

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test report file number : E01NR-049

Applicant : DioGraphy Inc.
Address : TechnoMart 30F, 546-4, Kuui-Dong, Kwangjin-Gu, Seoul, 143-721, Korea

Manufacturer : DioGraphy Inc.
Address : TechnoMart 30F, 546-4, Kuui-Dong, Kwangjin-Gu, Seoul, 143-721, Korea

Type of Equipment : USB FLASH DISK (Class B Computing Device Peripheral)

FCC ID : PXS01-31479-01

Model / Type No. : FDU-100A

Multiple Model/ Type No. : N/A

Serial number : N/A

Total page of Report : 11 pages (including this page)

Date of Incoming : July 02, 2001

Date of Issuing : November 19, 2001

SUMMARY

The equipment complies with the requirements of **FCC CFR 47 PART 15 SUBPART B, Class B.**

This test report contains only the results of a single test of the sample supplied for the examination.

It is not a general valid assessment of the features of the respective products of the mass-production.

Prepared by: 
G. W. Lee/ Assist. Chief Engineer

Reviewed by: 
Y. K. Kwon/ Chief Engineer

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FCC-003 (Rev.0)

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ONETECH

Testing & Evaluation Lab.

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1. VERIFICATION OF COMPLIANCE

-. APPLICANT : DioGraphy Inc.
 -. ADDRESS : TechnoMart 30F, 546-4, Kuui-Dong, Kwangjin-Gu, Seoul, 143-721, Korea
 -. CONTACT PERSON : Mr. Young-Hun, Kim/ H/W Team Manager
 -. TELEPHONE NO : +82-2-3424-5295
 -. FCC ID : PXS01-31479-01
 -. MODEL NO/NAME : FDU-100A
 -. SERIAL NUMBER : N/A
 -. DATE : November 19, 2001

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	USB FLASH DISK
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4/1992
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15, SECTION 15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

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2. GENERAL INFORMATION

2.1 Product Description

The DioGraphy Inc., Model FDU-100A (referred to as the EUT in this report) is a USB FLASH DISK that is connected the USB hub standard of personal computer. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	12 MHz on the Main Board
NUMBER OF LAYERS	Main Board: 2 Layers
EXTERNAL TERMINALS	USB Standard Port

Model Differences:

The difference(s) compared to the EUT is as follows: none

2.2 Related Submittal(s) / Grant(s)

Original submittal only

2.3 Test System Details

The model numbers for all the equipments that were used in the tested system is:

Model	Manufacturer	Description	Connected to
FDU-100A	DioGraphy Inc.	USB FLASH DISK (EUT)	PC
DCM	DEL Computer	PC	-
6550-23N	SONY	MONITOR	PC
OK-520	A4-TECH	MOUSE	PC
5123W	Behavior tech.	KEYBOARD	PC
2225C	HP	PRINTER	PC
020-0470	CARDINAL	MODEM	PC

2.4 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4/1992. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.

2.5 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Description details of test facilities were submitted to the Commission on This report shall not be reproduced except in full without our written approval. FCC-003 (Rev.0)

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3. SYSTEM TEST CONFIGURATION

3.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
MAIN LOGIC B'D	DioGraphy Inc.	N/A	N/A

3.2 EUT exercise Software

After connecting the EUT to a personal computer, data were continuously read and written from the HDD of the personal computer to the EUT.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
USB FLASH DISK (EUT)	N/A	N/A	-
PC	N	-	1.5(P)
MONITOR	N	Y	1.5(P), 1.2(D)
KEYBOARD	N/A	N	1.2(D)
MOUSE	N/A	N	1.2(D)
MODEM	N	Y	1.5(P), 1.5(D)
PRINTER	N	Y	1.5(P), 1.5(D)

* The marked "(P)" means the Power Cable.

3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
USB FLASH DISK (EUT)	N	N/A	Y	PC END
PC	-	-	-	-
MONITOR	Y	PC END	Y	PC END
KEYBOARD	N	N/A	Y	PC END
MOUSE	N	N/A	Y	PC END
MODEM	N	N/A	Y	BOTH END



document property name.

PRINTER	N	N/A	Y	BOTH END
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3.5 Equipment Modifications

To achieve compliance to CLASS B levels, the following change(s) was made by ONETECH Corp. during compliance testing:

“There was no Modified items during EMI test”

3.6 Configuration of Test System

Line Conducted Test : The EUT was connected to PC and the power line of PC was connected to LISN. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4/1992 7.2.3 to determine the worse operating conditions.

Radiated Emission Test : Preliminary radiated emission test was conducted using the procedure in ANSI C63.4/1992 8.3.1.1 to determine the worse operating conditions. Final radiated emission test was conducted at 10 meters open area test site.

4. PRELIMINARY TEST

4.1 AC Power line Conducted Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Data were continuously read and write.	X

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Data were continuously read and write.	X

document property name.

5. FINAL RESULT OF MEASUREMENT

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level

5.1 Conducted Emission Test

Humidity Level : 52 % Temperature : 22°C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107
 Type of Test : CLASS B
 Result : PASSED BY -7.98 dB at 1.12 MHz

EUT : USB FLASH DISK Date: July 02, 2001
 Operating Condition : Data were continuously read and write.
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

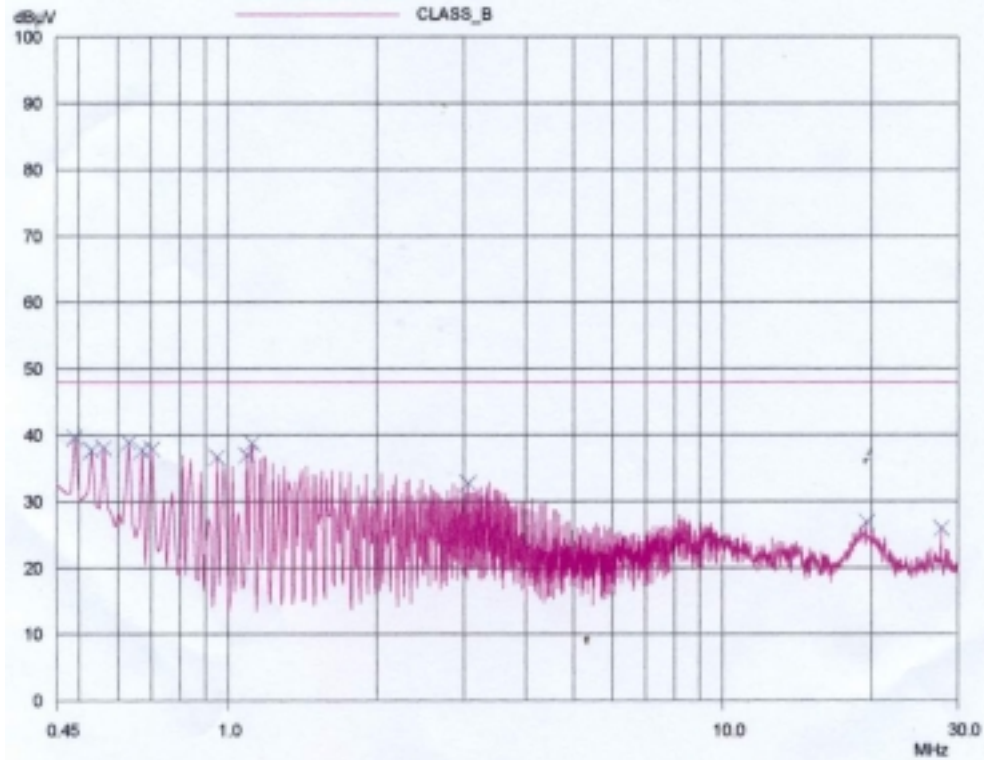
Power Line Conducted Emission			FCC CLASS B	
Frequency (MHz)	Amplitude (dBuV)	Conductor	Limit (dBuV)	Margin (dB)
0.49	39.62	HOT	48.00	-8.36
0.56	39.83	NEUTRAL	48.00	-8.17
0.63	39.06	NEUTRAL	48.00	-8.94
0.70	37.91	HOT	48.00	-10.09
1.12	40.02	NEUTRAL	48.00	-7.98
1.76	35.03	NEUTRAL	48.00	-12.97

Line Conducted Emission Tabulated Data

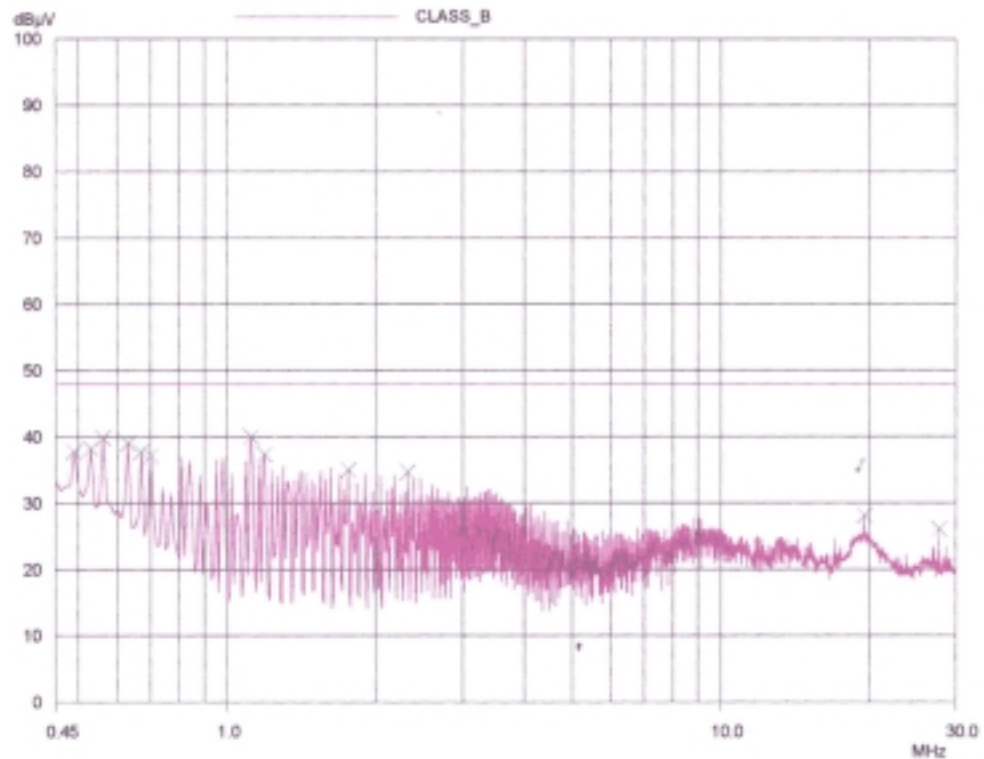

 Tested by: Young-Min Choi / Project Engineer



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HOT LINE



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NEUTRAL LINE

document property name.

5.2 Radiated Emission Test

The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level : 51 % Temperature : 23 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109
 Type of Test : CLASS B
 Result : PASSED BY -11.48 dB at 320.20 MHz

EUT : USB FLASH DISK Date: July 03, 2001
 Operating Condition : Data were continuously read and write.
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Distance : 3 Meter

Radiated Emissions		Ant	Correction Factors		Total	FCC CLASS B	
Freq. (MHz)	Amp. (dBuV)	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
48.00	13.80	V	10.85	0.91	25.56	40.00	-14.44
72.00	14.30	V	7.40	1.00	22.70	40.00	-17.30
108.00	14.90	H	13.53	1.19	29.62	43.50	-13.88
120.00	12.50	H	13.19	1.23	26.92	43.50	-16.58
132.00	12.10	H	13.13	1.27	26.50	43.50	-17.00
144.00	14.30	H	13.28	1.33	28.91	43.50	-14.59
239.80	18.40	V	11.35	1.78	31.53	46.00	-14.47
273.20	11.80	H	12.92	1.89	26.61	46.00	-19.39
320.20	18.10	V	14.30	2.12	34.52	46.00	-11.48
360.40	14.10	H	14.68	2.33	31.11	46.00	-14.89
431.80	10.30	H	16.08	2.50	28.88	46.00	-17.12
501.40	15.20	H	17.65	2.68	35.53	46.00	-10.47

Radiated Emissions Tabulated Data



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6. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+ Meter reading	(dBuV)
+ Cable Loss	(dB)
+ Antenna Factor (Loss)	(dB/meter)
= Corrected Reading	(dBuV/meter)
- Specification Limit	(dBuV/meter)
= dB Relative to Spec	(+/- dB)

document property name.

7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	OCT/01	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	APR/01	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3109A05456	APR/01	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	APR/01	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	APR/01	12MONTH	■
6.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	APR/01	12MONTH	■
7.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	APR/01	12MONTH	■
8.	LISN	EMCO	3825/2	9109-1867 9109-1869	JUL/01	12MONTH	■
9.	Computer System	HP	98581C	98543A	N/A	N/A	■
	Hard disk drive		9153C	CMC762Z9153	N/A	N/A	■
10.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
11.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
12.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
13.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■