scanning frequency Vertical</i>
	SVGA Grph	640 x 480 Pixels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	800 x 600 Pixels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	1024 x 768 Pixels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	1280 x 1024 Pixels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	1600 x 1200 Pixels		64K of 64K	64K of 64K	60Hz
	SVGA Grph	640 x 480 Pixels		16M of 16M	16M of 16M	60Hz 75Hz 85Hz
	SVGA Grph	800 x 600 Pixels		16M of 16M	16M of 16M	60Hz 75Hz 85Hz
	SVGA Grph	1024 x 768 Pixels		16M of 16M	16M of 16M	60Hz 75Hz

Table Video modes (Portrait)

Video mode	Type	Resolution	Character matrix (cols)	LCD colors	CRT colors	Scanning frequency Vertical
0, 1	VGA Text	25 x 40 Characters	8 x 8	16 of 256K	16 of 256K	70Hz
2, 3	VGA Text	25 x 80 Characters	8 x 8	16 of 256K	16 of 256K	70Hz
0*, 1*	VGA Text	25 x 40 Characters	8 x 14	16 of 256K	16 of 256K	70Hz
2*, 3*	VGA Text	25 x 80 Characters	8 x 14	16 of 256K	16 of 256K	70Hz
0+, 1+	VGA Text	25 x 40 Characters	8(9) x 16	16 of 256K	16 of 256K	70Hz
2+, 3+	VGA Text	25 x 80 Characters	8(9) x 16	16 of 256K	16 of 256K	70Hz
4, 5	VGA Grph	200 x 320 Pixels	8 x 8	4 of 256K	4 of 256K	70Hz
6	VGA Grph	200 x 640 Pixels	8 x 8	2 of 256K	2 of 256K	70Hz
7	VGA Text	25 x 80 Characters	8(9) x 14	Mono	Mono	70Hz
7+	VGA Text	25 x 80 Characters	8(9) x 16	Mono	Mono	70Hz
D	VGA Grph	200 x 320 Pixels	8 x 8	16 of 256K	16 of 256K	70Hz
E	VGA Grph	200 x 640 Pixels	8 x 8	16 of 256K	16 of 256K	70Hz
F	VGA Grph	350 x 640 Pixels	8 x 14	Mono	Mono	70Hz
10	VGA Grph	350 x 640 Pixels	8 x 14	16 of 256K	16 of 256K	70Hz
11	VGA Grph	480 x 640 Pixels	8 x 16	2 of 256K	2 of 256K	60Hz

Table Video modes continued (Portrait)

<i>Video mode</i>	<i>Type</i>	<i>Resolution</i>	<i>Character matrix (pels)</i>	<i>LCD colors</i>	<i>CRT colors</i>	<i>Scanning frequency Vertical</i>
12	VGA Grph	480 x 640 Pixels	8 x 16	16 of 256K	16 of 256K	60Hz
13	VGA Grph	200 x 320 Pixels	8 x 8	256 of 256K	256 of 256K	70Hz
	SVGA Grph	480 x 640 Pixels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	600 x 800 Pixels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	768 x 1024 Pixels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	1024 x 1280 Pixels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	1200 x 1600 Pixels		256 of 256K	256 of 256K	60Hz
	SVGA Grph	480 x 640 Pixels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	600 x 800 Pixels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	768 x 1024 Pixels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	1024 x 1280 Pixels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz

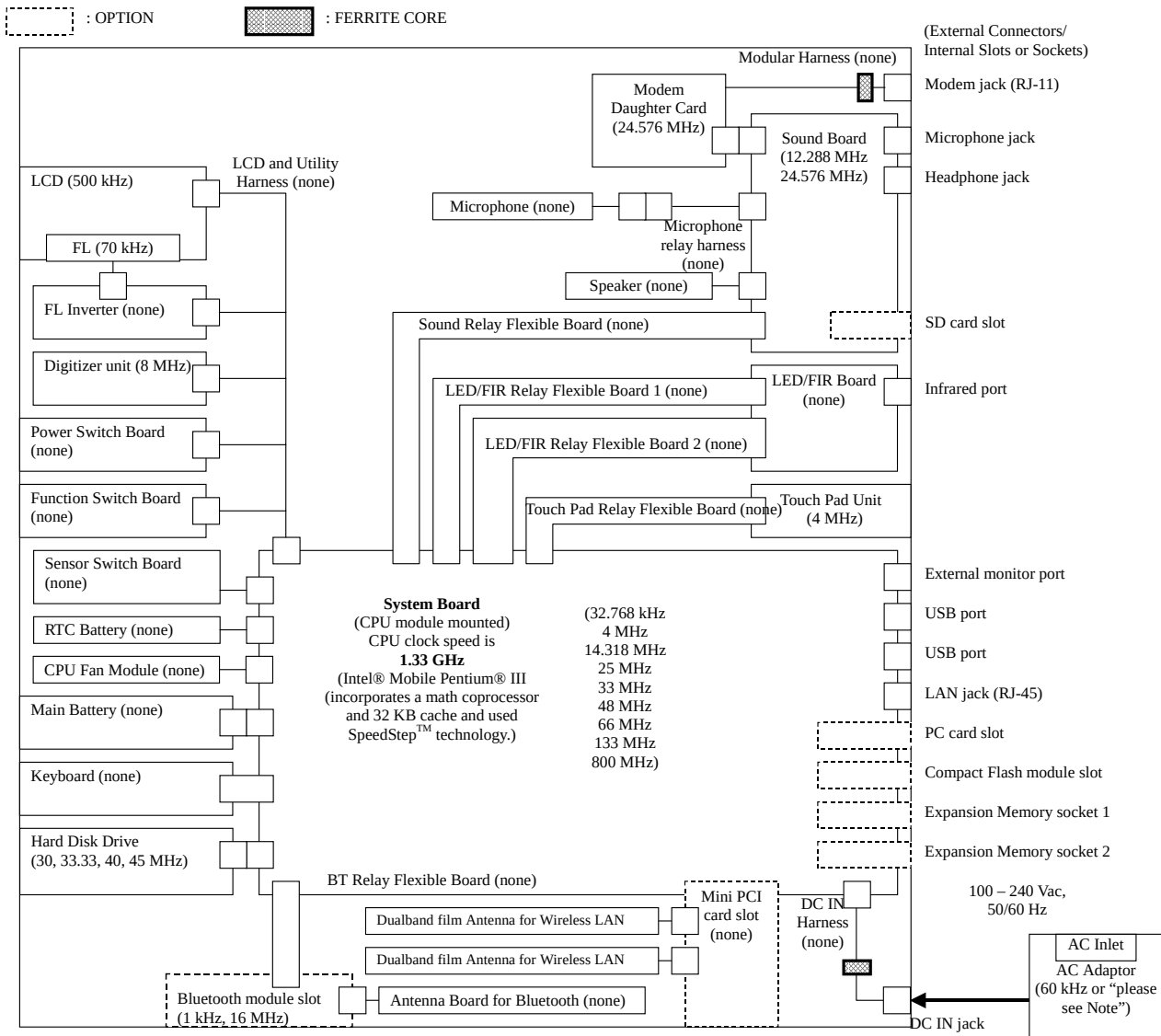
B-6

Table Video modes continued (Portrait)

<i>Video mode</i>	<i>Type</i>	<i>Resolution</i>	<i>Character matrix (pels)</i>	<i>LCD colors</i>	<i>CRT colors</i>	<i>Scanning frequency Vertical</i>
	SVGA Grph	1200x1600 Pixels		64K of 64K	64K of 64K	60Hz
	SVGA Grph	480x640 Pixels		16M of 16M	16M of 16M	60Hz 75Hz 85Hz
	SVGA Grph	600x800 Pixels		16M of 16M	16M of 16M	60Hz 75Hz 85Hz
	SVGA Grph	768x1024 Pixels		16M of 16M	16M of 16M	60Hz 75Hz

[Appendix F]: System block diagram

Information of frequencies in each unit is described in the parentheses.

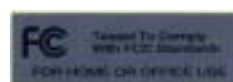


Note: The frequencies information for AC Adaptor, PA3241U-1ACA, Toshiba Corporation is as follows,
- nearly 75 kHz to 150 kHz, It is changed by input voltage or load impedance.

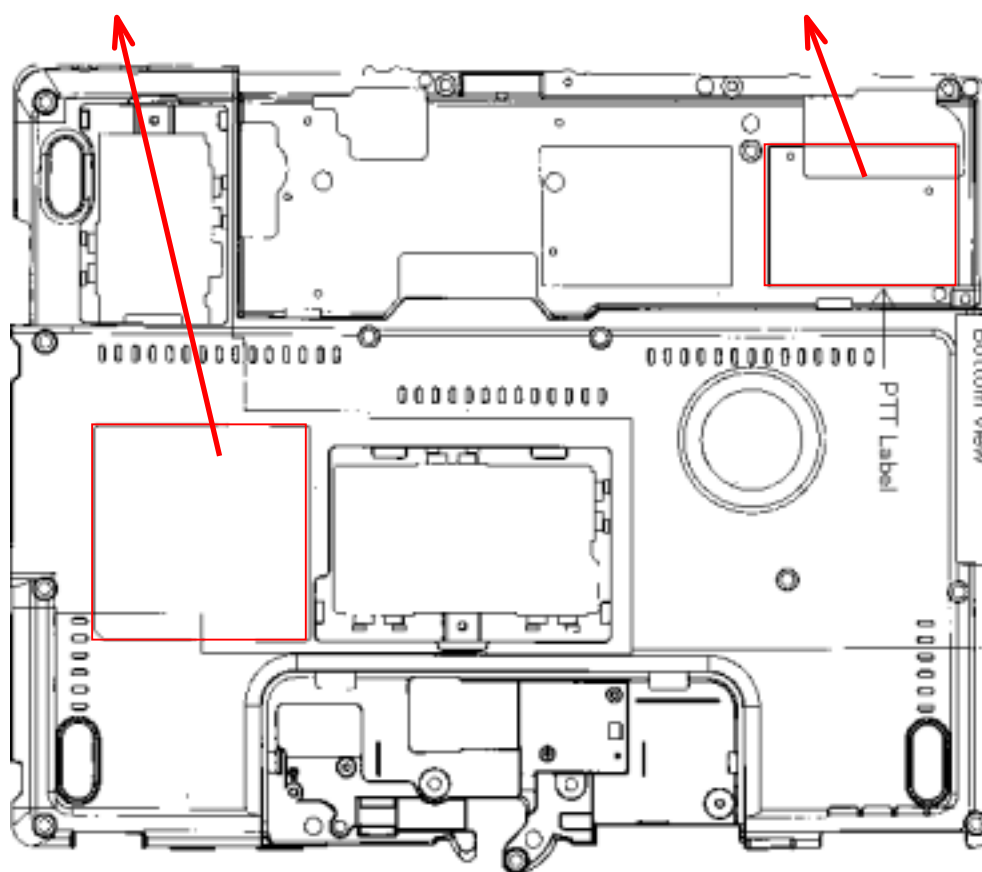
[Appendix G]: Label Information



[Rating Label]



[FCC DoC logo Label]



[Bottom view]

Note:

The label for FCC DoC logo mark or FCC ID for wireless module and related sentence are put to Main Battery Pack slot. Where the Main Battery pack is installed in to the slot, FCC logo mark or FCC ID will hide. Therefore, we will instruct to user the label location by the user's manual.

[Appendix H]: Detail of units

Designation / Kind of unit	Frequencies generated by this unit	Radio interference suppression components used
System Board (CPU Mounted, CPU Clock Speed: 1.33 GHz)	32.768 kHz 4 MHz 14.318 MHz 25 MHz 33 MHz 48 MHz 66 MHz 133 MHz 800 MHz	<u>Chip inductor:</u> L800 TDK Corp. type ACM0908-801-2P-TL rated 50 V, 5 A <u>Common mode coils:</u> FL9, 11, 13 Murata Manufacturing Co., Ltd. type NFM51R20P207 rated 25 V, 200 mA <u>Chip inductor:(Beads)</u> FL15, 16 Taiyo Yuden Co., Ltd type FB M H1608HW470MT rated 100 mA, 47 Ω
DC IN Harness	none	<u>Ferrite cores:</u> Tokin Corp. type ESD-R-10D
Sound Board	12.288MHz 24.576MHz	<u>Common mode coils:</u> FL6500, 6501 TDK Corp. type ACM4532-702-3P-T rated 700 Ω at 100 MHz L6500 TDK Corp. type ACM4532-801-2P-T001 rated 800 Ω at 100 MHz
Sound Relay Flexible Board	none	none
Speaker	none	none
Microphone	none	none

(continued)

Designation / Kind of unit	Frequencies generated by this unit	Radio interference suppression components used
Microphone Relay Harness	none	none
Modem daughter card	24.576 MHz	none
Modular Harness	none	<u>Ferrite cores:</u> URITE Corp. type F5B T9*3*5
LED/FIR Board	none	none
LED/FIR Relay Flexible Board 1	none	none
LED/FIR Relay Flexible Board 2	none	none
Touch Pad Unit	4 MHz	none
Touch Pad Relay Flexible Board	none	none
Power Switch Board	none	none
Function Switch Board	none	none
Keyboard Unit	none	none

(continued)

Designation / Kind of unit	Frequencies generated by this unit	Radio interference suppression components used
RTC Battery (Ni-MH)	none	none
CPU FAN Module	none	none
Main Battery Pack (Li-Ion)	none	none
Digitizer Unit	8 MHz	none
FL Inverter	70 kHz	none
LCD (provided with FL) Toshiba Corp., type LTM12C328	500 kHz	<u>EMI filter (Beads):</u> FL100 Sumitomo Metal Industrial type SGM32C1E222-2A rated 25 V, 2 A, 2200 pF
LCD and Utility Harness	none	none
LCD Sensor Switch board	none	none

(continued)

Designation / Kind of unit	Frequencies generated by this unit	Radio interference suppression components used
Hard Disk Drive		
(20 GB) Toshiba Corp., type HDD2168	40 MHz	none
(30 GB) Toshiba Corp., type HDD2181 or Hitachi Ltd., type DK23EA-30	40 MHz 45 MHz	none none
(40 GB) Toshiba Corp., type HDD2171 or IBM Corp., type IC25N040ATCS05-0 or Hitachi Ltd., type DK23EB-40	40 MHz 33.33 MHz 30 MHz	none none none
(60 GB) Toshiba Corp., type HDD2184	40 MHz	none
Memory Module (128, 256, 512 MB)	none	none
Wireless LAN card (PA3189U and PA3236U)		none none
Dualband Film Antenna for Wireless LAN (RX and TX/RX) or Dualband Film Antenna (Wideband Dual Antenna) for Wireless LAN (RX and TX/RX)	none	none
Bluetooth Module	1 kHz 16 MHz	none

(continued)

Designation / Kind of unit	Frequencies generated by this unit	Radio interference suppression components used
BT Relay Flexible Board	none	none
Antenna Board for Bluetooth	none	none
Modem Modular Cable	none	none
Toshiba Tablet Pen	none	none

AC Adaptor (with AC power cable)

Model PA3153U-1ACA, Toshiba Corp. 60kHz

Choke coils:

CY1

Matsushita Electric Ind. Co., Ltd.
type DE0910E102M-KX
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

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

(continued)

Designation / Kind of unit	Frequencies generated by this unit	Radio interference suppression components used
or Model PA3241U-1ACA, Toshiba Corp.	nearly 75 kHz to 150 kHz It is changed by input voltage or load impedance	<u>Capacitors:</u> C1 BC Components International Co., Ltd. type 2222-338-20334 rated 0.33 μ F, 275 V or Okaya Electric Industrial Co., Ltd type LE334-M rated 0.33 μ F, 275 V or Nissei Electric Co., Ltd type R46KI333055M1M rated 0.33 μ F, 275 V <u>Line filters:</u> L2 Tokin Corp. or corresponding parts type 4476P05175 rated 12 mH, Class E L3 Taishi or corresponding parts type 4476P05191 rated 6 μ H, 3 A

End of [Appendix H]

[Appendix I]: Photographs

Outline (Normal)



[Front View]



[Rear View]

(Tablet)



[Front View]

LCD/Top Cover Removed



[Front View]

System Board



[Front View]



[Rear View]

DC IN Harness

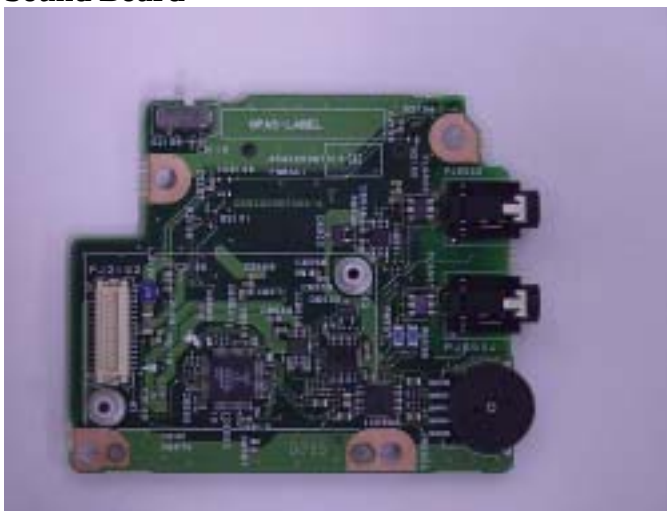


[Front View]



[Rear View]

Sound Board



[Front View]

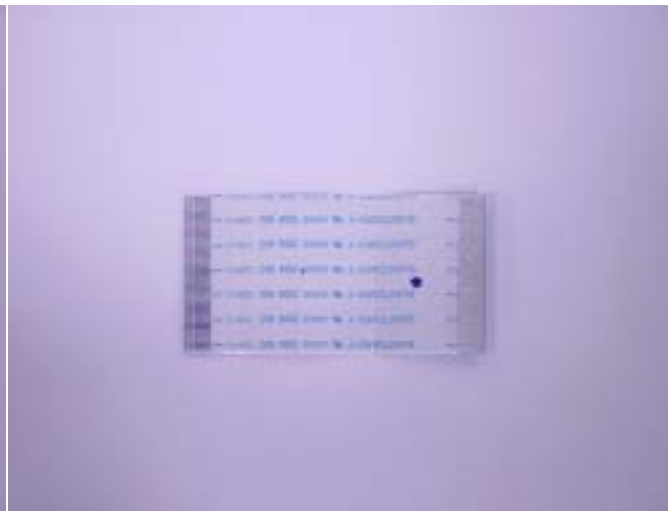


[Rear View]

Sound Relay Flexible Board



[Front View]



[Rear View]

Speaker



[Front View]

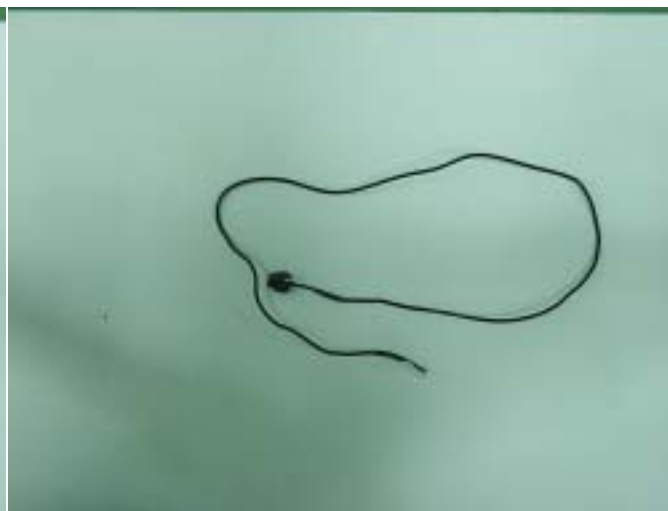


[Rear View]

Microphone



[Front View]



[Rear View]

Microphone Relay Harness



[Front View]



[Rear View]

Modem Daughter Card



[Front View]



[Rear View]

Modular Harness

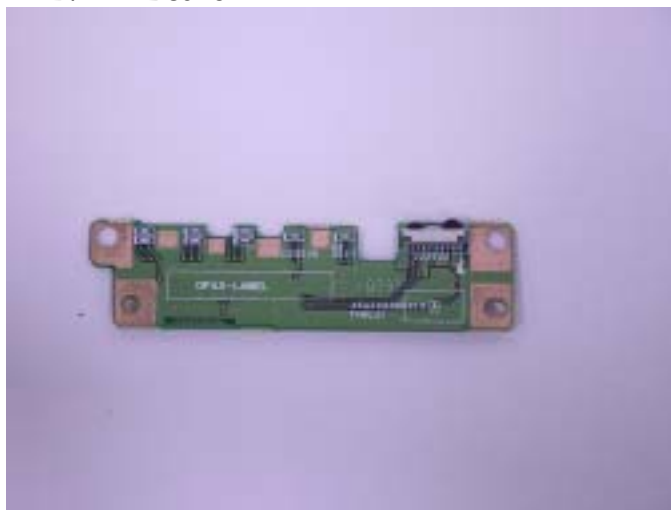


[Front View]

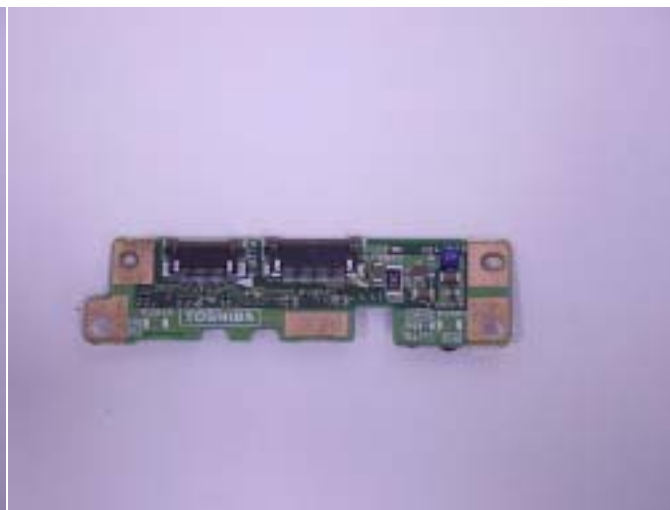


[Rear View]

LED/FIR Board



[Front View]



[Rear View]

LED/FIR Relay Board 1



[Front View]



[Rear View]

LED/FIR Relay Board 2



[Front View]



[Rear View]

Touch Pad Unit



[Front View]



[Rear View]

Touch Pad Relay Flexible Board



[Front View]



[Rear View]

Power Switch Board



[Front View]



[Rear View]

Function Switch Board



[Front View]



[Rear View]

Keyboard Unit



[Front View]



[Rear View]

RTC Battery (Ni-MH)



[Front View]



[Rear View]

CPU Fan Module



[Front View]



[Rear View]

Main Battery Pack (Li-Ion)

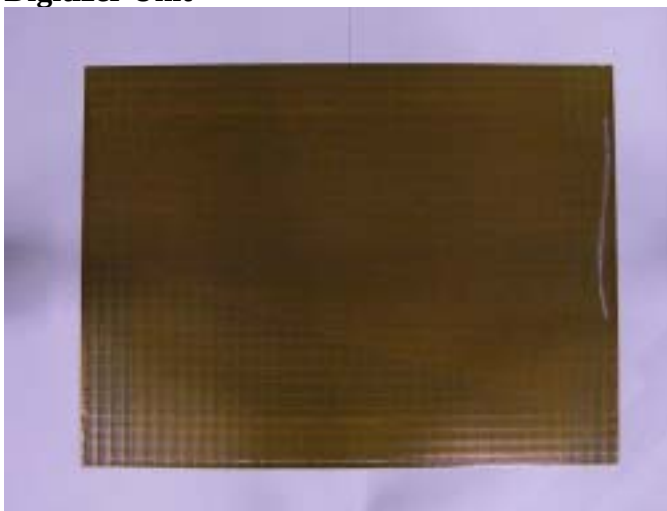


[Front View]

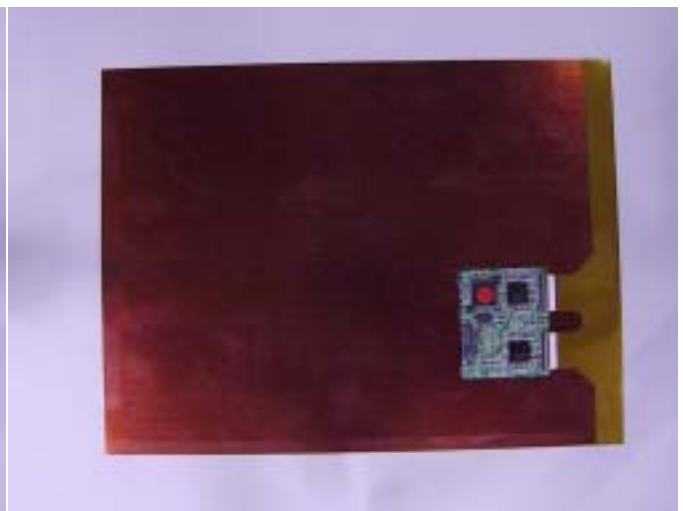


[Rear View]

Digitizer Unit



[Front View]



[Rear View]

FL Inverter



[Front View]



[Rear View]

LCD (Provided with FL)



[Front View]



[Rear View]

LCD and Utility Harness

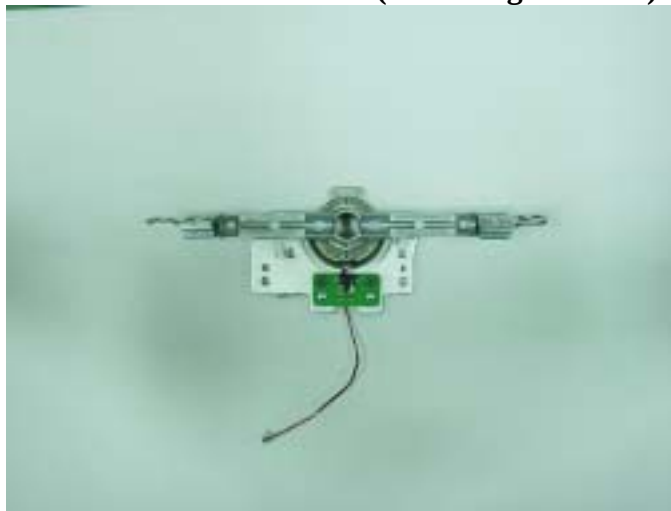


[Front View]



[Rear View]

LCD Sensor Switch Board (with Hinge of LCD)



[Front View]



[Rear View]

Hard Disk Drive

(20 GB)

Type: HDD2168, Toshiba Corp.



[Front View]



[Rear View]

(30 GB)

Type: HDD2181, Toshiba Corp.



[Front View]



[Rear View]

Type: DK23EA-30, Hitachi Ltd.



[Front View]



[Rear View]

(40 GB)

Type: HDD2171, Toshiba Corp.



[Front View]



[Rear View]

Type: DK23EB-40, Hitachi Ltd.



[Front View]



[Rear View]

Type: IC25N040ATCS05-0, IBM Corp.



[Front View]



[Rear View]

(60 GB)

Type: HDD2184, Toshiba Corp.



[Front View]



[Rear View]

Memory Module



[Front View]



[Rear View]

Type PA3189U, Toshiba Corp.



[Front View]

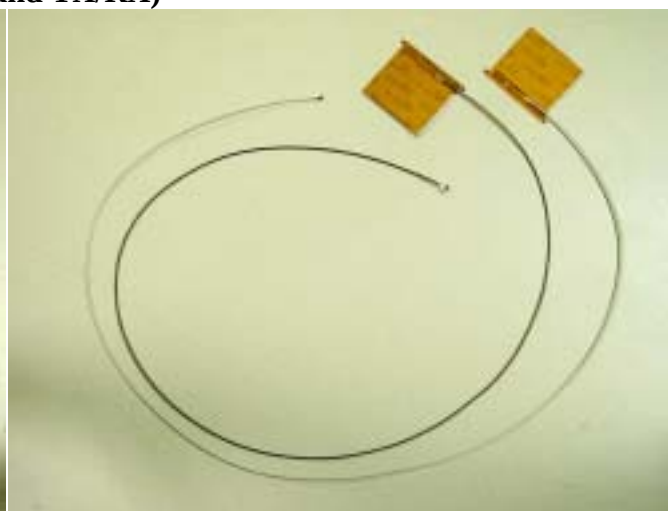
[Rear View]

Type PA3236U, Toshiba Corp.



[Front View]

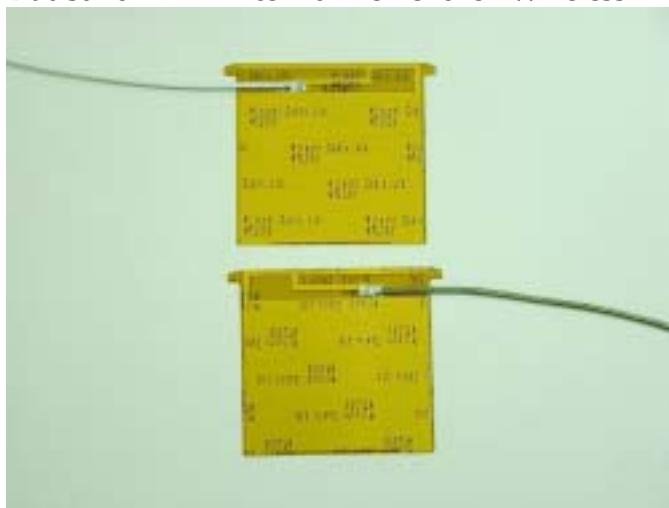
[Rear View]



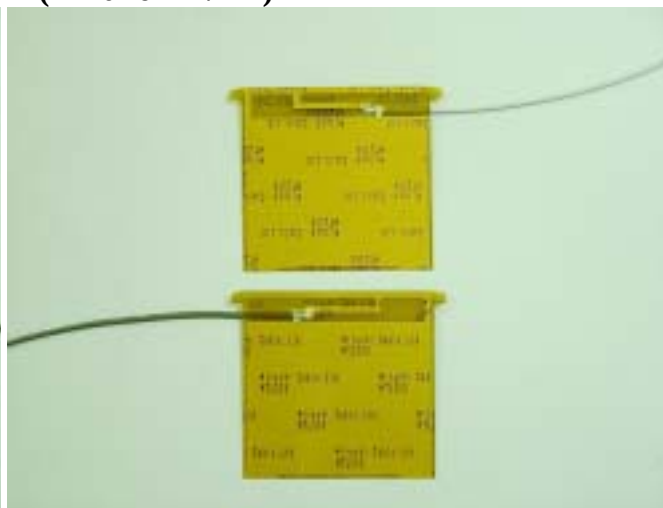
[Front View]

[Rear View]

Duaband Film Antenna Element for Wireless LAN (RX and TX/RX)

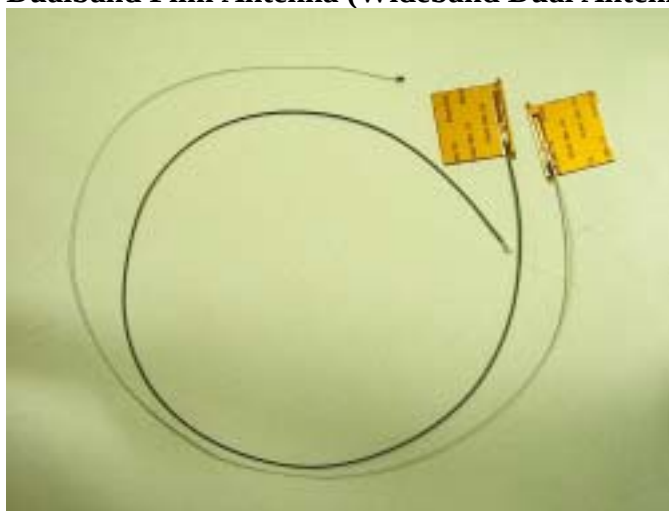


[Front View]

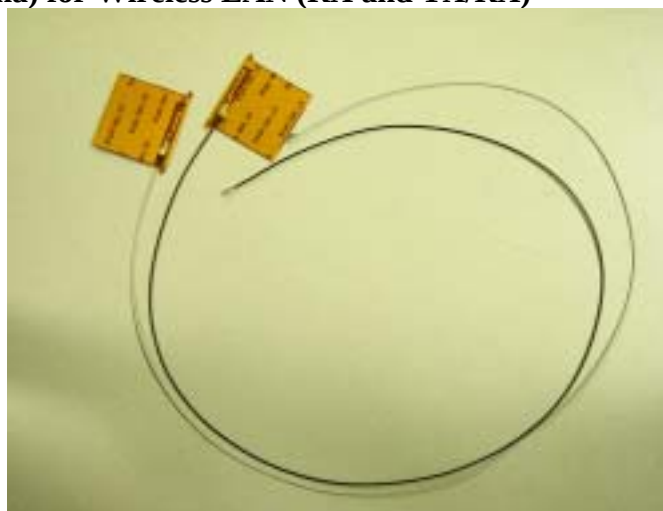


[Rear View]

Dualband Film Antenna (Wideband Dual Antenna) for Wireless LAN (RX and TX/RX)



[Front View]

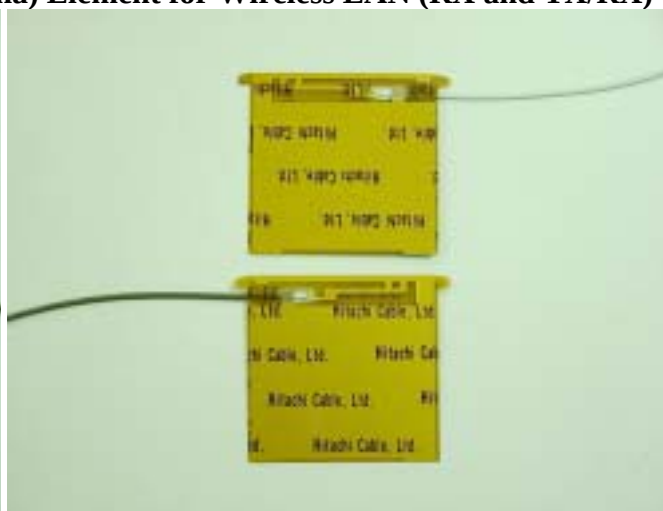


[Rear View]

Dualband Film Antenna (Wideband Dual Antenna) Element for Wireless LAN (RX and TX/RX)



[Front View]



[Rear View]

Bluetooth Module



[Front View]



[Rear View]

BT Relay Flexible Board



[Front View]

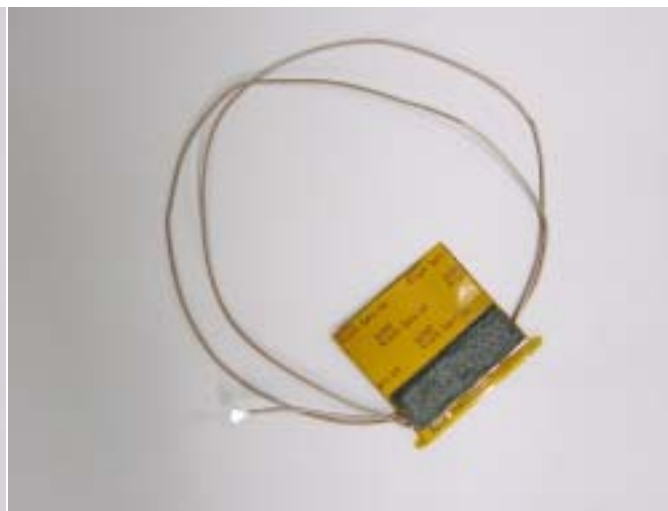


[Rear View]

Antenna Board for Bluetooth



[Front View]



[Rear View]

Modem Modular Cable



[Front View]

Toshiba Tablet Pen



[Front View]



[Rear View]

AC Adaptor PA3241U-1ACA



[Front View]



[Rear View]

PA3153U-1ACA



[Front View]



[Rear View]