

EMC TEST REPORT For FCC



Test Report No. : CTK03-F121
Date of Issue : December 8, 2003
FCC ID : ROTXFILE-DRIVE
Model/Type No. : XFILE-DRIVE
Kind of Product : USB DRIVE
Applicant : JUNGLIP ELECTRONICS & CONTENTS
Applicant Address : #16-3, Guei-Dong, Kwangjin-Gu, Seoul, Korea
Manufacturer : JUNGLIP ELECTRONICS & CONTENTS
Manufacturer Address : #16-3, Guei-Dong, Kwangjin-Gu, Seoul, Korea
Contact Person : DongSik Park (soft engineer)
Telephone : +82-2-446-6867
Received Date : December 2, 2003
Test period : Start: December 4, 2003 End: December 5, 2003
Test Results : **In Compliance** **Not in Compliance**

The test results presented in this report relate only to the object tested.

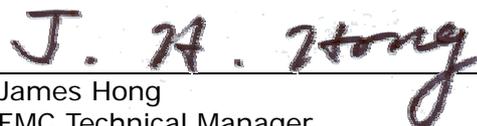
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Tested by



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EMC Test Engineer
Date: December 8, 2003

Reviewed by



James Hong
EMC Technical Manager
Date: December 8, 2003



REPORT REVISION HISTORY

Date	Revision	Page No
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1.0 General Product Description

1.0.1 Tested Equipment

- Unless otherwise indicated, all tests were conducted on Model XFILE-DRIVE.
- Tests performed on Model _____ were considered to be representative of Model(s) _____.

1.0.2 Equipment Size, Mobility and Identification

Dimensions: 78.5 by 19 by 9.7 mm inch
Mobility: Hand-Held Table-top Floor-standing
 -
Serial No.: Proto-type

1.0.3 Electrical Ratings

Input: Supplied by PC's USB port power
Output: Not applicable

1.0.4 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage: PC's USB port power
Frequency: Not applicable

1.0.5 Clock & Other Frequencies Utilized

12MHz(X-TAL), 48MHz(Clock)

1.1 Model Differences

Not applicable

1.2 Device Modifications

The following modifications were necessary for compliance:

Not applicable

1.3 EUT Configuration(s)

See Appendix A for individual test set-up configuration(s). The following peripheral devices and/or interface cables were connected during the measurement:

Peripheral Devices

Device	Manufacturer	Model No.	Serial No.	FCC ID or DoC
Personal Computer	Hewlett-Packard Company	PD1059P	-	DoC
Color Monitor	Samsung	PG17HS	P013H1DN301661	DoC
Printer	Seiko Epson	Stylus Color 460	BWCE136524	DoC
Keyboard (PS/2 type)	Samsung	SEM-DT35	33008109	DoC
Mouse (PS/2 type)	Samsung	OMS3CB	0303009873	DoC
Mouse (Serial type)	Microsoft	BASM1	4475951-20000	DoC

Cable Description

#	Description	Ferrite Core	Length (m)	Other Details
1	USB cable, Shielded	No	1.1	Between the EUT and PC
2	Mouse cable, Shielded	No	2.1	Serial type
3	Mouse cable, Shielded	No	1.8	PS/2 type
4	Keyboard cable, Shielded	No	1.5	PS/2 type
5	Monitor cable, Shielded	Yes	1.8	Between the PC and Monitor
6	AC power cable, Unshielded	No	1.8	Connect to AC power
7	AC power cable, Unshielded	No	1.8	Connect to AC power

1.4 Test Software

- Pinging
 Not applicable

1.5 EUT Operating Mode(s)

Equipment under test was operated during the measurement under the following conditions:

- Test program (H-Pattern) Test program (color bar)
 Standby Test program (customer specific)
 Practice operation : Read & Write (Copy & Delete between EUT & PC)

1.6 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.7 Test Facility

The measurement facility is located at 386-1, Ho-Dong, Yongin-City, Kyungki-Do, Korea 449-100. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.8 Measurement Procedure

Preliminary AC power line conducted emissions tests were performed shielded room. To find worst mode, several typical mode and typical cable position were tested. Final AC power line conducted emissions test was performed shielded room. (location is same as Preliminary test)

Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

Preliminary radiated emissions test were performed anechoic chamber (Distance of antenna and EUT was 3 m). To find worst mode, several typical mode and typical cable position were tested and peak level and frequency were recorded.

Final radiated emissions test was performed Open Area Test Site. Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

* Measurement procedures was In accordance with ANSI C63.4-1992 7.2.3, 7.2.4, 8.3.1.1, 8.3.1.2

1.9 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 and 10 meter Open Area Test Sites to perform FCC Part 15/18 measurements.	 93250
JAPAN	VCCI	10 meter Open Area Test Site and one conducted site.	 R-948, C-986
KOREA	MIC	EMI (CE, RE) EMS (ESD, Burst, RS, Surge, CS, Power-Frequency Susceptibility, Voltage Dips and Short Interruptions)	 No. 51, KR0025
International	KOLAS	EMC	
Europe	GLAS	EMC EN 55011, EN 55022, EN 55024, EN 61326, EN 50130-4, EN 50081-1, EN 50081-2, EN 50082-1, EN 50082-2, EN 61000-6-2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, EN 61000-3-2, EN 61000-3-3	 No.13000796-02

2.0 Emissions Test Regulations

The emissions tests were performed according to following regulations:

- EN 50081-1:1992
- EN 55011:1998 +A1:1999 Group 1 Group 2
 Class A Class B
- EN 55013:1990 +A12:1994 +A13:1996 +A14:1999
 EN 55013:2001
- EN 55014-1:1993 +A1:1997 +A2:1999 Household appliances and similar
 Portable tools
 Semiconductor devices
- EN 55014-1:2000
 EN 55014-2:1997
- EN 55015:1996 +A1:1997 +A2:1999
 EN 55015:2000
- EN 55020:1994 +A11:1996 +A13:1999 +A14:1999
 EN 55020:1994 +A11:1996 +A12:1999 +A13:1999 +A14:1999
- EN 55022:1994 +A1:1995 +A2:1997 Class A Class B
 EN 55022:1998 +A1:2000 Class A Class B
- EN 61000-3-2:1995 +A1:1998 +A2:1998
 EN 61000-3-2:1995 +A1:1998 +A2:1998 +A14:2000
 EN 61000-3-2:2000
 EN 61000-3-3:1995
- VCCI V-3/99.05 : 1999 Class A Class B
- FCC Part 15 Subpart B Class A Class B
- AS 3548 (1992) Class A Class B
- CISPR 22 (1997) Class A Class B

2.1 Conducted Voltage Emissions

Test Date

December 4, 2003

Test Location

EMI-CE: Shielded Room

Test Instruments

<input checked="" type="checkbox"/> Field Strength Meter	Rohde & Schwarz	ESHS30	828144/002
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Test Accessories

<input checked="" type="checkbox"/> LISN	EMCO	3825/2	9409-2246
<input checked="" type="checkbox"/> LISN	EMCO	3825/2	9607-2574
<input checked="" type="checkbox"/> Control PC	HP	Vectra 500	SG72000192

Frequency Range of Measurement

- 150 kHz to 30 MHz
 450 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- | | |
|---|--|
| <input checked="" type="checkbox"/> MET | minimum margin is 7.1 dBuV at 0.20 MHz (Average) |
| <input type="checkbox"/> NOT MET | limit exceeded by maximum of ____ dBuV at ____ MHz |
| <input type="checkbox"/> NOT APPLICABLE | |

Remarks

See Appendix A for test data.

2.2 Radiated Electric Field Emissions

Test Date

December 5, 2003

Test Location

- EMI-OATS: Testing was performed at a test distance of 10 m
 EMI-OATS: Testing was performed at a test distance of 3 m

Test Instruments

Field Strength Meter Rohde & Schwarz ESVS30 826638/008

Test Accessories

ULTRA Broadband Antenna Rohde & Schwarz HL562 361324/014
 Bi-conical Antenna EMCO 3110B 9607-2564
 Log-periodic Antenna EMCO 3146 9607-4567

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

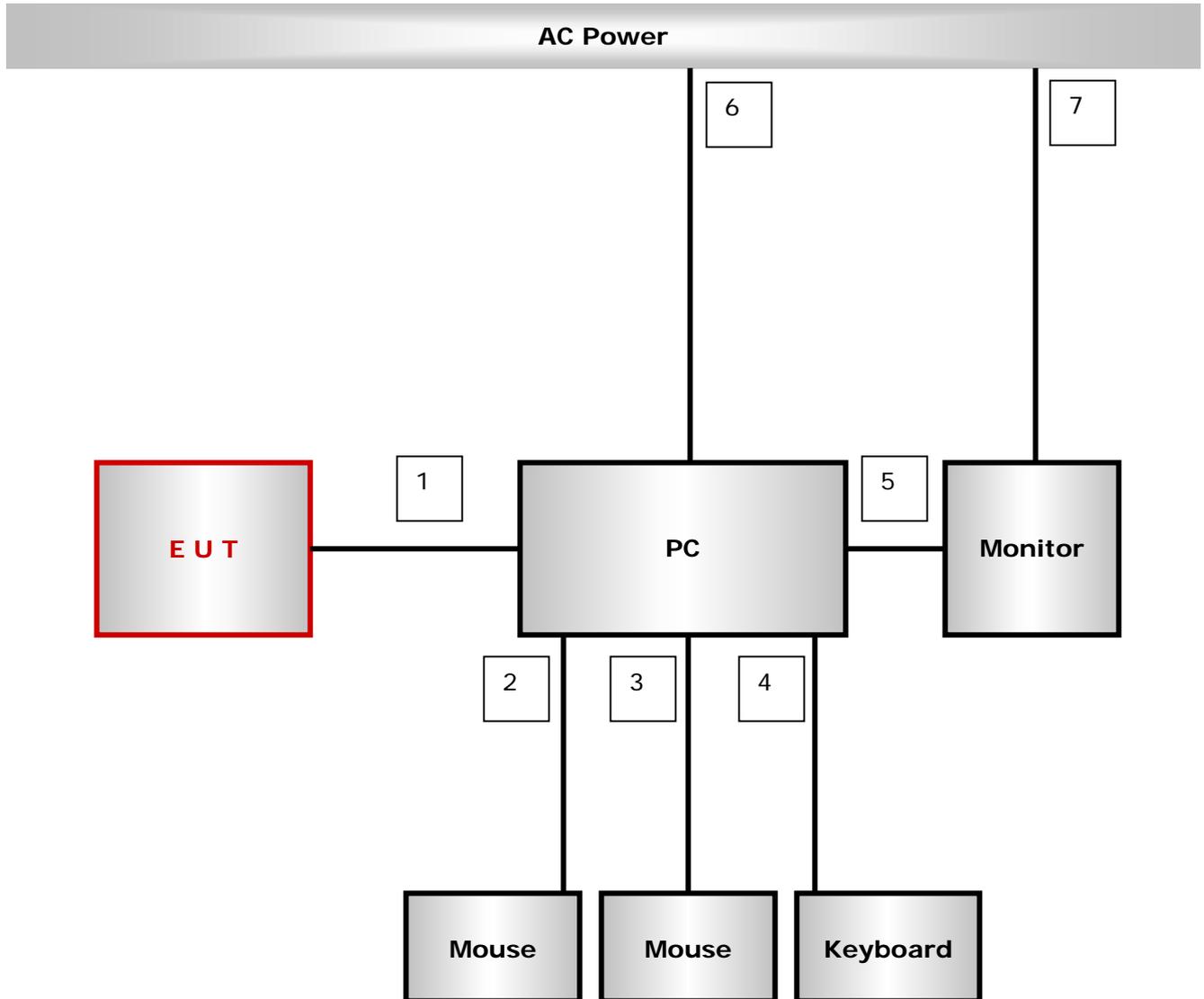
The requirements are:

- MET minimum margin is 4.3 dBuV/m at 504.82 MHz
 NOT MET limit exceeded by maximum of ____ dBuV/m at ____ MHz
 NOT APPLICABLE

Remarks

See Appendix A for test data

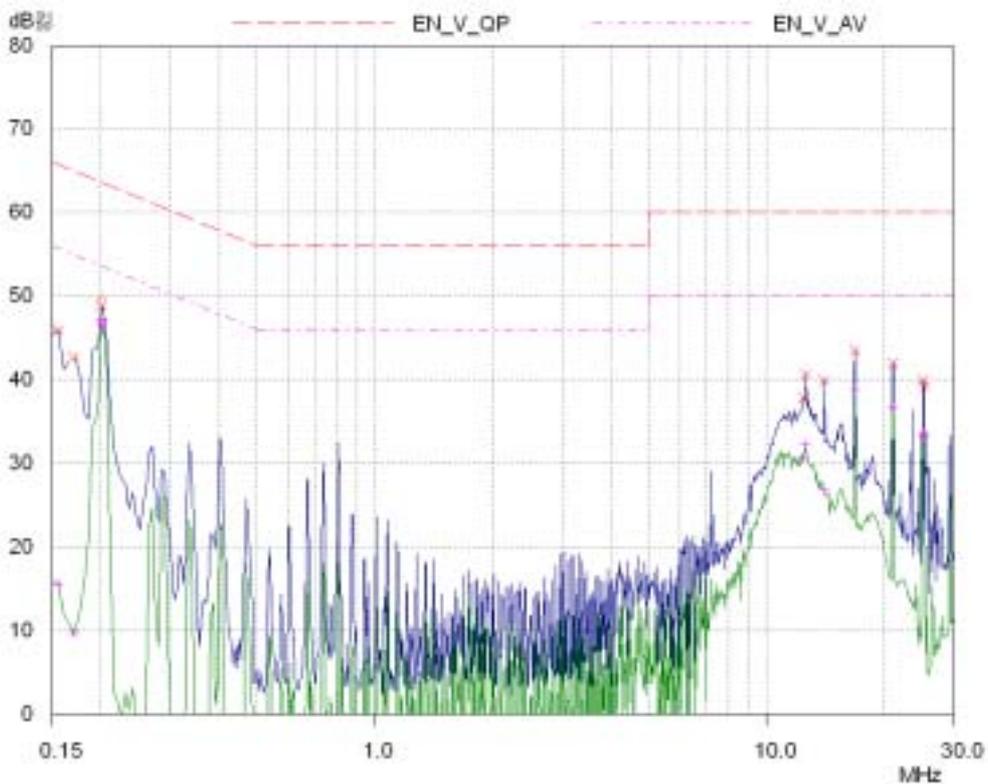
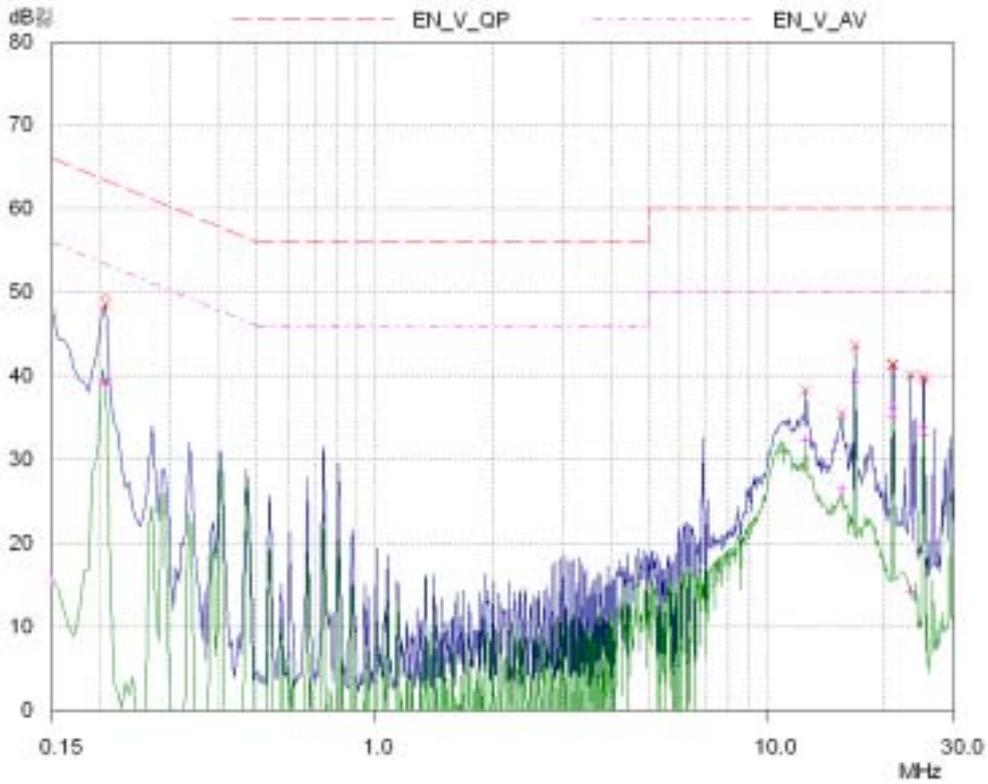
Configuration



APPENDIX A – TEST DATA

Conducted Voltage Emissions (Quasi-Peak reading)

Frequency [MHz]	Correction Factor		Line	Quasi-peak				Average			
	LISN	Cable		Limit	Reading	Result	Margin	Limit	Reading	Result	Margin
				[dBuV]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dB]
0.15	2.2	0.1	H	66.0	45.1	47.4	18.6	56.0	13.1	15.4	40.6
0.17	2.2	0.1	N	65.0	40.4	42.7	22.3	55.0	7.3	9.6	45.4
0.20	1.7	0.1	N	63.6	46.9	48.7	14.9	53.6	44.7	46.5	7.1
12.55	0.4	0.2	N	60.0	40.0	40.6	19.4	50.0	31.5	32.1	17.9
14.02	0.4	0.2	N	60.0	39.2	39.8	20.2	50.0	26.2	26.8	23.2
16.77	0.5	0.2	H	60.0	16.0	16.7	43.3	50.0	38.4	39.1	10.9
20.96	0.7	0.4	N	60.0	19.8	20.9	39.1	50.0	35.4	36.5	13.5
23.32	0.6	0.4	H	60.0	39.1	40.1	19.9	50.0	13.1	14.1	35.9
25.13	0.5	0.4	H	60.0	39.0	39.9	20.1	50.0	33.0	33.9	16.1
25.15	0.5	0.4	H	60.0	38.4	39.3	20.7	50.0	32.0	32.9	17.1





Radiated Electric Field Emissions (Quasi-Peak reading)

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
36.15	2.5	V	1.0	17.20	1.10	30.0	20.8	9.2
84.08	11.9	V	1.0	8.70	1.80	30.0	22.4	7.6
119.87	11.8	V	2.0	9.70	2.00	30.0	23.5	6.5
221.70	9.9	H	3.0	8.10	3.00	30.0	21.0	9.0
480.30	10.3	H	2.8	15.20	4.40	37.0	29.9	7.1
492.55	12.5	H	1.0	15.30	4.40	37.0	32.2	4.8
501.32	9.6	H	1.8	15.60	4.70	37.0	29.9	7.1
504.82	12.4	H	2.0	15.60	4.70	37.0	32.7	4.3
517.04	10.9	H	3.2	16.00	4.80	37.0	31.7	5.3
529.30	10.4	H	2.0	16.00	4.90	37.0	31.3	5.7