

**EMC TEST REPORT For FCC**

Test Report No. : CTK03-F045
Date of Issue : May 7, 2003
Model/Type No: : MemoRive USB
Kind of Product : USB Flash Memory Drive
Applicant : BMK Co.
Applicant Address : Room 201-2, #20-1, Banpo-1dong, Seocho-gu, Seoul, 137-041, Korea
Manufacturer : BMK Co.
Manufacturer Address : Room 201-2, #20-1, Banpo-1dong, Seocho-gu, Seoul, 137-041, Korea
Contact Person : Byung-Min Chung
Telephone : +82-2-535-0834
Received Date : April 28, 2003
Test period : Start: May 1, 2003 End: May 1, 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

Joon Pak
EMC Test Engineer
Date: May 7, 2003

Reviewed by

James Hong
EMC Technical Manager
Date: May 7, 2003



REPORT REVISION HISTORY

Date	Revision	Page No
May 7, 2003	(CTK03-F045) Issued	All

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1.0 General Product Description

1.0.1 Tested Equipment

Unless otherwise indicated, all tests were conducted on Model MemoRive USB.

Tests performed on Model _____ were considered to be representative of Model(s) _____.

1.0.2 Equipment Size, Mobility and Identification

Dimensions: 57.2 by 16.6 by 7.7 mm in
Mobility: Hand-Held Table-top Floor-standing
Serial No.: -

1.0.3 Electrical Ratings

Input: 4.75 – 5.25Vdc, 32-40mA
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: 120V
Frequency: 60Hz

1.0.5 Clock & Other Frequencies Utilized

12MHz

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
PC	Hewlett-packard	PD1068P	0000VP250579	DOC
Monitor	Samsung	PG17HS	P013H1N301661	DOC
Printer	SEIKO EPSON CORP	Stylus Color 460	BWCE136524	DOC
USB Mouse(1)	PANWEST TECIING CO., LTD	Cyber Beetle	PM1F184039583	DOC
USB Mouse(2)	PANWEST TECIING CO., LTD	Cyber Beetle	PM1F144009938	DOC
Serial Mouse	Microsoft	BASM1	4476266-20000	DOC
PS/2 Mouse	PANWEST TECIING CO., LTD	Cyber Beetle	PM1F144009915	DOC
PS/2 Keyboard	SAN HAWK TECIING CO., LTD	KB120	-	FCC TCB (D840902 MIC)
Headset(1)	CAMAC	CMK-C3	-	-
Headset(2)	CAMAC	CMK-C3	-	-

Cable Description

#	Description	Ferrited	Length (m)	Other Details
1	Printer Power Cable, Unshielded	No	1.8	Connect to AC Power
2	PC Power Cable, Unshielded	No	1.8	Connect to AC Power
3	Monitor Power Cable, Unshielded	No	1.8	Connect to AC Power
4	Printer Signal Cable, Shielded	Yes	1.5	Between PC and Printer
5	PS/2 Keyboard Cable, Shielded	No	1.5	Connect to PC
6	PS/2 Mouse Cable, Shielded	No	1.5	Connect to PC
7	EUT Direct plug in	-	-	Connect to PC
8	USB Mouse(1) Cable, Shielded	No	1.5	Connect to PC
9	LAN Cable, Unshielded	No	3.0	Between PC and LAN
10	Monitor Signal Cable, Shielded	Yes	1.5	Between PC and Monitor
11	Headset(1) Cable, Unshielded	No	2.2	Connect to PC
12	Headset(2) Cable, Unshielded	No	2.2	Connect to PC
13	USB Mouse(2) Cable, Shielded	No	1.5	Connect to PC
14	Serial Mouse Cable, Shielded	No	2.0	Connect to PC
15	Line In Cable, Unshielded	No	1.5	Connect to PC

n/a = not available

1.4 Test Software

Pinging

1.5 EUT Operating Mode(s)

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

Test program (H-Pattern)
 Standby
 Practice operation

Test program (color bar)
 Test program (customer specific)



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.	FC 93250
JAPAN	VCCI	10 meter Open Area Test Site and one conducted site.	VCI R-948, C-986
KOREA	MIC	10 meter Open Area Test Site and EMS (ESD, RS, EFT/Burst, Surge)	MIC No. 51, KR0025
International	KOLAS	EMC	KOLAS No. 119
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	TÜV No.13000796-02



2.0 Emissions Test Regulations

The emissions tests were performed according to following regulations:

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



2.1 Conducted Voltage Emissions

Test Date

May 1, 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 type="checkbox"/> LISN	EMCO	3825/2	9206-1971
<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

<input checked="" type="checkbox"/> 150 kHz to 30 MHz
<input type="checkbox"/> 450 kHz to 30 MHz
<input type="checkbox"/> _____

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

<input checked="" type="checkbox"/> MET	minimum margin is 5.8 dBuV at 0.15 MHz
<input type="checkbox"/> NOT MET	limit exceeded by maximum of _____ dBuV at _____ MHz
<input type="checkbox"/> NOT APPLICABLE	

RemarksSee Appendix A for test data.



2.2 Radiated Electric Field Emissions

Test Date

May 1, 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

<input checked="" type="checkbox"/> ULTRA Broadband Antenna	Rohde & Schwarz	HL562	361324/014
<input type="checkbox"/> Biconical Antenna	Schwarzbeck	BBA9106	41-00201
<input type="checkbox"/> Biconical Antenna	EMCO	3110B	9607-2564
<input type="checkbox"/> 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

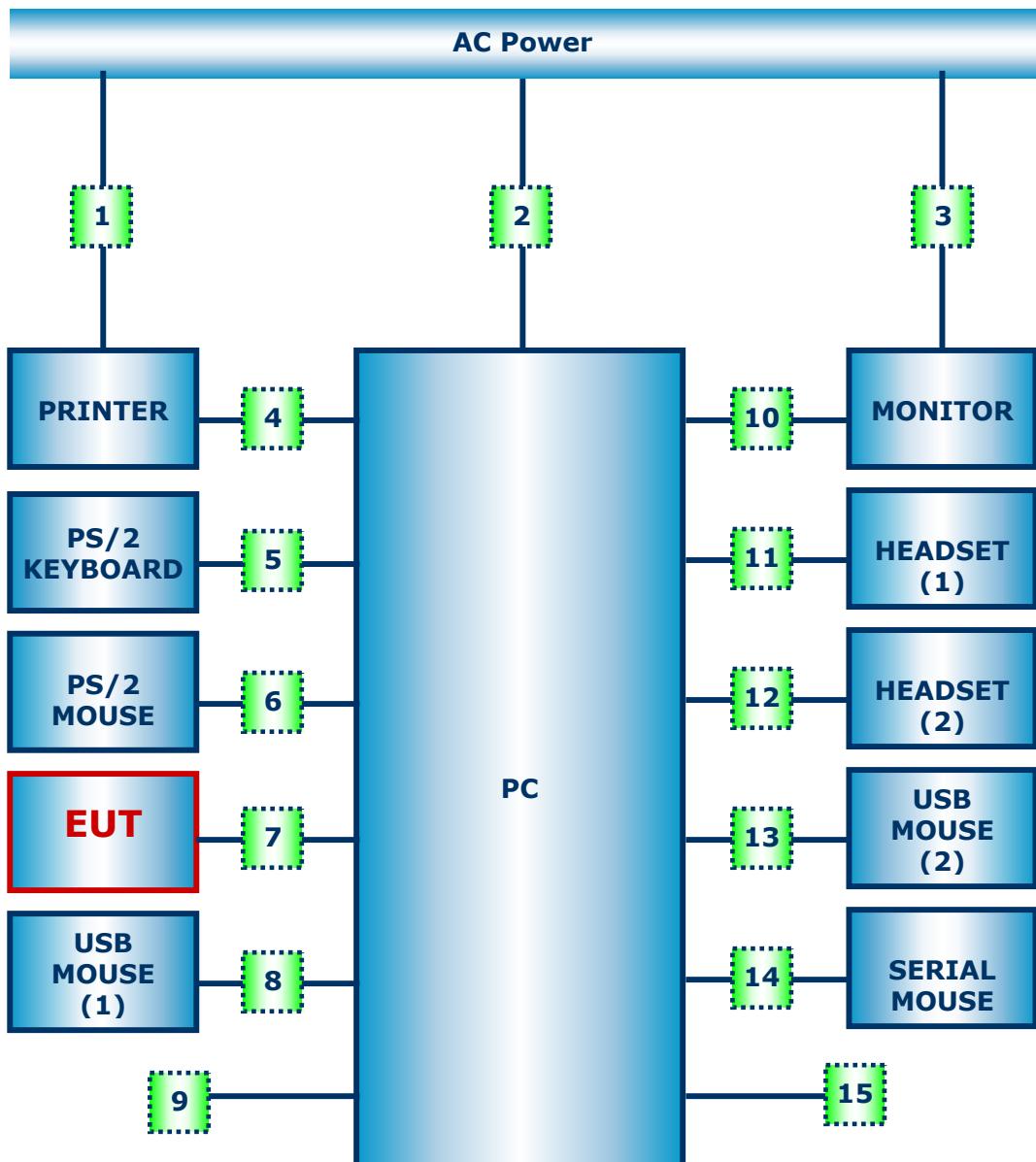
The requirements are:

- MET minimum margin is 3.2 dB (uV/m) at 130.62 MHz
- NOT MET limit exceeded by maximum of _____ dB(uV/m) at _____ MHz
- NOT APPLICABLE

RemarksSee Appendix A for test data



Configuration

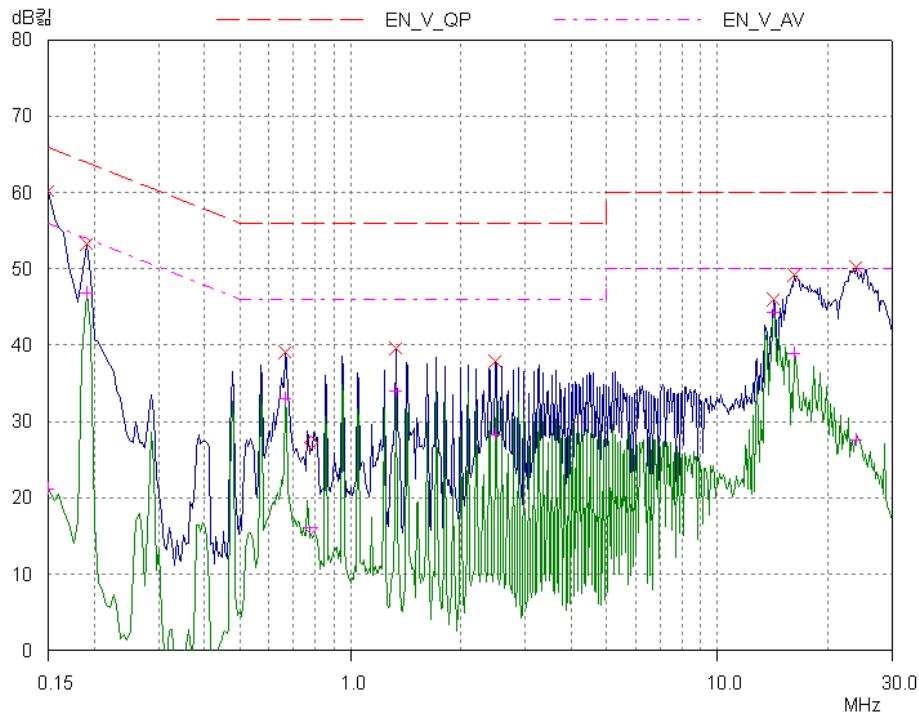
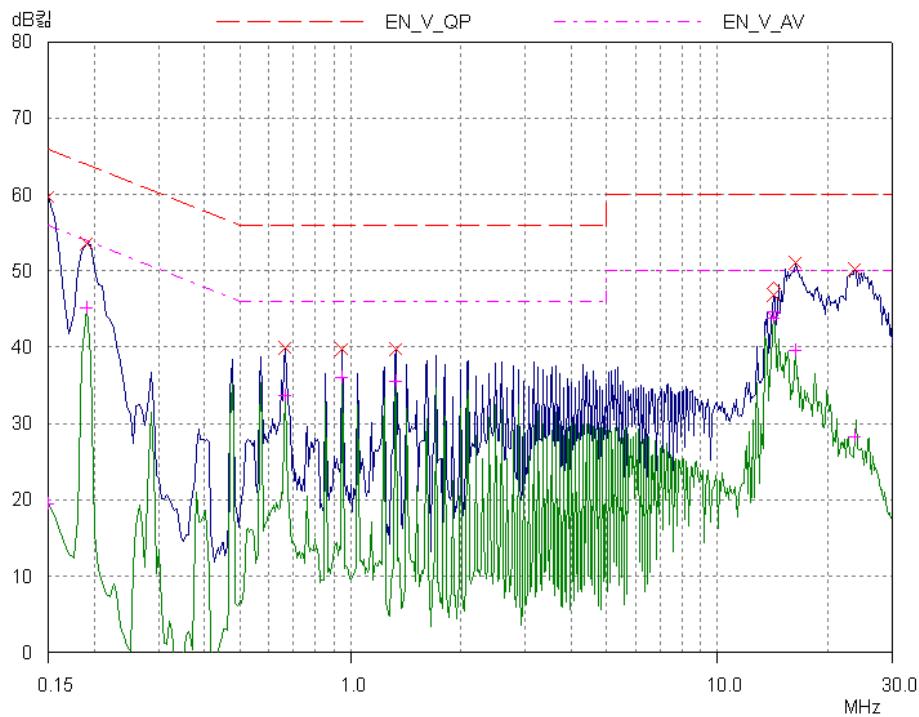




APPENDIX A – TEST DATA

Conducted Voltage Emissions (Quasi-Peak reading)

Frequency [MHz]	Correction Factor		Line	Quasi-peak				Average			
	LISN	Cable		Limit [dBuV]	Reading [dBuV]	Result [dBuV]	Margin [dB]	Limit [dBuV]	Reading [dBuV]	Result [dBuV]	Margin [dB]
0.15	2.2	0.1	N	66.0	57.9	60.2	5.8	56.0	18.9	21.2	34.8
0.15	2.2	0.1	L	66.0	57.4	59.7	6.3	56.0	17.1	19.4	36.6
0.19	1.7	0.1	N	64.0	51.5	53.3	10.7	54.0	45.1	46.9	7.1
0.19	1.7	0.1	L	64.0	51.9	53.7	10.4	54.0	43.4	45.2	8.9
0.67	0.5	0.1	L	56.0	39.4	40.0	16.0	46.0	33.1	33.7	12.3
0.67	0.5	0.1	N	56.0	38.4	39.0	17.0	46.0	32.4	33.0	13.0
0.95	0.3	0.1	L	56.0	39.3	39.7	16.3	46.0	35.6	36.0	10.0
1.33	0.3	0.1	L	56.0	39.3	39.7	16.3	46.0	35.1	35.5	10.5
1.33	0.3	0.1	N	56.0	39.1	39.5	16.5	46.0	33.7	34.1	11.9
2.47	0.3	0.1	N	56.0	37.4	37.8	18.2	46.0	27.9	28.3	17.7
14.16	0.4	0.2	N	60.0	45.4	46.0	14.0	50.0	43.6	44.2	5.8
14.22	0.4	0.2	L	60.0	46.2	46.8	13.2	50.0	43.1	43.7	6.3
16.17	0.4	0.2	N	60.0	48.6	49.2	10.8	50.0	38.2	38.8	11.2
16.23	0.4	0.2	L	60.0	50.5	51.1	8.9	50.0	38.9	39.5	10.5
23.59	0.5	0.4	L	60.0	49.3	50.2	9.8	50.0	27.4	28.3	21.7
23.73	0.5	0.4	N	60.0	49.4	50.3	9.7	50.0	26.6	27.5	22.5





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			
84.73	15.7	V	1.0	8.7	1.8	30.0	26.2	3.8
114.46	13.0	V	1.0	9.5	2.0	30.0	24.5	5.5
130.62	15.8	H	4.0	8.8	2.2	30.0	26.8	3.2
140.00	16.1	H	4.0	8.0	2.4	30.0	26.5	3.5
145.48	14.6	H	4.0	7.8	2.4	30.0	24.8	5.2
374.05	12.2	H	1.5	12.8	3.9	37.0	28.9	8.1
480.46	11.1	V	2.1	15.2	4.4	37.0	30.7	6.3
643.14	1.1	V	2.4	17.6	5.5	37.0	24.2	12.8
745.32	1.7	V	2.2	19.0	6.1	37.0	26.8	10.2