



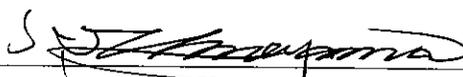
# EMI TEST REPORT

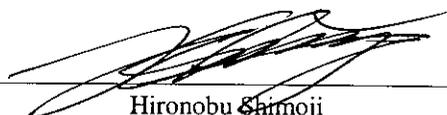
Test Report No. : 23LE0006-HO-1

Applicant : Sony Corporation  
Type of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Test standard : FCCPart15 Subpart C  
Section15.207, Section 15.247  
FCC ID : AK8PCG492L  
Test Result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with above regulation. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this report are traceable to the national or international standards.
5. This test report does not constitute an endorsement by NIST/NVLAP or U.S. Government.

Date of test : July 15,16,17,18,19,20,21,22,23 and 24, 2003

Tested by :   
Hiroka Umeyama  
EMC Service

Approved by :   
Hironobu Shimoji  
Group Leader of EMC Service

UL Apex Co., Ltd.

EMC Head Office Division.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

## CONTENTS

	<b>PAGE</b>
<b>SECTION 1: Client information</b>	<b>3</b>
<b>SECTION 2: Equipment under test (E.U.T.)</b>	<b>3</b>
<b>SECTION 3: Test specification, procedures and results</b>	<b>5</b>
<b>SECTION 4: Operation of E.U.T. during testing</b>	<b>7</b>
<b>SECTION 5: Conducted emission, Section 15.207</b>	<b>8</b>
<b>SECTION 6: 6dB Bandwidth, Section 15.247 (a) (2)</b>	<b>8</b>
<b>SECTION 7: Maximum Peak Output power, Section 15.247 (b) (3)</b>	<b>9</b>
<b>SECTION 8: Out of Band Emission, Section 15.247 (c) And Restricted Band Edge, Section 15.247 (c) Spurious Emission, Section 15.247 (c)</b>	<b>9</b>
<b>SECTION 9: Power Density, Section 15.247 (d)</b>	<b>9</b>
<b><u>CONTENTS OF APPENDIXES</u></b>	<b>10</b>
<b>APPENDIX 1: Photographs of test setup</b>	<b>11</b>
<b>APPENDIX 2: Test instruments</b>	<b>12</b>
<b>APPENDIX 3: Data of EMI test</b>	<b>13</b>

**SECTION 1: Client information**

Company name : Sony Corporation  
Address : 6-7-35 Kita-Shinagawa, Shinagawa-ku, Tokyo, 141-0001 Japan  
Telephone Number : +81-3-5795-8033  
Facsimile Number : +81-3-5795-8346  
Contact Person : Kaoru Ichimura

**SECTION 2: Equipment under test (E.U.T.)**

**2.1 Identification of E.U.T.**

Type of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25 (only for Radiated emission testing)  
DVT26 (only for Conducted emission testing )  
Rating : AC120V/60Hz  
Country of Manufacture : Japan  
Receipt Date of Sample : July 8, 2003  
Condition of EUT : Engineering prototype

## 2.2 Product Description

Sony Corporation Model: PCG-492L referred to as the EUT in this report is a Notebook Personal Computer with IEEE 802.11b/g RF module (FCC ID: MCLT60H67702).

The specification is as following;

Equipment Type	:	Transceiver
Frequency operation	:	2412-2462MHz ISM band 1 <sup>st</sup> local frequency: 3168MHz 2 <sup>nd</sup> local frequency: 4464-4504MHz
Clock frequency used in EUT	:	1GHz, 100MHz, 66.6MHz, 65MHz, 48MHz, 44MHz, 33.33MHz, 27MHz, 25MHz, 24.576MHz, 14.318MHz, 12.288Hz, 10MHz
Type of modulation	:	OFDM, DQPSK, DBPSK and CCK
Transfer Rate	:	1/2/5.5/6/9/11/12/18/24/36/48/54Mbps
Bandwidth & Channel spacing & Channel number	:	2400MHz-2483.5MHz, 5MHz, 11
Emission Designation (ITU Code)	:	20M0D2D
Antenna Type	:	Lambda/ 4 Monopole antenna
Antenna Gain	:	Main Antenna : -2.8dBi , Sub Antenna : -2.6dBi
Antenna connector	:	CFL connector (Hirose)
Antenna Fixing Method	:	Internal
Transmit power	:	Max 16.5dBm (Average)
Power supply	:	DC3.1V- 3.46V
Operation temperature range	:	0 deg. C to 55 deg. C
Power & Signal Cable Length	:	≤3m
Mode of Operation	:	Half Duplex

**\*FCC Part 15.31 (e)**

The host device PCG-492L provide the stable power supply (DC: 3.3V), and Notebook Personal Computer complies power supply regulation.

**\*FCC Part 15.203 Antenna requirement**

The standard type of antenna connector is applied; however, the EUT complies this requirement since this radio equipment is for professional installation.

## **SECTION 3: Test specification, procedures and results**

### **3.1 Test Specification**

Test Specification : FCC Part 15 Subpart C  
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators  
Section 15.207 Conducted Emissions  
Section 15.247 Operation within the Band 902-928MHz, 2400-2483.5MHz and  
5725-5850MHz

### **3.2 Procedures and results**

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted emission	ANSI C63.4:2001	Section 15.207	-	N/A	12.5dB 0.1515MHz , L	Complied
2	6dB Bandwidth	ANSI C63.4:2001	Section 15.247(a)(2)	Conducted	N/A	-	Complied
3	Maximum Peak Output Power	ANSI C63.4:2001	Section 15.247(b)(3)	Conducted	N/A	9.8dB 2462MHz	Complied
4	Out of Band Emission	ANSI C63.4:2001	Section 15.247 (c)	Radiated	N/A	0.4dB 2400MHz Hor	Complied
5	Restricted Band Edges	ANSI C63.4:2001	Section 15.247 (c)	Radiated	N/A	0.6dB 2483.5MHz Hor	Complied
6	Power Density	ANSI C63.4:2001	Section 15.247 (d)	Conducted	N/A	13.3dB 2412.3MHz	Complied

Note: UL Apex's EMI Work Procedures No.QPM05

### **3.3 Additions to Standards**

No addition, deviation or exclusion has been made from standards.

### **3.4 Confirmation**

UL Apex Co., Ltd. hereby confirms that E.U.T., in the configuration tested, complies with the specifications FCC Part 15 Subpart C Section 15.207 and 247.

### 3.5 Uncertainty

#### Conducted Emission Test

The measurement uncertainty (with a 95% confidence level) for this test was  $\pm 1.3$ dB.

The data listed in this test report has enough margin, more than the site margin.

#### Out of Band Emission and Restricted Band Edges(Radiated) Test

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is  $\pm 4.5$ dB.

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is  $\pm 5.2$ dB.

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is  $\pm 6.6$ dB.

The data listed in this test report may exceed the test limit because it does not have enough margin.

#### 6dB Bandwidth , Maximum Peak Output power, Out of Band Emission and Power Density (Conducted) Test

The measurement uncertainty (with a 95% confidence level) for this test was  $\pm 3.0$ dB.

The data listed in this test report has enough margin.

### 3.6 Test Location

UL Apex Co., Ltd. EMC Head Office Division.

No.1 and No.2 semi anechoic chamber and No.3 measurement room

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone: +81 596 24 8116 Facsimile: +81 596 24 8124

No.1 semi anechoic chamber has been fully described in a report submitted to FCC office, and listed on February 01, 2002. (Registration number: No.1 :313583, Industry Canada: No.1 : IC-4247)

No.2 semi anechoic chamber has been fully described in a report submitted to FCC office, and listed on June 05, 2002. (Registration number: No.2: 846015 Industry Canada: No.2: IC-4247-2)

\*NVLAP Lab. code: 200572-0

### 3.7 Test set up, Data of EMI and Test instruments

Refer to APPENDIX 1 to 3.

## **SECTION 4: Operation of E.U.T. during testing**

### **4.1 Operating Modes**

The system was configured in typical fashion (as a customer would normally use it) for testing.

Test mode : Transmitting (IEEE 802.11b) Burst Frame mode DSSS, CCK, 11Mbps  
Low channel : 2412MHz  
Middle channel : 2437MHz  
High channel : 2462MHz

Test mode : Transmitting (IEEE 802.11g) Burst Frame mode OFDM, 64QAM, 54Mbps  
Low channel : 2412MHz  
Middle channel : 2437MHz  
High channel : 2462MHz

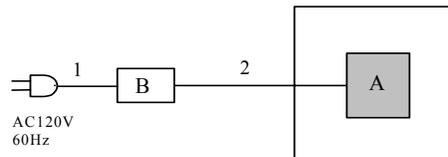
The EUT was tested in all three orthogonal planes in order to determine worst case emissions. Channels at 2412MHz, 2437MHz and 2462MHz were tested and investigated from 30MHz to 26GHz Data for all three channels are

presented in this report.

The EUT has an ability to provide some different modulation and data rates. Some of these modulation and data rates did not change in the spectrum envelopes of the EUT at conducted Measurement with the antenna terminal.

Therefore, the results of the final measurements were the IEEE 802.11b DSSS, CCK, 11Mbps and IEEE 802.11g OFDM, 64QAM, 54Mbps modulation as the highest data rate.

### **4.2 Configuration and peripherals**



\* Cabling was taken into consideration and test data was taken under worst case conditions.

#### **Description of EUT and Support equipment**

No.	Item	Model number	Serial number	Manufacturer	FCC ID	Remark
A	Notebook Personal Computer	PCG-492L	DVT25 (only for Radiated emission testing) DVT26 (only for Conducted emission testing )	Sony Corporation	AK8PCG492L	EUT
B	AC Adaptor	PCGA-16V6	0266064 (with DVT25) 0266067 (with DVT26)	Sony Corporation	-	-

#### **List of cables used**

No.	Name	Length (m)	Shield	Backshell Material
1	AC cable	0.8	N	Polyvinyl chloride
2	DC cable	2.0	N	Polyvinyl chloride

**UL Apex Co., Ltd.**

**EMC Head Office Division.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b(10.04.03)

## **SECTION 5: Conducted Emission**

### **Test Procedure**

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. I/O cables and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. All unused 50ohm connectors of the LISN were resistively terminated in 50ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT on a reference ground plane 4.0 x 4.0m in a No.2 semi anechoic chamber (7.5 x 5.8 x 5.2m).

The EUT was connected to a Line Impedance Stabilization Network (LISN).

An overview sweep with peak detection has been performed.

The measurements have been performed with a CISPR quasi-peak detector (IF BW 9kHz).

Measurement range:0.15-30MHz

**Test data** : APPENDIX 3  
**Test result** : Pass  
**Test instruments** : MTR-02, SA-07, MCC-13, MLS-06

## **SECTION 6: 6dB Bandwidth, Section 15.247(a)(2)**

### **Test Procedure**

The minimum 6dB bandwidth was measured with a spectrum analyzer connected to the antenna port.

**Test data** : APPENDIX 3  
**Test result** : Pass  
**Test instruments** : MBTR10, MCC-04

### **SECTION 7: Maximum Peak Output Power, Section 15.247(b)(3)**

[Conducted]

#### **Test Procedure**

The Maximum Peak Output Power was measured with a power meter and a spectrum analyzer connected to the antenna port.

**Test data** : APPENDIX 3  
**Test result** : Pass  
**Test instruments** : MBTR10, MCC-04, MPM-01, MPSE-03, MAT-20

### **SECTION 8: Out of Band Emission ,Restricted Band Edge and Spurious Emission, Section 15.247 (c)**

[Conducted]

#### **Test Procedure**

The Maximum Peak Output Power was measured with a spectrum analyzer connected to the antenna port.

**Test data** : APPENDIX 3  
**Test result** : Pass  
**Test instruments** : MBTR10, MCC-04

[Radiated]

#### **Test Procedure**

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.

Test was made with the antenna positioned in both the horizontal and vertical planes of polarization.

The Radiated Electric Field Strength intensity has been measured in No.1 semi anechoic chamber (19.2 x 11.2 x 7.7m) with a ground plane and at a distance of 3m.

The measuring antenna height was varied between 1 to 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for both vertical and horizontal antenna polarization.

The maximum output power of EUT was confirmed as the worst case condition in the photo of APPENDIX 1.

**Test data** : APPENDIX 3  
**Test result** : Pass  
**Test instruments** : MTR-01, MCC-01/05/06, MHA-01/05, MPA-01/04, MBA-01, MLA-01, MAT-06, MBF-01/02/03

### **SECTION 9: Power Density, Section 15.247(d)**

#### **Test Procedure**

The Power density was measured with a spectrum analyzer connected to the antenna port.

**Test data** : APPENDIX 3  
**Test result** : Pass  
**Test instruments** : MBTR10, MCC-04

---

**UL Apex Co., Ltd.**

**EMC Head Office Division.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b(10.04.03)

## **CONTENTS OF APPENDIXES**

### **APPENDIX 1: Photographs of test setup**

Page 11 : Conducted Emission

Page 12 : Spurious emission

### **APPENDIX 2: Test instruments**

Page 13 : Test instruments

### **APPENDIX 3: Data of EMI test**

Page 14-29 : Conducted Emission

Page 30-34 : 6dB Bandwidth

Page 35-38 : Maximum Peak Output power (Conducted)

Page 39-74 : Spurious emission (Radiated)

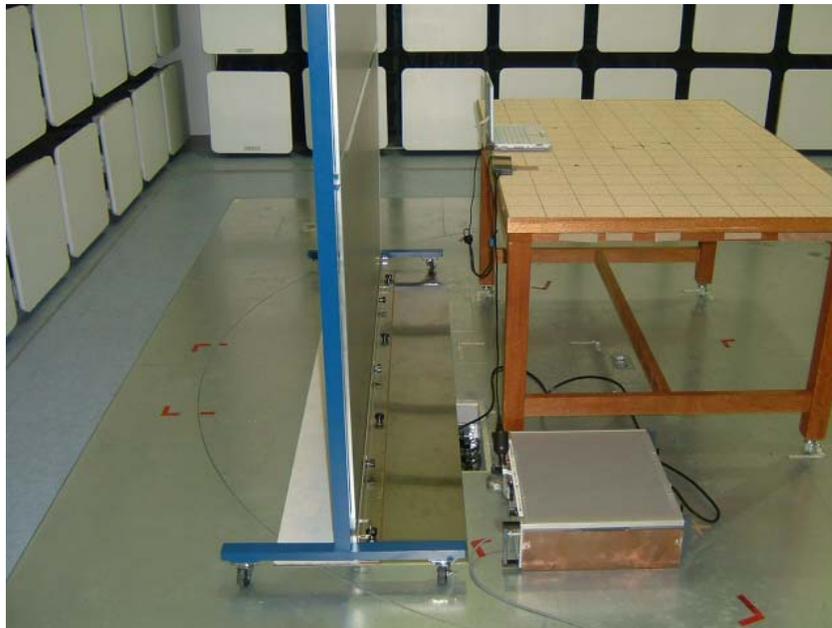
Page 75-86 : Spurious emission (Conducted)

Page 87-88 : Restricted Band Edge

Page 89-93 : Power Density

Page 94-98 : 99% occupied bandwidth

**APPENDIX 1: Photographs of test setup**  
**Conducted Emission**



**Spurious Emission (Radiated)**



## APPENDIX 2: Test instruments

### APPENDIX 3 Test Instruments

#### EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2002/12/28 * 12
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	CE	2003/04/11 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ES140	RE	2002/11/01 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	CE	2003/01/31 * 12
SA-07	Spectrum Analyzer	Advantest	R3273	CE	2002/12/10 * 12
MBTR10	Spectrum Analyzer	Rohde & Schwarz	FSP30	RE	2002/11/13 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2002/10/16 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2002/10/16 * 12
MHA-01	Horn Antenna	EMCO	3160-09	RE	2003/01/11 * 12
MHA-05	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2003/01/11 * 12
MCC-01	Coaxial Cable	Suhner/storm/Agilent/TS J	-	RE	2002/12/19 * 12
MCC-04	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MCC-05	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MCC-06	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MCC-11	Microwave coaxial cable	Suhner	SUCOFLEX 104	RE	2003/03/27 * 12
MPA-01	Pre Amplifier	Agilent	8449B	RE	2003/02/08 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2003/03/13 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	RE	2002/12/24 * 12
MAT-20	Attenuator	HIROSE ELECTRIC CO.,LTD.	AT-110	RE	2003/02/04 * 12
MAT-23	Attenuator	Orient Microwave	BX10-0476-00	RE	2003/03/31 * 12
MBF-01	SHF Bandpass Filter	M-City	5GHz BPF	RE	2003/04/24 * 12
MBF-02	SHF Bandpass Filter	M-City	8GHz BPF	RE	2003/04/24 * 12
MBF-03	SHF Bandpass Filter	M-City	13GHz BPF	RE	2003/04/24 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE	2003/03/18 * 12
MPM-01	Power Meter	Agilent	E4417A	RE	2002/11/08 * 12
MPSE-03	Power sensor	Agilent	E9327A	RE	2003/04/14 * 12
MCC-13	Coaxial Cable	Fujikura/Agilent	-	CE	2003/05/08 * 12

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

Test Item:

CE: Conducted emission,  
RE: Radiated emission,

## DATA OF CONDUCTION TEST

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-HO

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Main-Antenna, CCK, QPSK, 11Mbps  
Remarks : Tx (CH6: 2437MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 24 °C  
Humidity : 64 %  
Regulation : FCC Part15C § 15.207 (0.15-30MHz)

  
Engineer : Hiroka Umeyama

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]				QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]
1.	0.1520	50.1	25.1	48.2	20.5	0.0	0.1	0.0	50.2	25.2	65.9	55.9	15.7	30.7
2.	0.2731	46.1	35.1	45.9	35.7	0.0	0.1	0.0	46.2	35.8	61.0	51.0	14.8	15.2
3.	0.4110	37.7	26.5	36.9	27.4	0.1	0.1	0.0	37.9	27.6	57.6	47.6	19.7	20.0
4.	4.7530	37.3	17.5	36.3	16.5	0.2	0.5	0.0	38.0	18.2	56.0	46.0	18.0	27.8
5.	6.3040	36.3	17.2	37.4	19.1	0.2	0.6	0.0	38.2	19.9	60.0	50.0	21.8	30.1
6.	17.7500	30.0	23.1	32.0	24.9	0.7	1.1	0.0	33.8	26.7	60.0	50.0	26.2	23.3

CALCULATION: READING[dB μV] + LISN FACTOR[dB] + CABLE LOSS[dB] + ATTEN[dB].  
All other emission were at least 20dB below the specification limit.

## DATA OF CONDUCTION TEST

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-HO

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Sub-Antenna, CCK, QPSK, 11Mbps  
Remarks : Tx (CH6:2437MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 26 °C  
Humidity : 61 %  
Regulation : FCC Part15C §15.207 (0.15-30MHz)

  
Engineer : Hiroka Umeyama

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]				QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
1.	0.1500	48.9	23.8	48.3	22.6	0.0	0.1	0.0	49.0	23.9	66.0	56.0	17.0	32.1
2.	0.2730	45.4	34.4	45.4	35.3	0.0	0.1	0.0	45.5	35.4	61.0	51.0	15.5	15.6
3.	0.4095	37.1	26.2	36.3	27.0	0.1	0.1	0.0	37.3	27.2	57.7	47.7	20.4	20.5
4.	4.5300	36.9	17.5	37.8	18.3	0.2	0.5	0.0	38.5	19.0	56.0	46.0	17.5	27.0
5.	5.8961	34.3	14.5	36.2	18.6	0.2	0.6	0.0	37.0	19.4	60.0	50.0	23.0	30.6
6.	17.3710	30.8	23.7	32.8	25.7	0.7	1.1	0.0	34.6	27.5	60.0	50.0	25.4	22.5

CALCULATION: READING[dBμV] + LISN FACTOR[dB] + CABLE LOSS[dB] + ATTEN[dB].  
All other emission were at least 20dB below the specification limit.

## DATA OF CONDUCTION TEST

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-HO

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Main-Antenna, OFDM, 64QAM, 54Mbps  
Remarks : Tx (CH6:2437MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 68 %  
Regulation : FCC Part15C § 15.207 (0.15-30MHz)

  
Engineer : Hiroka Umeyama

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]				QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]	QP [dB]	AV [dB]
1.	0.1515	53.0	32.0	53.3	33.0	0.0	0.1	0.0	53.4	33.1	65.9	55.9	12.5	22.8
2.	0.2737	46.0	33.6	46.0	34.9	0.0	0.1	0.0	46.1	35.0	61.0	51.0	14.9	16.0
3.	0.4079	37.6	25.8	37.0	26.9	0.1	0.1	0.0	37.8	27.1	57.7	47.7	19.9	20.6
4.	4.4860	37.3	19.7	38.0	20.1	0.2	0.5	0.0	38.7	20.8	56.0	46.0	17.3	25.2
5.	6.1150	36.3	19.0	36.8	21.7	0.2	0.6	0.0	37.6	22.5	60.0	50.0	22.4	27.5
6.	17.8030	30.1	23.7	32.0	25.5	0.7	1.1	0.0	33.8	27.3	60.0	50.0	26.2	22.7

CALCULATION: READING[dB $\mu$ V] + LISN FACTOR[dB] + CABLE LOSS[dB] + ATTEN[dB].

All other emission were at least 20dB below the specification limit.

DATA OF CONDUCTION TEST

UL Apex Co., Ltd. Head Office EMC Lab.  
 No.2 Semi Anechoic Chamber  
 Report No. : 23LE0006-HO

Applicant : Sony Corp.  
 Kind of Equipment : Notebook Personal Computer  
 Model No. : PCG-492L  
 Serial No. : DVT25  
 Power : AC120V/60Hz  
 Mode : Sub-Antenna, OFDM, 64QAM, 54Mbps  
 Remarks : Tx (CH6:2437MHz)  
 Date : 7/19/2003  
 Phase : Single Phase  
 Temperature : 26 °C  
 Humidity : 61 %  
 Regulation : FCC Part15C § 15.207 (0.15-30MHz)

  
 Engineer : Hiroka Umeyama

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]				QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
1.	0.1510	52.6	31.6	52.7	31.8	0.0	0.1	0.0	52.8	31.9	65.9	55.9	13.1	24.0
2.	0.2720	46.1	34.6	45.8	36.1	0.0	0.1	0.0	46.2	36.2	61.1	51.1	14.9	14.9
3.	0.4078	37.8	26.9	37.2	27.7	0.1	0.1	0.0	38.0	27.9	57.7	47.7	19.7	19.8
4.	4.4955	39.8	21.3	40.4	21.9	0.2	0.5	0.0	41.1	22.6	56.0	46.0	14.9	23.4
5.	6.2580	38.6	21.7	40.0	23.6	0.2	0.6	0.0	40.8	24.4	60.0	50.0	19.2	25.6
6.	17.3205	31.6	25.3	32.8	26.4	0.7	1.1	0.0	34.6	28.2	60.0	50.0	25.4	21.8

CALCULATION: READING[dB  $\mu$ V] + LISN FACTOR[dB] + CABLE LOSS[dB] + ATTEN[dB].

All other emission were at least 20dB below the specification limit.

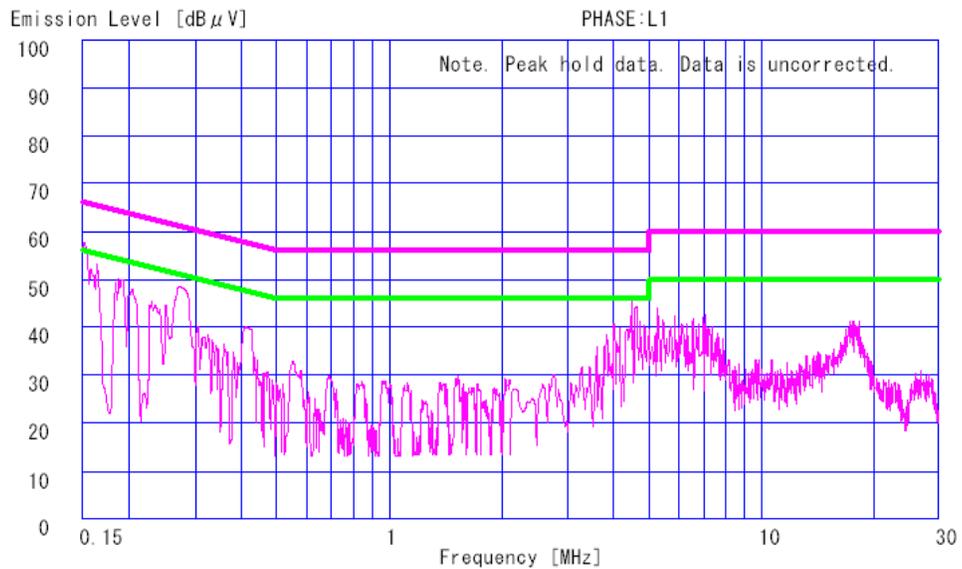
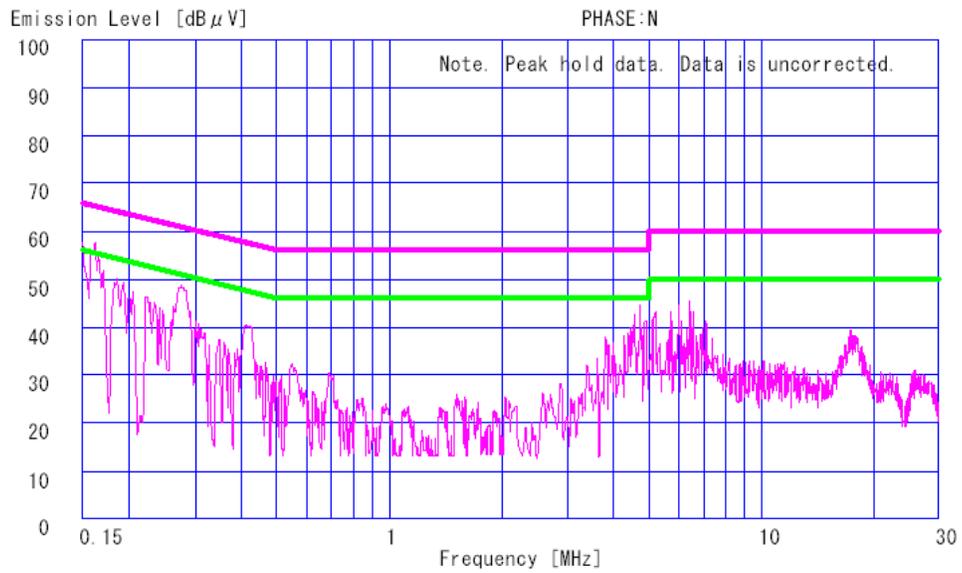
DATA OF CONDUCTION TEST CHART

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-HO

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Main-Antenna, CCK, QPSK, 11Mbps  
Remarks : Tx (CH1:2412MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 24 °C  
Humidity : 64 %  
Regulation 1 : FCC Part15C § 15.207 (0.15-30MHz)  
Regulation 2 : None



Engineer : Hiroka Umeyama



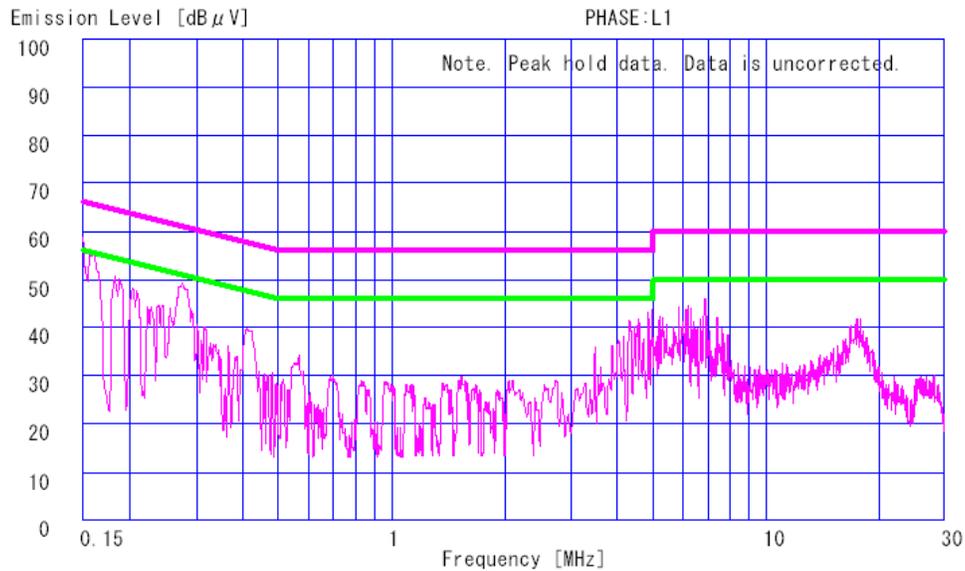
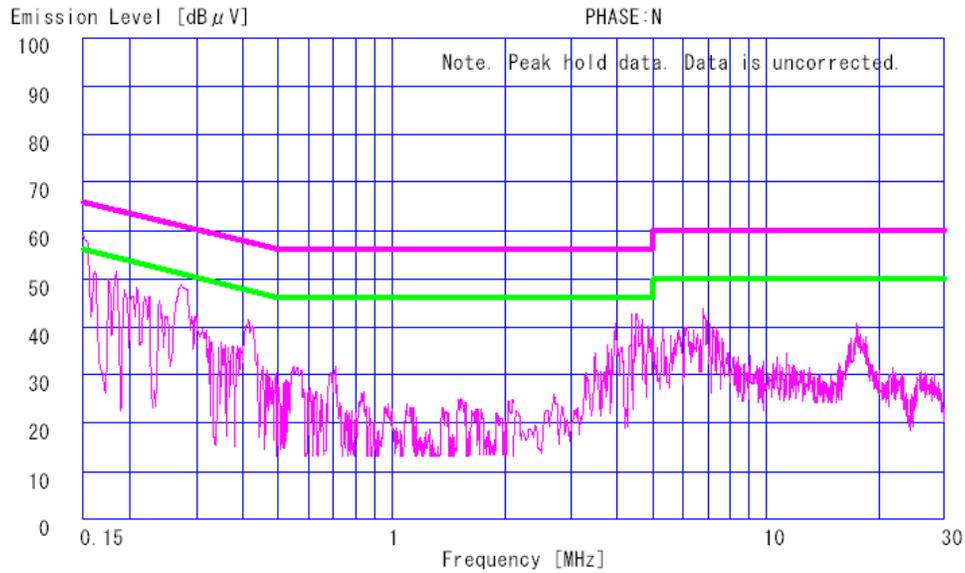
**DATA OF CONDUCTION TEST CHART**

UL Apex Co., Ltd. Head Office EMC Lab.  
 No.2 Semi Anechoic Chamber  
 Report No. : 23LE0006-H0

Applicant : Sony Corp.  
 Kind of Equipment : Notebook Personal Computer  
 Model No. : PCG-492L  
 Serial No. : DVT25  
 Power : AC120V/60Hz  
 Mode : Main-Antenna, CCK, QPSK, 11Mbps  
 Remarks : Tx (CH6:2437MHz)  
 Date : 7/19/2003  
 Phase : Single Phase  
 Temperature : 24 °C  
 Humidity : 64 %  
 Regulation 1 : FCC Part15C § 15. 207 (0.15-30MHz)  
 Regulation 2 : None



Engineer : Hiroka Umeyama



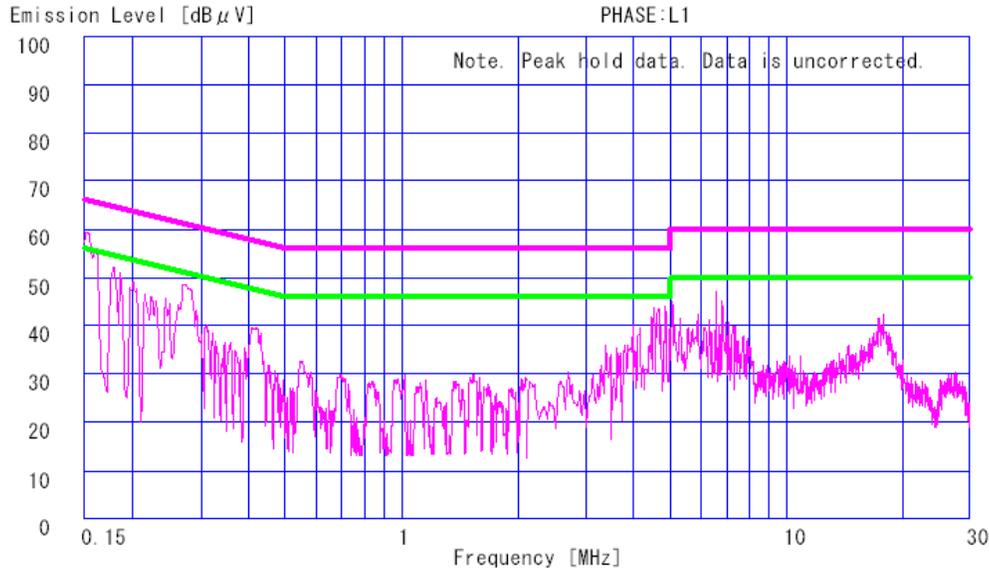
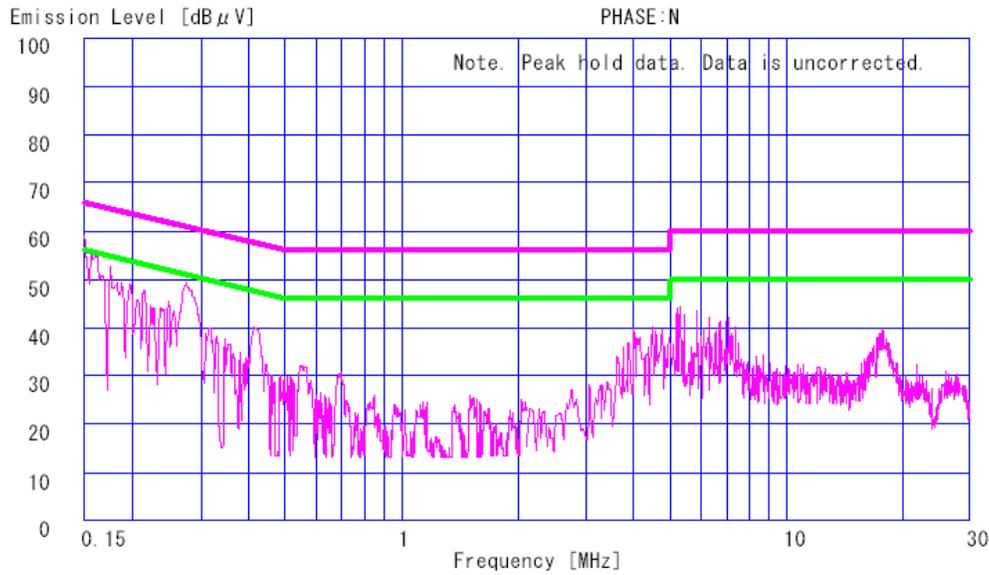
**DATA OF CONDUCTION TEST CHART**

UL Apex Co., Ltd. Head Office EMC Lab.  
 No.2 Semi Anechoic Chamber  
 Report No. : 23LE0006-HO

Applicant : Sony Corp.  
 Kind of Equipment : Notebook Personal Computer  
 Model No. : PCG-492L  
 Serial No. : DVT25  
 Power : AC120V/60Hz  
 Mode : Main-Antenna, CCK, QPSK, 11Mbps  
 Remarks : Tx (CH11:2462MHz)  
 Date : 7/19/2003  
 Phase : Single Phase  
 Temperature : 24 °C  
 Humidity : 64 %  
 Regulation 1 : FCC Part15C § 15.207 (0.15-30MHz)  
 Regulation 2 : None



Engineer : Hiroka Umeyama



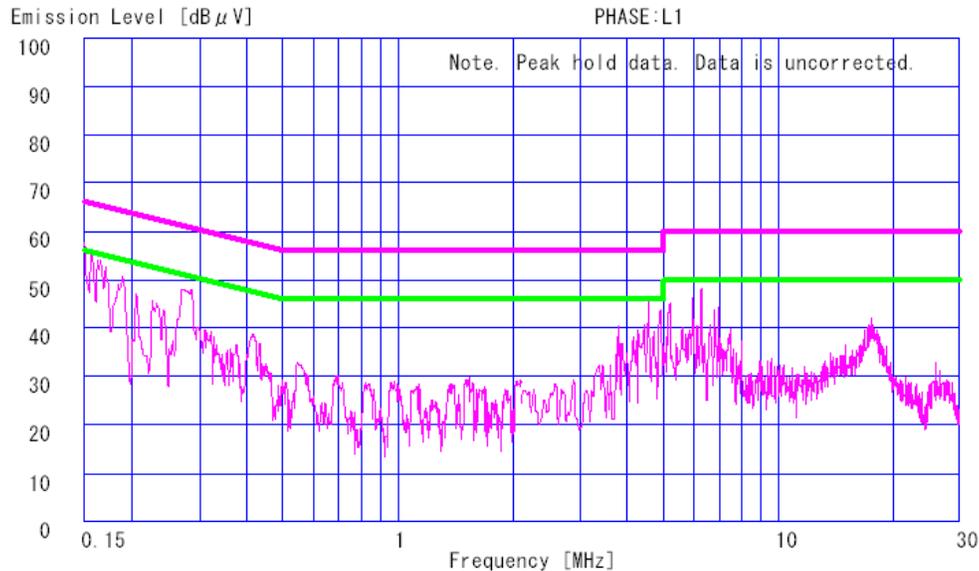
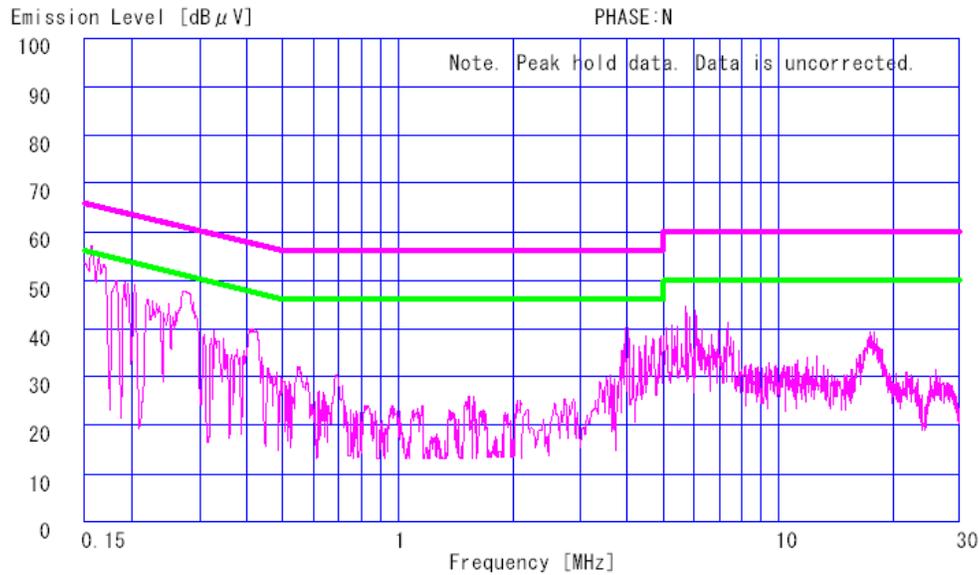
### DATA OF CONDUCTION TEST CHART

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-H0

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Sub-Antenna, CCK, QPSK, 11Mbps  
Remarks : Tx (CH1: 2412MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 26 °C  
Humidity : 61 %  
Regulation 1 : FCC Part15C § 15.207 (0.15-30MHz)  
Regulation 2 : None



Engineer : Hiroka Umeyama

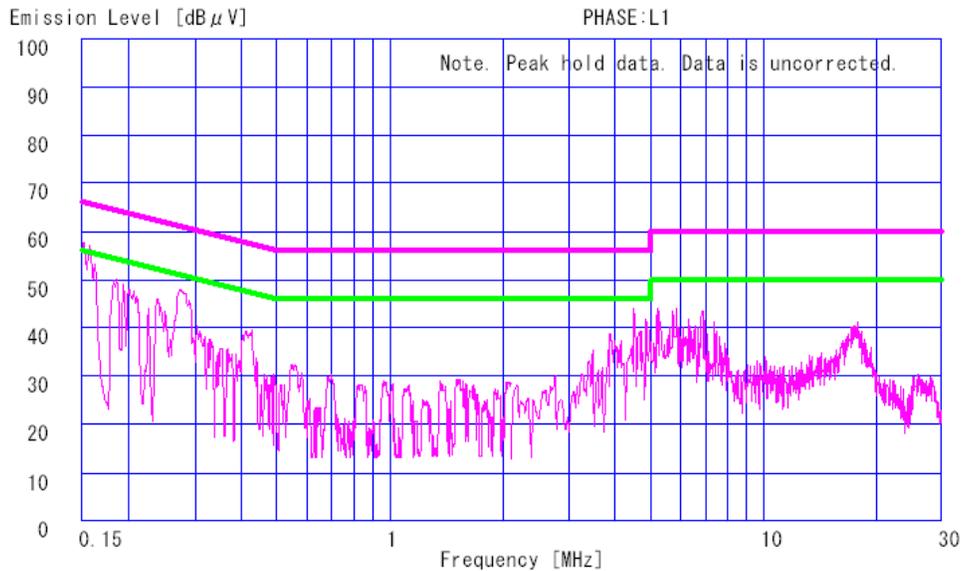
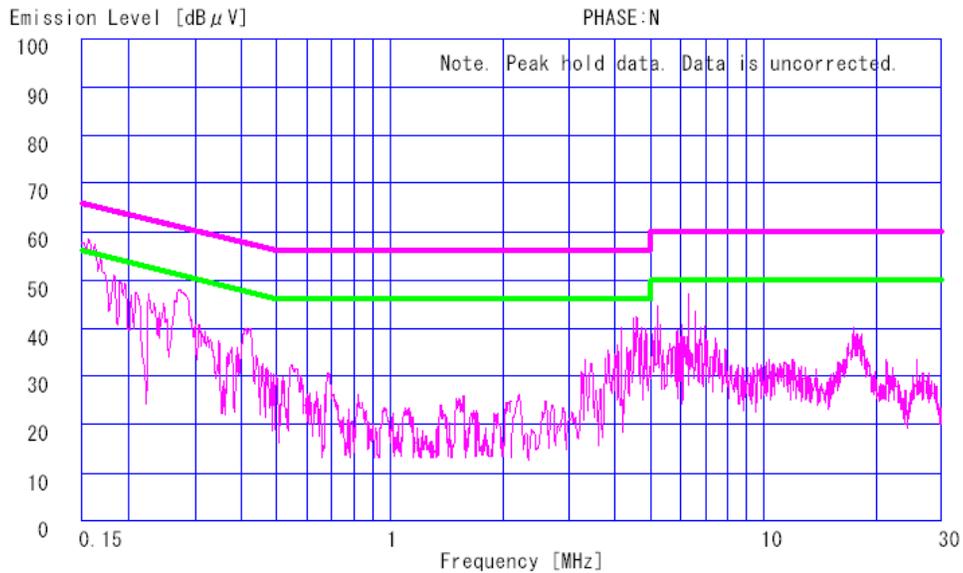


**DATA OF CONDUCTION TEST CHART**

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-H0

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Sub-Antenna, CCK, QPSK, 11Mbps  
Remarks : Tx (CH6:2437MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 26 °C  
Humidity : 61 %  
Regulation 1 : FCC Part15C s 15.207 (0.15-30MHz)  
Regulation 2 : None

  
Engineer : Hiroka Umeyama

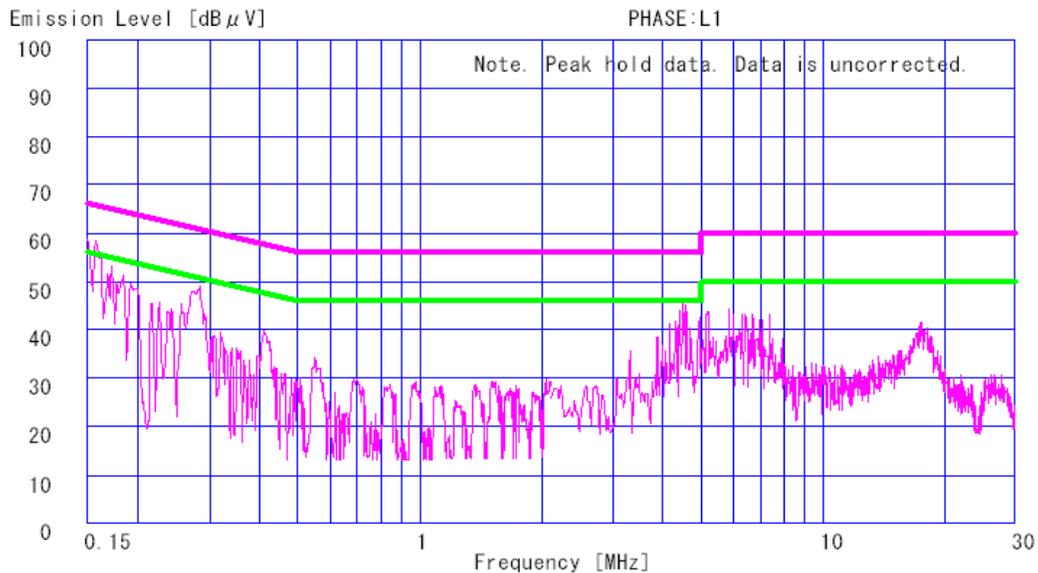
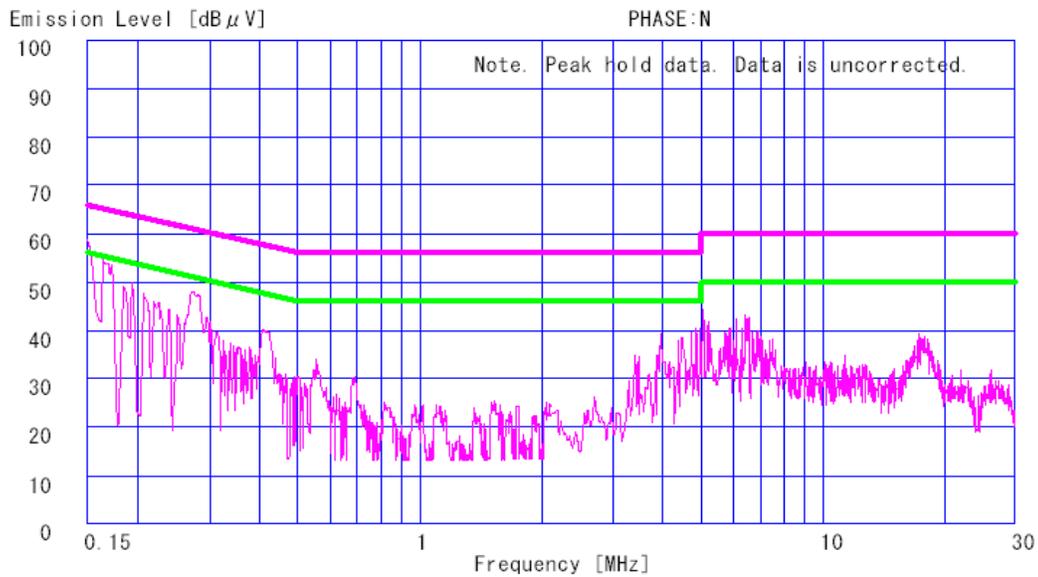


### DATA OF CONDUCTION TEST CHART

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-HO

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Sub-Antenna, CCK, QPSK, 11Mbps  
Remarks : Tx (CH11: 2462MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 26 °C  
Humidity : 61 %  
Regulation 1 : FCC Part15C § 15.207 (0.15-30MHz)  
Regulation 2 : None

  
Engineer : Hiroka Umeyama

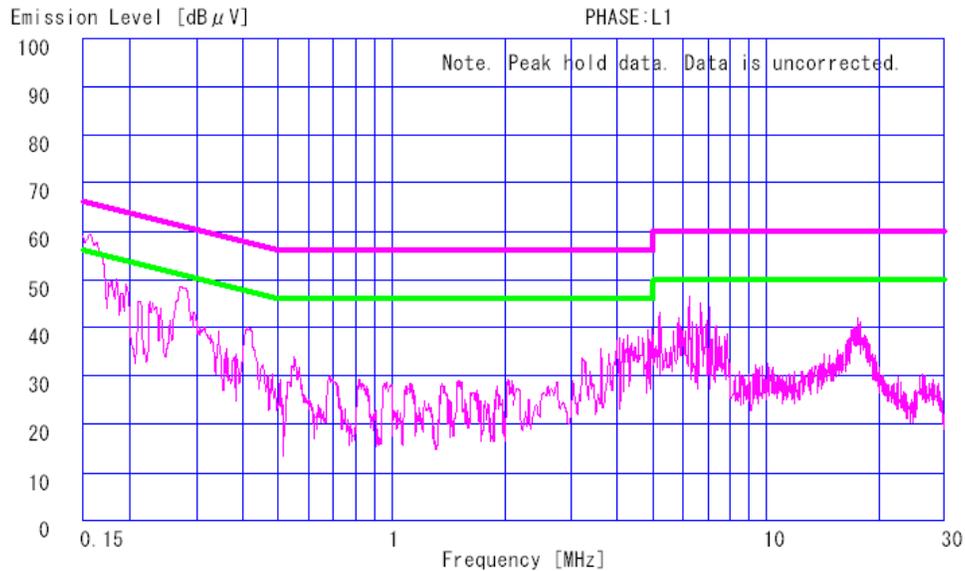
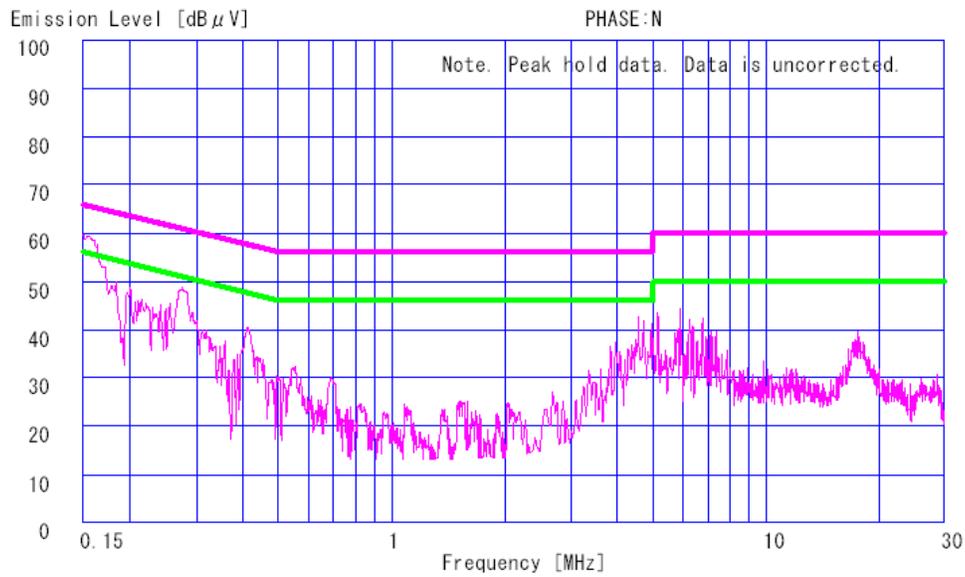


### DATA OF CONDUCTION TEST CHART

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-H0

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Main-Antenna, OFDM, 64QAM, 54Mbps  
Remarks : Tx (CH1:2412MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 68 %  
Regulation 1 : FCC Part15C § 15.207 (0.15-30MHz)  
Regulation 2 : None

  
Engineer : Hiroka Umeyama

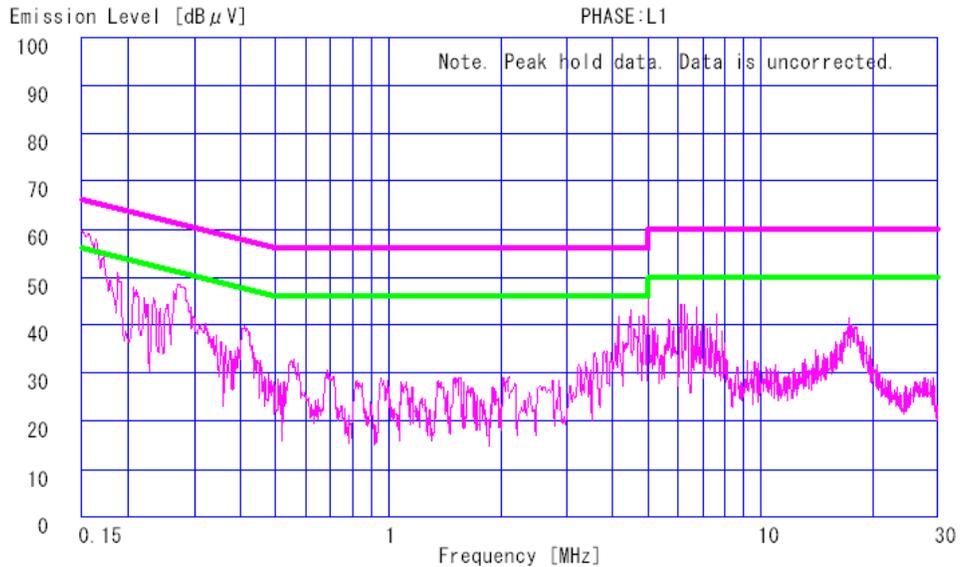
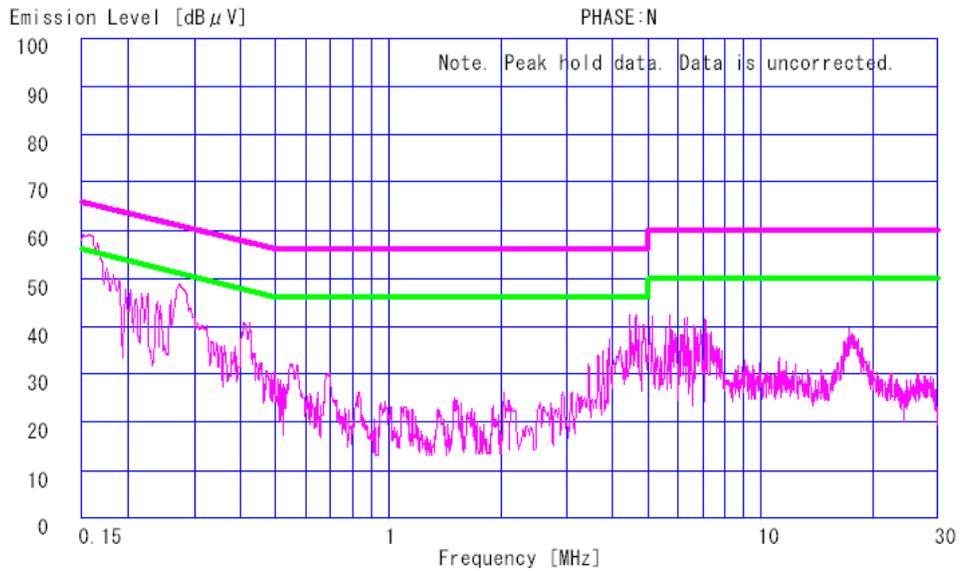


**DATA OF CONDUCTION TEST CHART**

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-HO

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Main-Antenna, OFDM, 64QAM, 54Mbps  
Remarks : Tx (CH6:2437MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 68 %  
Regulation 1 : FCC Part15C § 15. 207 (0.15-30MHz)  
Regulation 2 : None

  
Engineer : Hiroka Umeyama

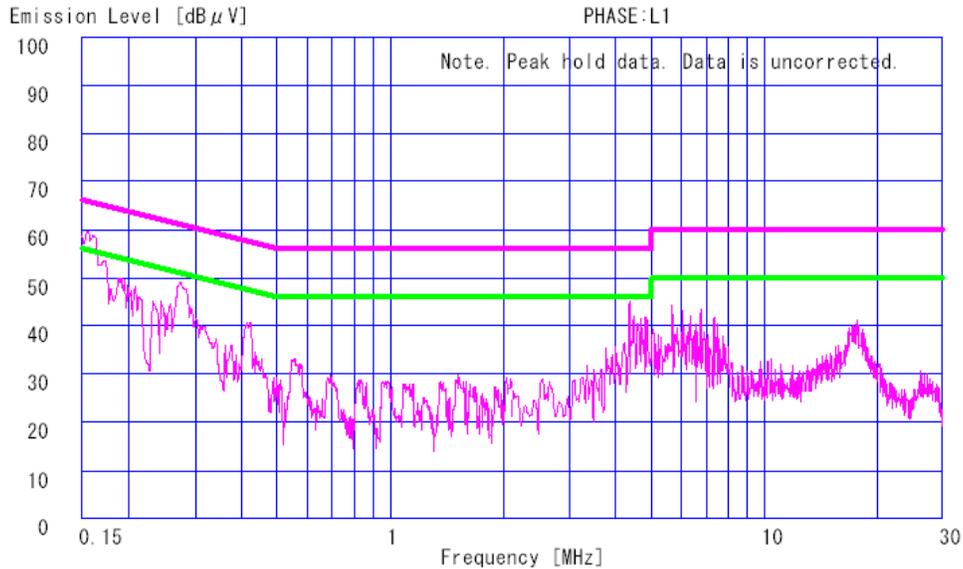
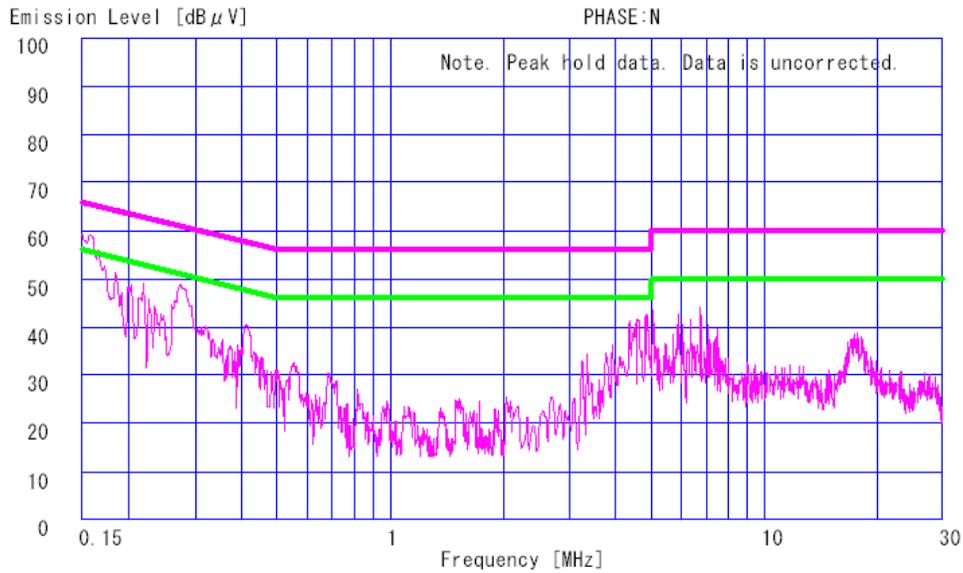


**DATA OF CONDUCTION TEST CHART**

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-H0

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Main-Antenna, OFDM, 64QAM, 54Mbps  
Remarks : Tx (CH11:2462MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 68 %  
Regulation 1 : FCC Part15C § 15.207 (0.15-30MHz)  
Regulation 2 : None

  
Engineer : Hiroka Umeyama

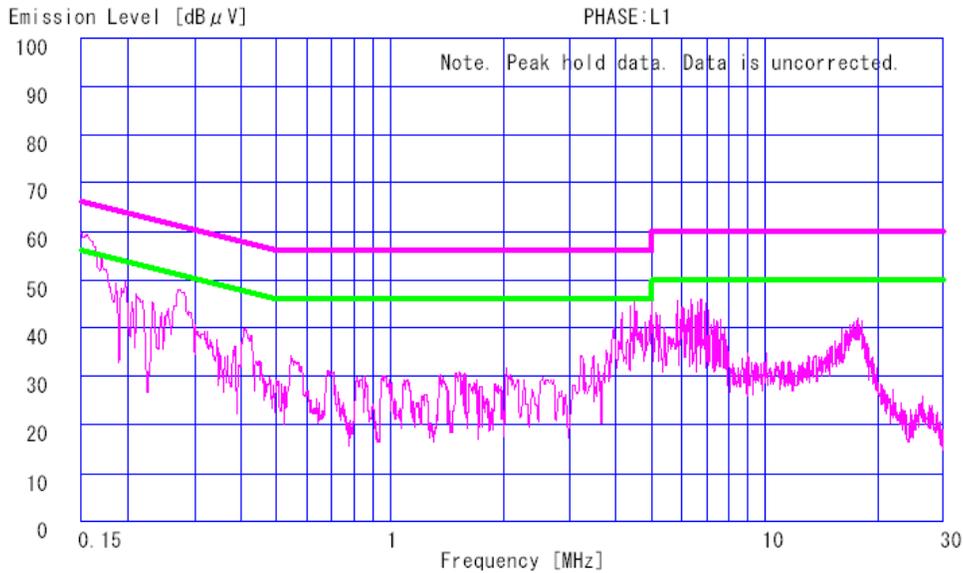
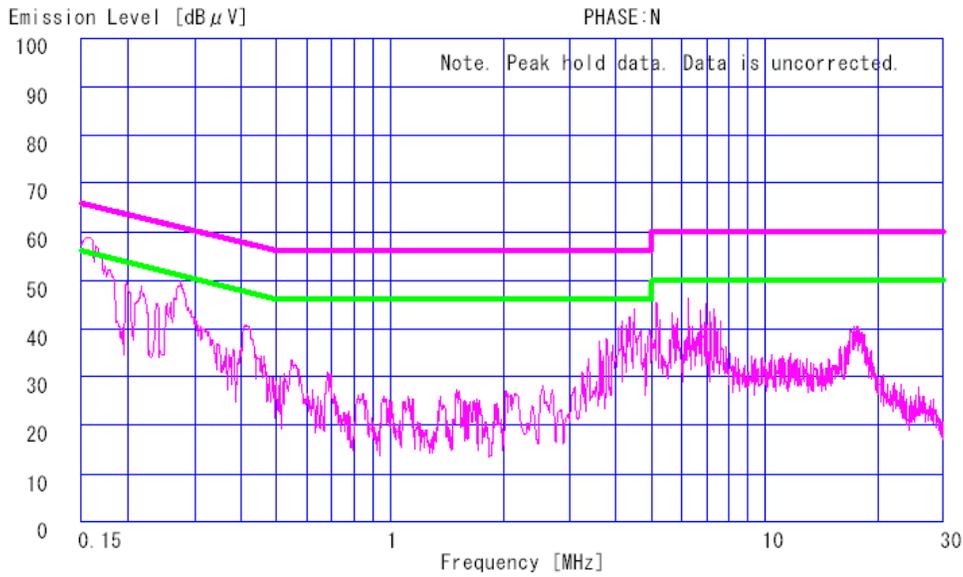


**DATA OF CONDUCTION TEST CHART**

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-H0

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Sub-Antenna, OFDM, 64QAM, 54Mbps  
Remarks : Tx (CH1:2412MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 26 °C  
Humidity : 61 %  
Regulation 1 : FCC Part15C § 15.207 (0.15-30MHz)  
Regulation 2 : None

  
Engineer : Hiroka Umeyama

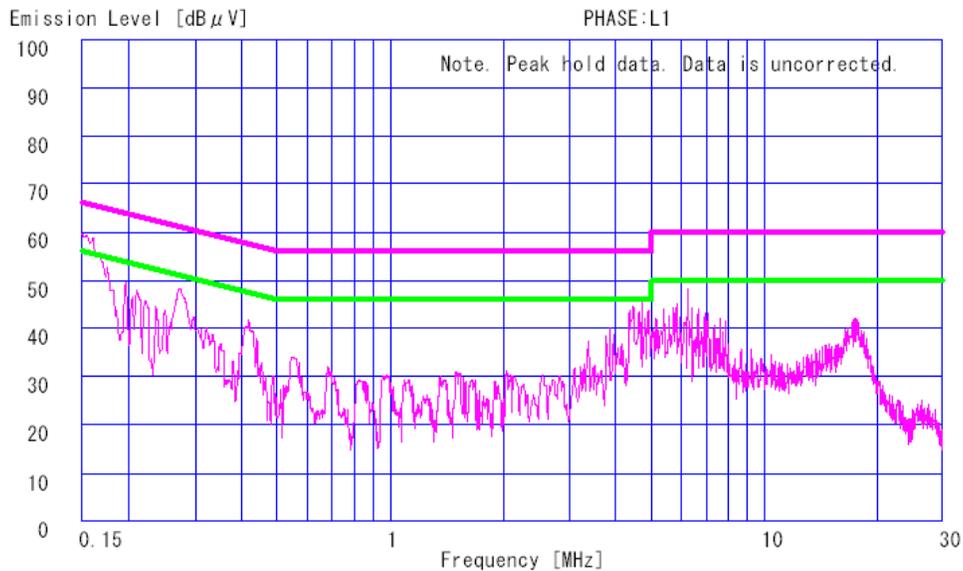
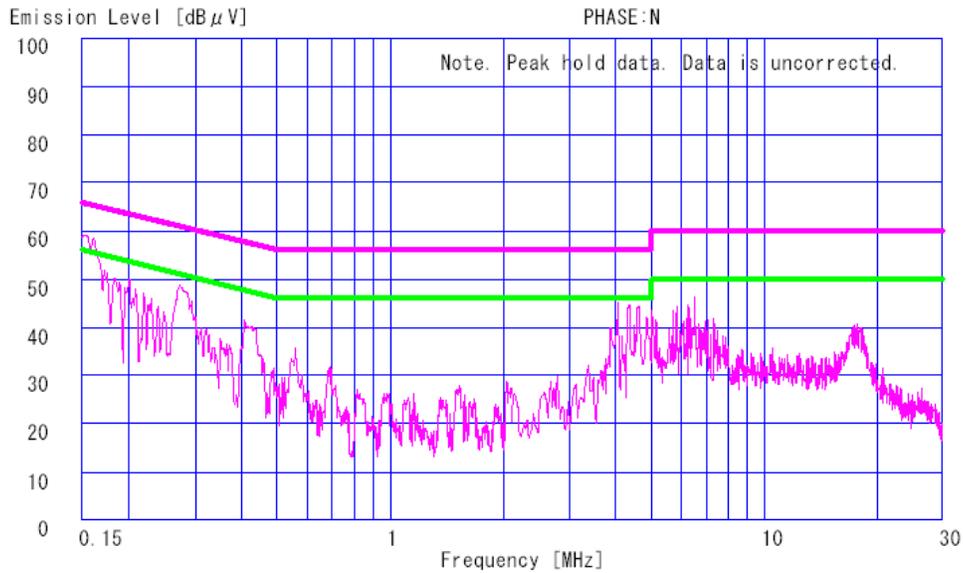


### DATA OF CONDUCTION TEST CHART

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-H0

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Sub-Antenna, OFDM, 64QAM, 54Mbps  
Remarks : Tx (CH6:2437MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 26 °C  
Humidity : 61 %  
Regulation 1 : FCC Part15C § 15. 207 (0.15-30MHz)  
Regulation 2 : None

  
Engineer : Hiroka Umeyama

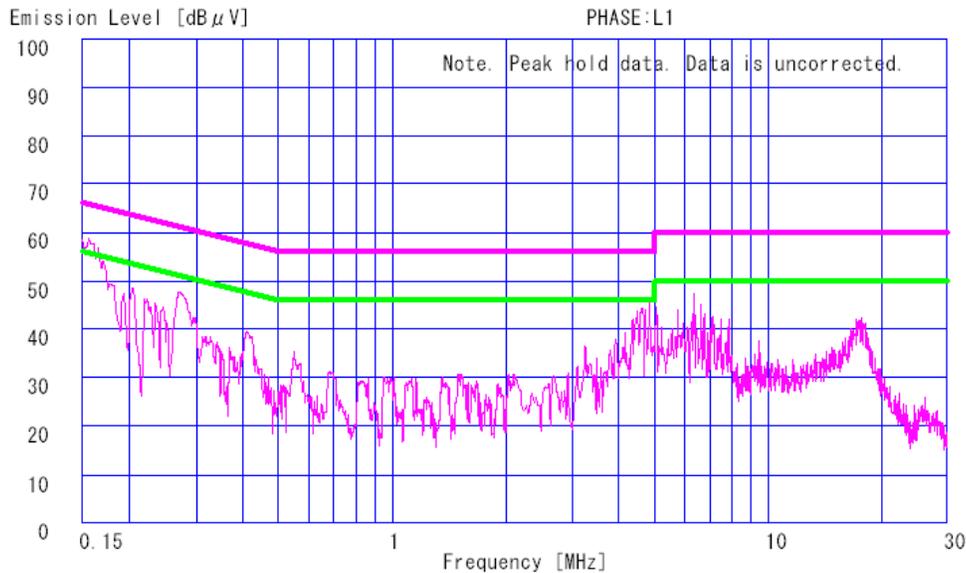
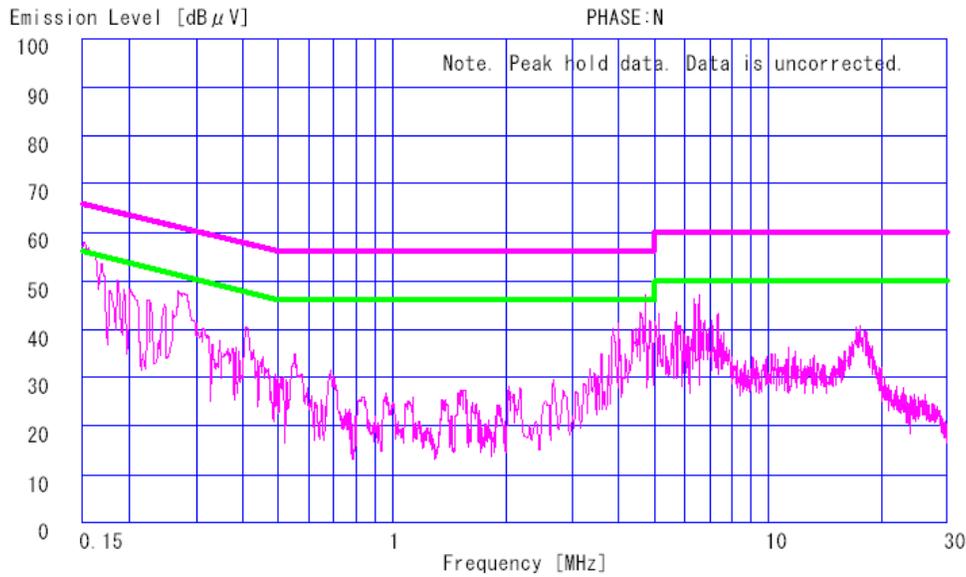


### DATA OF CONDUCTION TEST CHART

UL Apex Co., Ltd. Head Office EMC Lab.  
No.2 Semi Anechoic Chamber  
Report No. : 23LE0006-H0

Applicant : Sony Corp.  
Kind of Equipment : Notebook Personal Computer  
Model No. : PCG-492L  
Serial No. : DVT25  
Power : AC120V/60Hz  
Mode : Sub-Antenna, OFDM, 64QAM, 54Mbps  
Remarks : Tx (CH11:2462MHz)  
Date : 7/19/2003  
Phase : Single Phase  
Temperature : 26 °C  
Humidity : 61 %  
Regulation 1 : FCC Part15C § 15.207 (0.15-30MHz)  
Regulation 2 : None

  
Engineer : Hiroka Umeyama

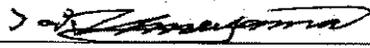


## DATA OF 6dB BANDWIDTH

UL Apex Co., Ltd.  
Head Office EMC Lab. No.3 Measurement room

Company : Sony Corp.  
Equipment : Notebook Personal Computer  
Model : PCG-492L  
Sample No. : DVT26  
Power : AC120V/60Hz  
Mode : Transmitting (IEEE 802.11b/g) Burst Frame mode  
FCC ID : AK8PCG492L  
IC No. : 409B-PCG492L

REPORT NO : 23LE0006-HO  
REGULATION : Fcc Part15 Subpart C 15.247(a)  
TEST DISTANCE : -  
DATE : 07/15/2003  
TEMPERATURE : 25deg.C  
HUMIDITY : 60%

  
ENGINEER : Hiroka Umeyama

Main Antenna , CCK , QPSK , 11b 11Mbps

CH	FREQ [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low(1)	2412.0	12.4	500.0
Mid(6)	2437.0	12.4	500.0
High(11)	2462.0	12.8	500.0

Sub Antenna , CCK , QPSK , 11b 11Mbps

CH	FREQ [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low(1)	2412.0	10.8	500.0
Mid(6)	2437.0	9.9	500.0
High(11)	2462.0	9.5	500.0

Main Antenna , OFDM , 64QAM , 11g 54Mbps

CH	FREQ [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low(1)	2412.0	16.5	500.0
Mid(6)	2437.0	16.5	500.0
High(11)	2462.0	16.5	500.0

Sub Antenna , OFDM , 64QAM , 11g 54Mbps

CH	FREQ [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low(1)	2412.0	16.5	500.0
Mid(6)	2437.0	16.5	500.0
High(11)	2462.0	16.5	500.0

**UL Apex Co., Ltd.**  
**EMC Head Office Division.**  
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
Telephone : +81 596 24 8116  
Facsimile : +81 596 24 8124