



ONETECH Corp.

#505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City,
Kyunggi-Do, 462-121, Korea. (TEL: 82-342-746-8500 FAX: 82-342-746-8700)

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

CLASS B COMPUTING DEVICE PERIPHERAL CERTIFICATION TO FCC PART 15 REQUIREMENT

PRODUCT	MP3 PLAYER		
FCC ID	OZXDMP-2000		
MODEL NO.	DMP-2000	SERIAL NO.	N/A
APPLICANT & ADDRESS	OPENERS CO., LTD. 3 rd F1, SUNGJI BD., WOLPYUNGI-DONG, SEO-KU, TEAJON-CITY, 302-281 KOREA		

REPORT NO.	E005R-004	ISSUE DATE	May 03, 2000
PREPARED BY: ONETECH CORP. #505 SK APT. FACTORY 223-28, SANGDAEWON 1 DONG, JUNGWON-GU, SEONGNAM-CITY, KYUNGGI-DO, 462-121, KOREA. (TEL: 82-342-746-8500 FAX: 82-342-746-8700)			

LIST OF EXHIBITS

FCC ID : OZXDMP-2000

MODEL : DMP-2000

EXHIBIT 1. IDENTIFICATION LABEL

2. AGENT AUTHORIZATION

3. TECHNICAL INFORMATION:

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

4. PHOTO REPORT

5. USER'S MANUAL & SCHEMATIC (BLOCK DIAGRAM)

PREPARED BY : ONETECH CORP.

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EXHIBIT 1. IDENTIFICATION LABEL:**PROPOSED FCC LABEL (Part15 sec. 15.19)**

The label included following statement will be attached on bottom side of product.

FCC ID : OZXDMP-2000
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operations.
Made in Korea

“Please find an ID Label for EUT at ID Label/Location Info in Exhibit Type”

EXHIBIT 2. AGENT AUTHORIZATION:

“Please find an Agent Authorization Letter at Cover Letters in Exhibit Type”

EXHIBIT 3. TECHNICAL INFORMATION:**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT**

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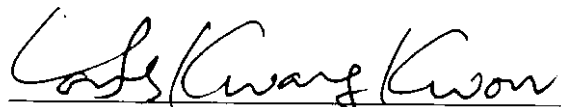
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1. VERIFICATION OF COMPLIANCE

APPLICANT : OPENERS CO., LTD.
ADDRESS : 3rd F1, SUNGJI BD., WOLPYUNG1-DONG, SEO-KU, TEAJON-CITY, 302-281 KOREA
CONTACT PERSON : B. H. YOON / DIRECTOR
TELEPHONE NO : 82-42-487-1117
FCC ID : OZXDMP-2000 MODEL NO/NAME: DMP-2000
SERIAL NUMBER : N/A
DATE : May 03, 2000

DEVICE TYPE	UNINTENTIONAL RADIATOR (CLASS B COMPUTING DEVICE PERIPHERAL)
E.U.T. DESCRIPTION	MP3 PLAYER
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)	PART 15 SUBPART B ♣15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	NO
FINAL TESTS WERE CONDUCTED ON	3 METER OPEN 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.



YONG KWANG, KWON / CHIEF ENGINEER
EMC TESTING DEPARTMENT
ONETECH Testing & Eval. Lab.
SEOUL KOREA

2. GENERAL INFORMATION

2.1 Product Description

The OPENERS CO., LTD., Model DMP-2000 (referred to as the EUT in this report) is a MP3 player (FCC ID: OZXDMP-2000). The product specification information described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	PLASTIC
Processor	Cirrus Embedded Processor
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	3.6864 and 11.2896MHz
POWER REQUIREMENTS	DC 1.5V (AAA SIZE RECHARGEABLE NI-MH BATTERY)
NUMBER OF LAYERS	8 LAYERS (MAIN BOARD) 4 LAYERS (POWER BOARD) 1 LAYER (SWITCH BOARD)
EARPHONE OUTPUT	2.5mW/CH
WAVE SPECIFICATION	20Hz~20KHz
MEMORY	MULTIMEDIA CARD (MMC) 32MB (EXTENSION POSSIBLE)
EXTERNAL CONNECTOR	SERIAL PORT

Model Differences:

No other model differences have been mentioned.

2.2 Related Submittal(s) / Grant(s)

ORIGINAL SUBMITTAL ONLY

2.3 Test System Details

The EUT was tested with the following all equipment used in the tested system are:

Model	Manufacturer	FCC ID	Description	Connected to
DMP-2000	OPENERS CO., LTD.	OZXDMP-2000	MP3 PLAYER	N/A
TC-PA1000	TAEIL	LIZ-TCPA1000	PC	EUT
AV-5T	KDS	EVOKD-1511T	MONITOR	PC
5123W	BEHAVIOR TECH COMPUTER COPORATION	E5XKBP104M10	KEYBORAD	PC
N/A	ULTIMA ELECTRONICS CORP.	ITEUECMN9532	MOUSE	PC
2225C	HP	DSI6XU2225	PRINTER	PC

2.4 Test Methodology

Both Radiated emission testing and Bandwidth of operating frequency were performed according to the procedures in ANSI C63.4/1992. Radiated testing was performed at an antenna to EUT distance of 3 meters.

2.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Detailed description of test facility was submitted to the Commission on January 12, 1999. (Registration Number: 92819)

3. SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). During the tests, the following components inside of the EUT were installed.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
MAIN BOARD	OPENERS Co., LTD.	DMP REAL / 2000317-J	N/A
POWER BOARD	OPENERS Co., LTD.	DMP REAL / 2000318-J	N/A
SWITCH BOARD	OPENERS Co., LTD.	DMP REAL / 2000302-J	N/A

3.2 Equipment Modifications

To achieve compliance to Class B levels, the following change(s) were made by OPENERS Co., Ltd. during compliance testing:

“There was no Modified items during EMI test”

3.3 Mode of operation during the test

After being connected to a PC with a serial cable, the EUT continuously played music files recorded in a MMC card during the testing.

3.4 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
MP3 PLAYER	N/A	N	1.2(D)
PC	N	-	1.5(P)
MONITOR	N	N/A	15(P), 1.2(D)
KEYBORAD	N/A	N	1.5(D)
MOUSE	N/A	N	1.2(D)
PRINTER	N	N/A	1.5(P), 1.2(D)

* The marked “(D)” means the Data Cable and “(P)” means the Power Cable.

3.5 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
MP3 PLAYER	N	N/A	Y	PC END
PC	N	N/A	N	N/A
MONITOR	Y	BOTH END	Y	BOTH END
KEYBORAD	N	N/A	Y	PC END
MOUSE	N	N/A	Y	PC END
PRINTER	Y	PC END	Y	BOTHE END

3.6 Configuration of Test System

Line Conducted Emission Test:

It is not need to test this requirement, because the power of the EUT is supplied from a DC 1.5V battery (AAA Size rechargeable Ni-MH battery).

Radiated Emission Test:

Preliminary radiated emissions tests were conducted using the procedure in ANSI C63.4/1992, 8.3.1.1 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meters open area test site.

4. PRELIMINARY TESTS

4.1 AC Power line Conducted Emissions Tests

During Preliminary Tests, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
N/A	N/A

4.2 Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
Played music files recorded in a MMC card.	X
Downloaded music files from a PC	

5. RADIATED MEASUREMENT PHOTOS

<Radiated Measurement Photos>



6. FINAL RESULT OF MEASUREMENT

Per preliminary tests, the following operating condition was selected which shown the maximum emissions level.

6.1 Conducted Emissions Tests

Humidity Level : % Temperature :

Limits apply to : FCC CFR 47, PART 15, SUBPART C

Result : PASSED

EUT : MP3 Player

Date: April 25, 2000

Operating Condition :

Detector : CISPR Quasi-Peak (6dB Bandwidth 9kHz)

Power Line Conducted Emissions			FCC Limit	
Frequency (MHz)	Amplitude (dBuV)	conductor	Limit (dBuV)	Margin (dB)
It is not need to test this requirement, because the power of the EUT is supplied from a DC 1.5V battery.				

Line Conducted Emissions Tabulated Data



Measuring by: Gea Won, Lee / Project Engineer

6.2 Radiated Emission Test

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

Humidity Level : 42 % Temperature : 20
 Limits apply to : FCC CFR 47, PART 15, SUBPART B (Section: 15.109)
 Result : PASSED BY -4.28 dB at 56.40 MHz

EUT : MP3 Player Date: April 25, 2000
 Operating Condition : Played music files recorded in a Multimedia Card
 Detector : CISPR Quasi-Peak (6dB Bandwidth 120kHz)
 Distance : 3 Meters

Radiated Emissions		Ant	Correction Factors		Total	FCC Class B Limit	
Freq. (MHz)	Ampl. (dBuV)	Pol.	Ant. (dBuV)	Cable (dB)	Ampl (dBuV/m)	Limit (dBuV/m)	Margin (dB)
56.40	24.60	V	10.14	0.98	35.72	40.00	-4.28
79.50	23.70	V	6.56	1.00	31.26	40.00	-8.74
131.60	19.90	V	12.75	1.27	33.92	43.50	-9.58
147.50	21.12	V	13.13	1.34	35.59	43.50	-7.91
268.40	15.80	H	13.67	1.87	31.34	46.00	-14.66
342.20	17.10	H	15.70	2.24	35.04	46.00	-10.96
384.40	16.70	H	15.54	2.41	34.65	46.00	-11.35



Measuring by: Gea Won, Lee / Project Engineer

7. 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)

8. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	SEP/99	12MONTH	■
2.	Spectrum analyzer	HP	8568B	3026A0226	SEP/99	12MONTH	■
3.	RF preselector	HP	85685A	3107A01264	SEP/99	12MONTH	■
4.	Quasi-Peak Adapter	HP	85650A	3107A01542	SEP/99	12MONTH	■
5	Signal Generator	Philips	PM5518-TX	N/A	APR./00	12MONTH	
6.	Pattern generator	N/A	LCG-401	SG-0010126	N/A	N/A	
7.	Dipole Antenna	EMCO	3121C	9107-745	FEB/99	12MONTH	
8.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	MAR/00	12MONTH	■
9.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	MAR/00	12MONTH	■
10.	Conical Log spiral Antenna	EATON	93491-2	340	FEB/00	12MONTH	
11.	LISN	EMCO	3825/2	9109-1867 9109-1869	MAR/00	12MONTH	
12.	RF Amplifier	HP	8447F	3113A04554	AUG/99	N/A	
13.	Spectrum Analyzer	ADVANTEST	R4131BN	91520070	FEB/99	12MONTH	
14.	Computer System	HP	98581C	98543A	N/A	N/A	■
	Hard disk drive		9153C	CMC762Z9153	N/A	N/A	■
15.	Plotter	HP	7475A	30052 22986	N/A	N/A	
16.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
17.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
18.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■

EXHIBIT 4. PHOTO REPORT

<p>CLASS B COMPUTING DEVICE PERIPHERAL CERTIFICATION TO FCC PART 15 REQUIREMENT</p>

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“Please find in/outside photos of EUT at External Photos in Exhibit Type”

EXHIBIT 5. USER'S MANUAL & SCHEMATIC (BLOCK DIAGRAM)

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“Please find a manual and block diagram for EUT at User Manual in Exhibit Type”