



**ESTECH Co., Ltd.**  
3rd Fl., Chungdam Bldg.,  
119-1 Chungdam-dong,  
Kangnamgu, Seoul



**Electromagnetic  
Interference  
Test Report**

## Compliance Test Report for FCC

Report Number		ESTF150207-002								
Applicant	Company name	DG Lab Co., Ltd.								
	Address	3FL MYUNGJI B/D 997-3, HWAGOK 6DONG, GANGSEO-GU, SEOUL, KOREA								
	Telephone	82-0502-878-5522								
Product	Product name	USB Storage Device								
	Model No.	MND-10	Manufacturer	DG Lab Co., Ltd.						
	Serial No.	NONE	Country of origin	Korea						
Test date	2002-07-11 ~ 2002-07-11	Date of issue	2002-07-15							
Testing location	ESTECH. Co., Ltd. 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea									
Standard	FCC PART 15 2001 , ANSI C 63.4 2001									
Test item	■ Conducted Emission	<input type="checkbox"/> Class A	<input checked="" type="checkbox"/> Class B	Test result	OK					
	■ Radiated Emission	<input type="checkbox"/> Class A	<input checked="" type="checkbox"/> Class B	Test result	OK					
Measurement facility registration number		94696								
Tested by	Senior Engineer J.M. Yang			(Signature)						
Reviewed by	Director T.K. Lee			(Signature)						
Abbreviation	OK, Pass = Passed, Fail = Failed, N/A = not applicable									
<p>* Note</p> <ul style="list-style-type: none"><li>- This test report is not permitted to copy partly without our permission</li><li>- This test result is dependent on only equipment to be used</li><li>- This test result based on a single evaluation of one sample of the above mentioned</li></ul>										



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Appendix 1. Spectral diagram

Appendix 2. Phorographs of EUT in side PCB

Appendix 3. Block diagram of EUT

Appendix 4. Circuit Diagram



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## 1. Laboratory Information

### 1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report.

ESTECH Lab attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.

ESTECH Lab assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

### 1.2 Test Lab.

Corporation Name : ESTECH Co. Ltd

Head Office : 3 rd Fl., Chungdam Bldg., 119-1 Chungdam-dong Kangnam-gu , Seoul, Korea  
(Safety & Telecom. Test Lab)

EMC Test Lab : 58-1 Osan-Ri, GaNam-Myon, YeoJoo-Gun, KyungKi-Do, Korea  
97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea

Branch Office : USA-ESTECH INC.  
21801 Stevens Creek Blvd. Suite 2A Cupertino, CA95014

### 1.3 Official Qualification(s)

MIC : Granted Accreditation from Ministry of Information & Communication for EMC, Safety and Telecommunication

KOLAS : Accredited Lab By Korea Laboratory Accreditation Schema base on CENELEC requirements

FCC : Filed Laboratory at Federal Communications Commission

VCCI : Granted Accreditation from Voluntary Control Council for Interference from ITE



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## 2. Description of EUT

### 2.1 Summary of Equipment Under Test

Product : USB Storage Device

Model Number : MND-10

Serial Number : NONE

Manufacturer : DG Lab Co., Ltd.

Country of origin : Korea

Rating : USB Power(4.5V to 5.5V)

Receipt Date : 2002-07-11

### 2.2 General descriptions of EUT

- You can use the USB Storage Device the same way as a Floppy disk or a Hard disk drive.
- This product capacity : 16MB/ 32MB/ 64MB/ 128MB/ 256MB/ 512MB/ 1GB
- Dimension : 60 × 19 × 9mm
- Weight : 14g
- Support OS : Window98/SE, ME, 200, XP, Linux kernel2.4.0 or higher



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### 3. Test Standards

#### Test Standard : FCC PART 15 (2001)

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

#### Test Method : ANSI C 63.4 (2001)

This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain devices that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment. These methods apply to the measurement of individual units or systems comprised of multiple units.



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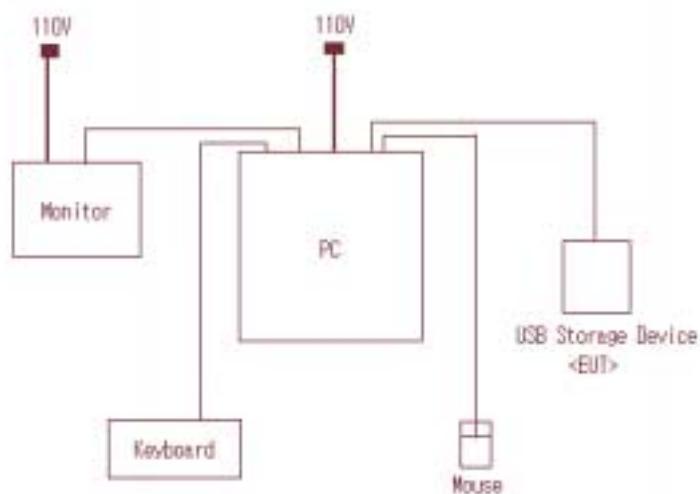
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## 4. Measurement Condition

### 4.1 EUT Operation.

- \* The EUT was in the following operation mode during all testing
- \* The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected highest level of emission
- \* After connecting EUT as test configuration, we test EUT by "H" character Read/Write

### 4.2 Configuration and Peripherals





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### 4.3 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
USB Storage Device	MND-10	NONE	DG Lab Co., Ltd.	EUT
Personal Computer	M6030	ERA00236	Samsung Electronics Co., Ltd.	-
Keyboard	7800	K19120116	BTC Telecom Co., Ltd	-
Mouse	X05-51692	6444127-10000	Microsoft	-
Monitor	C01064X	045CJ64DD974	Compaq	-

### 4.4 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
USB Storage Device	USB	Personal Computer	USB	2	Y	-
Personal Computer	VIDEO	Monitor	VIDEO	2	Y	-
Personal Computer	PS/2 MOUSE	Mouse	PS/2 MOUSE	2	N	-
Personal Computer	PS/2 KEYBOARD	Keyboard	PS/2 KEYBOARD	2	N	-



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## 5. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2001) & ANSI C 63.4 (2001). The test setup was made according to FCC Part 15 (2001) & ANSI C 63.4 (2001) on an open test site, which allows a 3m distance measurement. The EUT was placed in the center of wooden turntable. The height of this table was 0.8m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test set-up.

### 5.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Receiver	ESPC	Rohde & Schwarz	845296/021	2003.6.21
Spectrum Analyzer	R3261B	ADVANTEST	1720302	2002.9.3
LogBicon Antenna	VULB 9160	S/B	3107	2003.6.7
Turn Table	2087	EMCO	2129	–
Antenna Mast	2070-01	EMCO	9702-203	–
Amplifier	310N	Sonoma Instrument	185817	2002.11.13
ANT Mast Controller	2090	EMCO	1535	–
Turn Table Controller	2090	EMCO	1535	–

### 5.2 Environmental Condition

Test Place : Open site (3m)  
Temperature (°C) : 34 °C  
Humidity (%) : 34 %



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## 5.3 Test data

Measurement Distance : 3 m



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## 6. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.45 to 30 MHz was measured in accordance to FCC Part 15 (2001) & ANSI C 63.4 (2001). The test setup was made according to FCC Part 15 (2001) & ANSI C 63.4 (2001) in a shielded. The EUT was placed on a non-conductive table at least 80 above the ground plan. A grounded vertical reference plane was positioned in a distance of 40cm from the EUT. The distance from the EUT to other metal surfaces was at least 0.8m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0m.. The test receiver with Quasi Peak detector complies with CISPR 16.

### 6.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
LISN	ESH3-Z5	Rohde & Schwarz	838979/010	2003. 2. 1
LISN	NNLA8120A	Schwarzbeck	NONE	2003. 2. 1
TEST Receive	ESPC	Rohde & Schwarz	845296/021	2003.6.21
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	2003.7.4

### 6.2 Environmental Condition

Test Place : Shield Room

Temperature (°C) : 21 °C

Humidity (%) : 56 %



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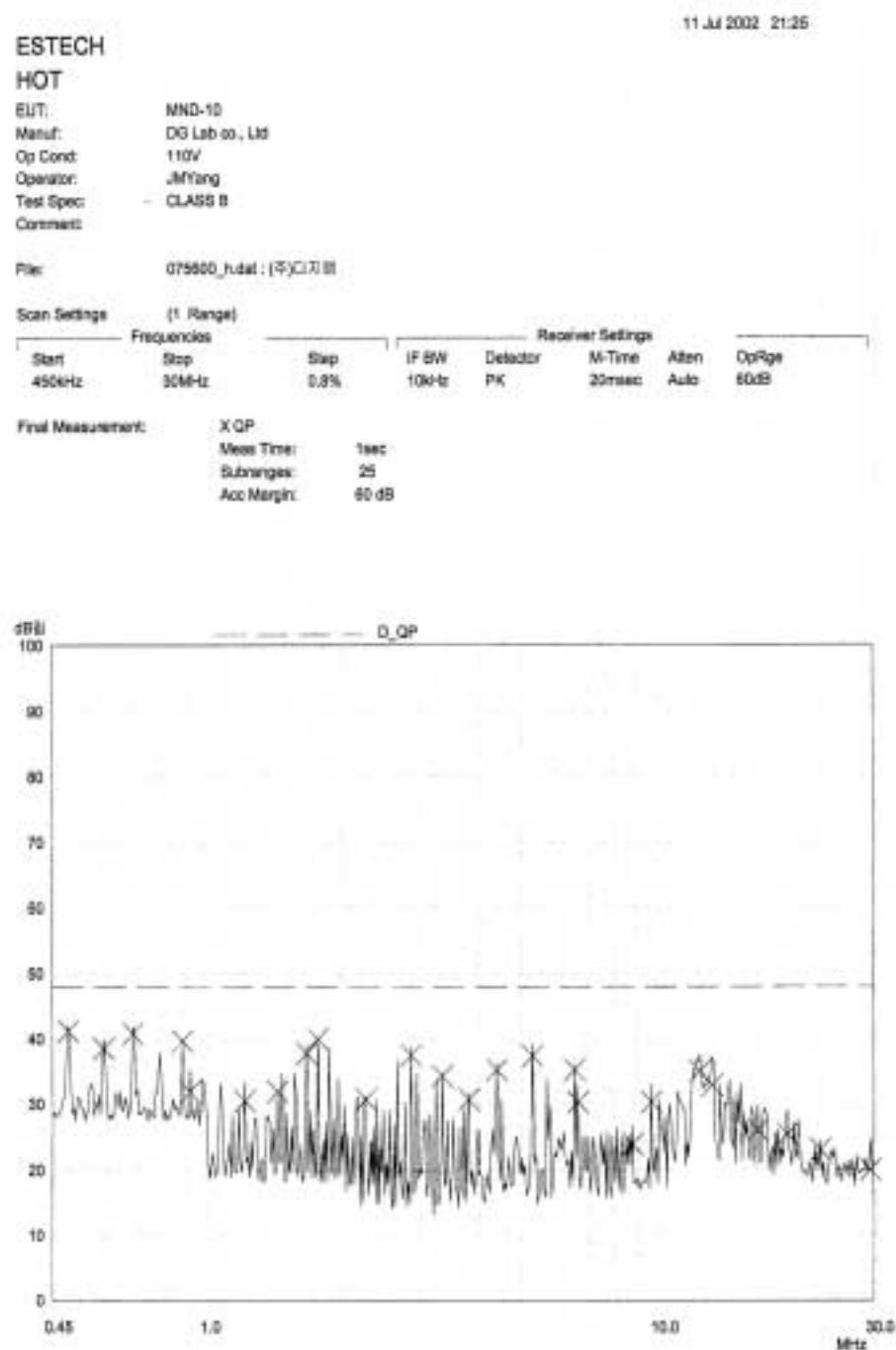


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## 6.3 Test data

## Appendix 1. Spectral Diagram

### \* Hot Line



\* Netural Line

11.Jul.2002 21:34

ESTECH

NEUTRAL

EUT: MND-10  
Manuf: DG Lab co., Ltd.  
Op Cond: 110V  
Operator: JMYang  
Test Spec: CLASS B  
Comment:

File: 075600\_n.dat : (주)디지털

Scan Settings (1 Range)			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Aten	OpRge
450kHz	30MHz	0.8%	10kHz	PK	20msec	Auto	60dB
Final Measurement:							
X GP							
Mess Time: 1sec							
Subranges: 25							
Acc Margin: 60 dB							

