



EMI TEST REPORT

Test Report No.: 26CE0112-HO-1

Applicant : Sony Corporation
Type of Equipment : Hard Disk Drive
Model No. : VGP-UHDP04
Test standard : FCC Part 15 Subpart C : 2005
Section 15.207 and 15.225
FCC ID : AK8VGPUHDP04
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.

Date of test: October 31, 2005

Tested by:

Kenichi Adachi
EMC Services

Approved by :

Hironobu Shimoji
Group Leader of
EMC Services

UL Apex Co., Ltd.

Head Office EMC Lab.

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

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MF060b(01.06.05)

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SECTION 1: Client information

Company Name : Sony Corporation
Brand or Trade name : SONY
Address : 6-7-35 Kitashinagawa, Shinagawa-ku, Tokyo 141-0001 Japan
Telephone Number : +81-3-5795-8716
Facsimile Number : +81-3-5795-8981
Contact Person : Takumi Ozawa

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

2.1 Identification of E.U.T.

Type of Equipment : Hard Disk Drive
Model No. : VGP-UHDP04
Serial No. : DVT-055
Rating : DC 5V (PC AC-Adapter: AC 120V / 60Hz)
Country of Manufacture : Japan
Receipt Date of Sample : October 31, 2005
Condition of EUT : Engineering prototype
(Not for Sale: This sample is equivalent to mass-produced items.)

2.2 Product Description

Model No: VGP-UHDP04 is the Hard Disk Drive
The clock frequency of EUT is 6MHz, 13.56MHz, 20MHz, and 24 MHz

Equipment Type : Transceiver
Frequency of Operation : 13.56 MHz
Type of modulation : ASK
Power control : No
Antenna Type : Loop Antenna
Operating Temperature : +5 to 40 deg. C.

FCC 15.31 (e)

The supplied voltage of DC5V is converted to DC3.3V in the EUT and the stable voltage of DC3.3V is supplied to RF part.
Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C : 2005

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.225 Operation within the band 13.110-14.010MHz

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted Emission	<FCC>ANSI C63.4:2003 7. AC powerline conducted emission measurements <IC>RSS-Gen 7.2.2	<FCC>Section 15.207 <IC>RSS-Gen 7.2.2	-	N/A	5.9dB (0.15276MHz, QP, L)	Complied
2	Electric Field Strength of Fundamental Emission	<FCC>ANSI C63.4:2003 13. Measurement of intentional radiators <IC>RSS-Gen 4.6	<FCC>Section 15.225(a) <IC>RSS-210 A2.6	Radiated	N/A	45.0dB (14.01000MHz, QP)	Complied
3	Spectrum Mask	<FCC>ANSI C63.4:2003 13. Measurement of intentional radiators <IC>RSS-Gen 4.7	<FCC>Section 15.225(a)(b)(c)(d) <IC>RSS-210 A2.6	Radiated	N/A		Complied
4	-20dB Bandwidth	<FCC>ANSI C63.4:2003 13. Measurement of intentional radiators <IC>-	<FCC>Section15.21 5(c) <IC>-	Radiated	N/A	N/A	N/A
5	Electric Field Strength of Spurious Emission	<FCC>ANSI C63.4:2003 13. Measurement of intentional radiators <IC>RSS-Gen 4.7	<FCC>Section15.20 9 and 15.225 (d) <IC>RSS-210 A2.6	Radiated	N/A	6.2dB (528.092MHz, QP, Vert.)	Complied
6	Frequency Tolerance	<FCC>ANSI C63.4:2003 13. Measurement of intentional radiators <IC>RSS-Gen 4.5	<FCC>Section15.22 5 (e) <IC>RSS-210 A2.6	Radiated	N/A	See data	Complied

Note: UL Apex's EMI Work Procedures No.QPM05 and QPM15.

*These tests were performed without any deviations from test procedure except for additions or exclusions

3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	<IC>RSS-Gen 4.4.1	<IC>RSS-Gen 4.4.1	Radiated	N/A	N/A	N/A

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3.4 Uncertainty

Conducted Emission

The measurement uncertainty (with a 95% confidence level) for this test is $\pm 1.3\text{dB}$.
The data listed in this test report has enough margin, more than the site margin.

Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test using Loop antenna is $\pm 1.9\text{dB}(3\text{m})/\pm 1.8\text{dB}(10\text{m})$.
The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is $\pm 4.5\text{dB}(3\text{m})/\pm 4.7\text{dB}(10\text{m})$.
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is $\pm 5.2\text{dB}(3\text{m})/\pm 3.8\text{dB}(10\text{m})$.
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is $\pm 6.6\text{dB}$.
The data listed in this test report has enough margin, more than the site margin.

Other test except Conducted Emission and Spurious Emission (Radiated)

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

3.5 Confirmation

UL Apex Co., Ltd. hereby confirms that E.U.T., in the configuration tested, complies with the specifications
FCC Part 15 Subpart C: 2005 Section 15.225.

3.6 Test Location

UL Apex Co., Ltd. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
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	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	IC4247A	19.2 x 11.2 x 7.7m	7.0 x 6.0m	Preparation room
No.2 semi-anechoic chamber	846015	IC4247A-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.4 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1 and No.2 semi-anechoic and No.3 shielded room.

3.7 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

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

4.1 Operating Modes

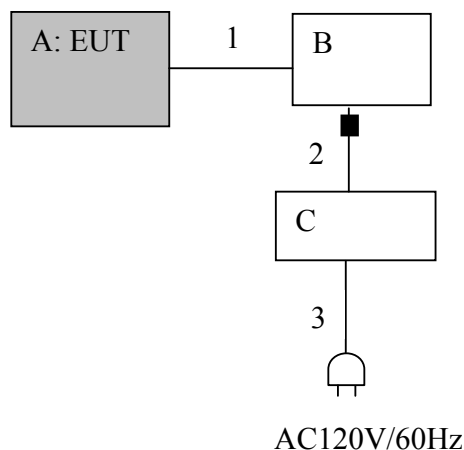
The EUT was operated in a manner similar to typical use during the tests.

The mode used for test: Communication mode (Transmitting) without Wireless Key

[Remarks]

1. Test software are designed and set so that carrier level and modulation remain same regardless of Wireless Key.
2. Power level was checked with Wireless key and without Wireless Key, and the level was same in both cases. Therefore, all the were performed without Wireless Key
3. The carrier frequency 13.56MHz was excluded for Conducted Emission test.

4.2 Configuration and peripherals



■ : Standard Ferrite Core

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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID	Remarks
A	Hard Disk Drive	VGP-UHDP04	DVT-055	SONY	AK8VGPUHDP04	EUT
B	Note PC	PCG-351L	UAW-21	SONY	DoC	-
C	AC Adapter	PCGA-AC16V6	1168188	SONY	Verification	-

List of cables used

No.	Name	Length (m)	Shield
1	USB Cable	1.0	Y
2	DC Cable	1.8	Y
2	AC Cable	0.7	N

SECTION 5: Conducted emission

5.1 Operating environment

Test place : No.1 semi anechoic chamber.
Temperature : See data
Humidity : See data

5.2 Test configuration

EUT was placed on a platform of nominal size, 0.5 m by 1.0 m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT and its peripherals was aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from LISN/AMN and excess AC cable was bundled in center. I/O 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/ an AMN to the input power source. All unused 50ohm connectors of the LISN/ AMN 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 horizontal conducting plane 4.0 x 4.0m and a vertical conducting plane 2.0 x 2.0m in a No.2 semi Anechoic Chamber. A drawing of the set up is shown in the photos of APPENDIX 1.

5.3 Test conditions

Frequency range : 0.15MHz – 30MHz
EUT position : Table top
EUT operation mode : Communication mode (Transmitting) without Wireless Key

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT in the semi Anechoic Chamber. The EUT was connected to a Line Impedance Stabilization Network (LISN)/ Artificial Mains Network (AMN). An overview sweep with peak detection has been performed. The measurements had been performed with a quasi-peak detector and if required, with an average detector. The conducted emission measurements were made with the following detector function of the test receiver.

Detector Type : QP and AV
IF Bandwidth : 9kHz

Test result: Pass

SECTION 6: Radiated emission (Fundamental , Spurious Emission and Spectrum Mask)

6.1 Operating environment

Test place : No.1 semi anechoic chamber.
 Temperature : See data
 Humidity : See data

6.2 Test Procedure

The Radiated Electric Field Strength intensity has been measured on No.1 semi anechoic chamber with a ground plane and at a distance of 3m.

Frequency : From 9kHz to 30MHz at distance 3m

The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

After pre-check with each antenna angle 0deg. , 45deg. and 90deg, measurement was performed with the worst 0 deg angle.

Frequency : From 30MHz to 1GHz at distance 3m

The measuring antenna height was varied between 1 and 4m 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.

Measurements were performed with a QP, PK, and AV detector.

The radiated emission measurements were made with the following detector function of the test receiver.

	From 9kHz to 90kHz and From 110kHz to 150kHz	From 90kHz to 110kHz	From 150kHz to 490kHz	From 490kHz to 30MHz	From 30MHz to 1GHz
Detector Type	PK/AV	QP	PK/AV	QP	QP
IF Bandwidth	200Hz	200Hz	9kHz	9kHz	120kHz

* Part 15 Section 15.31 (f)(2) (9kHz-30MHz)

9kHz – 490kHz [Limit at 3m]=[Limit at 300m]-40log (3[m]/300[m])

490kHz – 30MHz[Limit at 3m]=[Limit at 30m]-40log (3[m]/30[m])

Test result: Pass

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SECTION 7: -20dB Bandwidth

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.

Test data	: APPENDIX 3
Test result	: Pass

SECTION 8: 99% Occupied Bandwidth

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.

Test data	: APPENDIX 3
Test result	: Pass

SECTION 9: Frequency Tolerance

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.

Test data	: APPENDIX 3
Test result	: Pass

APPENDIX 1: Photographs of test setup

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APPENDIX 2: 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 / CE	2004/11/13 * 12
MLPA-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	RE	2004/12/10 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/10/10 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2005/10/14 * 12
MCC-31	Coaxial cable	ULApex	-	ME	2005/06/02 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	RE	2004/12/16 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ES140	RE / CE /ME	2004/11/12 * 12
MCC-01	Coaxial Cable 0.1-3000MHz	Suhner/storm/Agilent/TSJ	-	RE	2004/12/19 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE/ME	2005/05/24 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2004/11/10 * 12
MCH-01	Temperature and Humidity Chamber	Tabai Espec	PL-2KP	FT	2004/12/20 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	FT	2005/09/16 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/Agilent/TSJ	-	ME/CE	2004/12/24 * 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 above 30MHz
FT: Frequency tolerance
ME: Radiated emission below 30MHz

APPENDIX 3: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

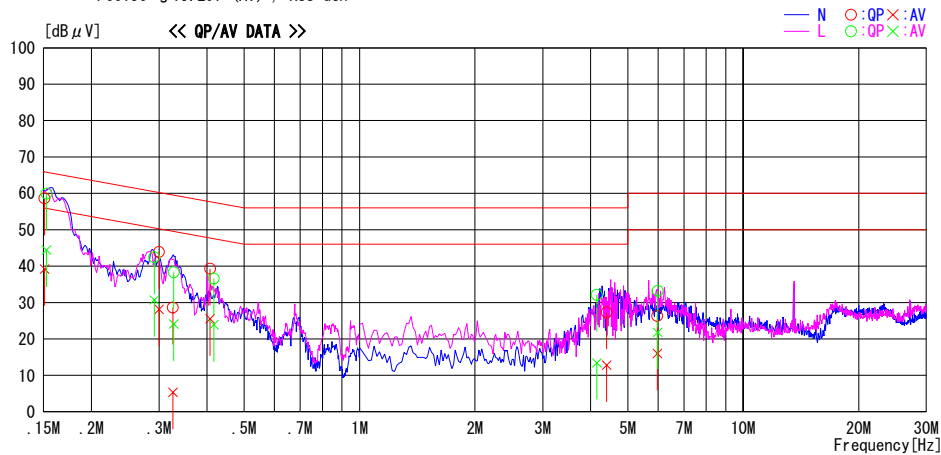
UL Apex Co., Ltd. Head Office EMC Lab. No. 1 Semi Anechoic Chamber
Date : 2005/10/31 11:31:51

Applicant : Sony Corporation
Kind of EUT : Hard Disk Drive
Model No. : VGP-UHDP04
Serial No. : DVT-055

Report No. : 26CE0112-HO
Power : DC5V (PC AC Adapter:AC120/60Hz)
Temp./Humi. : 22deg.C / 41%
Operator : Kenichi Adachi

Mode / Remarks : Transmitting 13.56MHz + HDD RW, with PC AC Adapter

LIMIT : FCC15C § 15.207 (QP) / RSS-Gen
FCC15C § 15.207 (AV) / RSS-Gen



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase
	QP [dB μ V]	AV [dB μ V]		QP [dB μ V]	AV [dB μ V]	QP [dB μ V]	AV [dB μ V]	QP [dB]	AV [dB]	
0.15105	58.3	38.9	0.3	58.6	39.2	65.9	55.9	7.3	16.7	N
0.30026	43.5	27.7	0.4	43.9	28.1	60.2	50.2	16.3	22.1	N
0.32629	28.2	4.9	0.4	28.6	5.3	59.5	49.5	30.9	44.2	N
0.40769	39.0	25.2	0.3	39.3	25.5	57.7	47.7	18.4	22.2	N
4.40371	26.3	11.8	1.0	27.3	12.8	56.0	46.0	28.7	33.2	N
5.97290	25.1	14.8	1.2	26.3	16.0	60.0	50.0	33.7	34.0	N
0.15276	59.6	44.1	0.3	59.9	44.4	65.8	55.8	5.9	11.4	L
0.29147	42.0	30.3	0.4	42.4	30.7	60.5	50.5	18.1	19.8	L
0.32795	37.9	23.7	0.4	38.3	24.1	59.5	49.5	21.2	25.4	L
0.41697	36.3	23.6	0.3	36.6	23.9	57.5	47.5	20.9	23.6	L
4.15174	31.2	12.5	0.9	32.1	13.4	56.0	46.0	23.9	32.6	L
5.98428	32.0	20.6	1.2	33.2	21.8	60.0	50.0	26.8	28.2	L

CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCULATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Radiated Emission (Fundamental Emission, Spectrum Mask, Spurious Emission:below 30MHz)

DATA OF MAGNETIC RADIATED EMISSION TEST

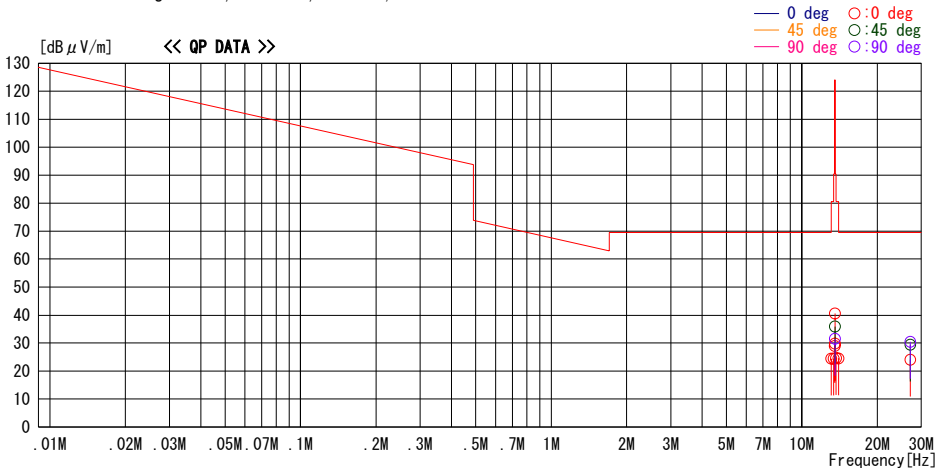
UL Apex Co.,LTD. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2005/10/31 09:12:42

Applicant : Sony Corporation
Kind of EUT : Hard Disk Drive
Model No. : VGP-UHDP04
Serial No. : DVT-055

Report No. : 26CE112-H0
Power : DC 5V (PC AC-Adapter:AC120V/60Hz)
Temp./ Humi. : 20deg. C / 46%
Operator : Kenichi Adachi

Mode / Remarks : Transmitting 13.56MHz + HDD RW

LIMIT : FCC15C § 15.225 / RSS-Gen / RSS-210, 3m



Freq.	Reading	DET	Ant.Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dB μ V]		[dB/m]	[dB]	[dB]	[dB μ V/m]	[dB μ V/m]	[dB]		[deg]	
13.11000	30.9	QP	20.0	1.4	27.9	24.4	69.5	45.1	0deg	194	
13.41000	30.9	QP	20.0	1.4	27.9	24.4	80.5	56.1	0deg	194	
13.55300	35.4	QP	20.0	1.4	27.9	28.9	90.5	61.6	0deg	194	
13.55997	42.2	QP	20.0	1.5	27.9	35.8	124.0	88.2	45deg	188	carrier
13.56018	47.0	QP	20.0	1.5	27.9	40.6	124.0	83.4	0deg	194	carrier
13.56074	37.9	QP	20.0	1.5	27.9	31.5	124.0	92.5	90deg	357	carrier
13.56700	36.2	QP	20.0	1.5	27.9	29.8	90.5	60.7	0deg	194	
13.71000	31.0	QP	20.0	1.5	27.9	24.6	80.5	55.9	0deg	194	
14.01000	30.9	QP	20.0	1.5	27.9	24.5	69.5	45.0	0deg	194	
27.12000	36.4	QP	19.9	2.1	28.0	30.4	69.5	39.1	90deg	315	
27.12030	30.0	QP	19.9	2.1	28.0	24.0	69.5	45.5	0deg	141	
27.12059	35.4	QP	19.9	2.1	28.0	29.4	69.5	40.1	45deg	274	

CHART : WITH FACTOR ANT TYPE : LOOP
CALCULATION : READING + ANT FACTOR + LOSS (CABLE + ATTEN. -AMP.)

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Radiated Emission (Spurious Emission: above 30MHz) DATA OF RADIATED EMISSION TEST

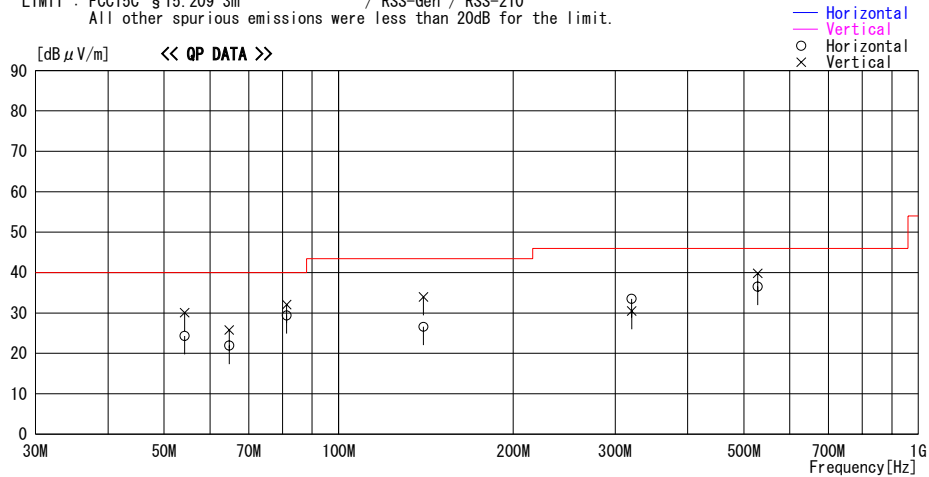
UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2005/10/31 10:23:59

Applicant : Sony Corporation
Kind of EUT : Hard Disk Drive
Model No. : VGP-UHDP04
Serial No. : DVT-055

Report No. : 26CE112-HO
Power : DC 5V (PC AC-Adapter:AC120V/60Hz)
Temp./Humi. : 21deg. C / 43%
Operator : Kenichi Adachi

Mode / Remarks : Transmitting 13.56MHz + HDD RW

LIMIT : FCC15C §15.209 3m / RSS-Gen / RSS-210
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss & Gain [dB]						
54.234	35.1	QP	9.7	-20.5	24.3	360	381	Hori.	40.0	15.7
54.235	40.9	QP	9.7	-20.5	30.1	88	100	Vert.	40.0	9.9
64.789	34.5	QP	7.8	-20.4	21.9	360	315	Hori.	40.0	18.1
64.747	38.4	QP	7.8	-20.4	25.8	162	100	Vert.	40.0	14.2
81.355	45.1	QP	7.1	-20.1	32.1	71	107	Vert.	40.0	7.9
81.350	42.4	QP	7.1	-20.1	29.4	155	247	Hori.	40.0	10.6
139.990	31.0	QP	14.7	-19.1	26.6	209	238	Hori.	43.5	16.9
139.997	38.4	QP	14.7	-19.1	34.0	205	100	Vert.	43.5	9.5
320.039	35.7	QP	14.9	-17.1	33.5	123	100	Hori.	46.0	12.5
320.089	32.7	QP	14.9	-17.1	30.5	360	100	Vert.	46.0	15.5
528.087	35.5	QP	18.2	-17.2	36.5	35	155	Hori.	46.0	9.5
528.092	38.8	QP	18.2	-17.2	39.8	173	101	Vert.	46.0	6.2

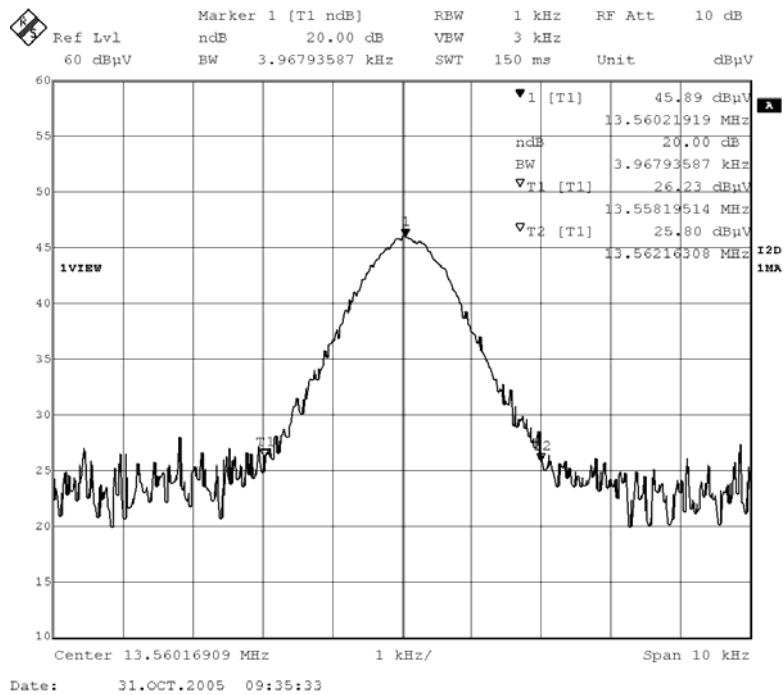
CHART: WITH FACTOR ANT TYPE : -30MHz LOOP, 30-300MHz BICONICAL, 300MHz-1000MHz Dipole, 1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - AMP. GAIN

-20dB Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No1 Semi Anechoic Chamb

COMPANY	: Sony Corporation	REPORT NO.	: 26CE0112-HO
EQUIPMENT	: Hard Disk Drive	REGULATION	: FCC 15.215(c)
MODEL	: VGP-UHDP04	TEST DISTANCE	: 3m
S/ N	: DVT-055	DATE	: October 31, 2005
POWER	: DC5V (PC AC-Adapter AC120V/60Hz)	TEMPERATURE	: 20deg.C
MODE	: Transmitting	HUMIDITY	: 46 %
		ENGINEER	: Kenichi Adachi

FREQ [MHz]	-20dB Bandwidth [kHz]
13.56	3.97



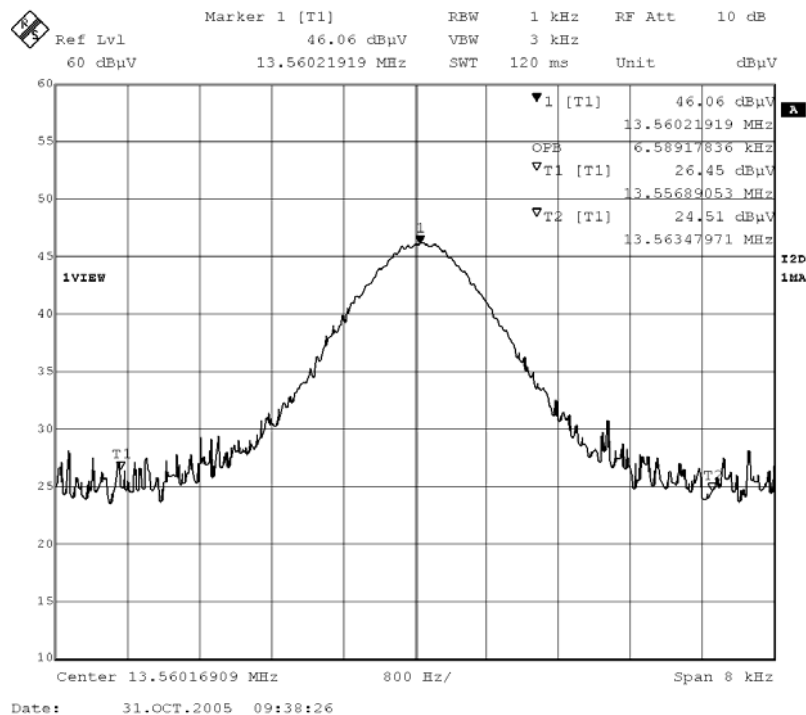
99% Occupied Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No1 Semi Anechoic Chamber

COMPANY : Sony Corporation
EQUIPMENT : Hard Disk Drive
MODEL : VGP-UHDP04
S/ N : DVT-055
POWER : DC5V (PC AC-Adapter AC120V/60Hz)
MODE : Transmitting

REPORT NO. : 26CE0112-HO
REGULATION : RSS-Gen
TEST DISTANCE : 3m
DATE : October 31, 2005
TEMPERATURE : 20deg.C
HUMIDITY : 46 %
ENGINEER : Kenichi Adachi

FREQ [MHz]	99% Occpied Bandwidth [kHz]
13.56	6.59



Frequency Tolerance

UL Apex Co., Ltd.
Head Office EMC Lab. No3 Measurement Room

COMPANY	: Sony Corporation	REPORT NO.	: 26CE0112-HO
EQUIPMENT	: Hard Disk Drive	REGULATION	: FCC 15.225 / RSS-210 A2.6 2.6
MODEL	: VGP-UHDP04	TEST DISTANCE	: -
S/N	: DVT-055	DATE	: October 31, 2005
POWER	: DC 5V	TEMPERATURE	: 24deg.C
	: AC120V/60Hz (PC AC-Adapter)	HUMIDITY	: 40 %
MODE	: Transmitting	ENGINEER	: Kenichi Adachi

Test Condition	Test Timing	Measured freq [MHz]	Freq error [MHz]	Result [ppm]	Limit (+/-100ppm) [+/- ppm]	Margin [ppm]
T nom 20°C Vnom DC5V	Power on	13.56024778	0.00024778	18.27	100.00	81.73
	on 2min.	13.56024670	0.00024670	18.19	100.00	81.81
	on 5min.	13.56024677	0.00024677	18.20	100.00	81.80
	on 10min.	13.56024641	0.00024641	18.17	100.00	81.83
T min -20°C Vnom DC5V	Power on	13.56028850	0.00028850	21.28	100.00	78.72
	on 2min.	13.56029032	0.00029032	21.41	100.00	78.59
	on 5min.	13.56028610	0.00028610	21.10	100.00	78.90
	on 10min.	13.56027704	0.00027704	20.43	100.00	79.57
T max 50°C Vnom DC5V	Power on	13.56020597	0.00020596	15.19	100.00	84.81
	on 2min.	13.56019196	0.00019196	14.16	100.00	85.84
	on 5min.	13.56018077	0.00018077	13.33	100.00	86.67
	on 10min.	13.56017172	0.00017172	12.66	100.00	87.34

Test Condition	Test Timing	Measured freq [MHz]	Freq error [MHz]	Result [ppm]	Limit (+/-100ppm) [+/- ppm]	Margin [ppm]
T nom 20°C Vnom AC120V	Power on	13.56024778	0.00024778	18.27	100.00	81.73
	on 2min.	13.56024670	0.00024670	18.19	100.00	81.81
	on 5min.	13.56024677	0.00024677	18.20	100.00	81.80
	on 10min.	13.56024641	0.00024641	18.17	100.00	81.83
T nom 20°C Vmin 85% (AC102V)	Power on	13.56024858	0.00024858	18.33	100.00	81.67
	on 2min.	13.56024739	0.00024738	18.24	100.00	81.76
	on 5min.	13.56024625	0.00024625	18.16	100.00	81.84
	on 10min.	13.56024595	0.00024595	18.14	100.00	81.86
T nom 20°C Vmax 115% (AC138V)	Power on	13.56024809	0.00024809	18.30	100.00	81.70
	on 2min.	13.56024785	0.00024785	18.28	100.00	81.72
	on 5min.	13.56024640	0.00024640	18.17	100.00	81.83
	on 10min.	13.56024626	0.00024626	18.16	100.00	81.84

Limit : 13.56 MHz +/- 0.01% (+/- 100ppm)
+/- 0.001356 MHz