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ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

Test report file number : E011R-014

Applicant : MAYCOM CO., LTD.

Address : Maycom B/D, 280-5, Seoksu 2-Dong, Manan-Gu, Anyang-City, Kyoungki-Do, 430-042,
Korea

Manufacturer : MAYCOM CO., LTD.

Address : Maycom B/D, 280-5, Seoksu 2-Dong, Manan-Gu, Anyang-City, Kyoungki-Do, 430-042,
Korea

Type of Equipment : DIGITAL AUDIO PLAYER

FCC ID : N6MMAYCOMMMP-2000

Model / Type No. : maycom MP-2000

Serial number : 00090014

Total page of Report : 13 pages (including this page)

Date of Incoming : December 17, 2000

Date of issuing : January 12, 2001

SUMMARY

The equipment complies with the regulation; FCC PART 15 CFR 47 SUBPART B Section 15.101.

This test report contains only the result 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.

This report shall not be reprinted

approval.

HEAD OFFICE : #505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City, Kyunggi-Do, 462-121, Korea
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EMC Testing Dept : 426-1 Daeangryong-Ri ChongMyun-Kwang-Kun Kyunggi-Do 464-860 Korea (TEL: 82-31-765-8289 FAX: 82-31-766-2904)

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ONETECH

Testing & Evaluation Lab.

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1. VERIFICATION OF COMPLIANCE

APPLICANT : MAYCOM CO., LTD.
 ADDRESS : Maycom B/D, 280-5, Seoksu 2-Dong, Manan-Gu, Anyang-City, Kyoungki-Do, 430-042,
 Korea
 CONTACT PERSON : S. H. Bang
 TELEPHONE NO : 82-31-470-7753
 FCC ID : N6MMAYCOMMP-2000
 MODEL NO/NAME : maycom MP-2000
 SERIAL NUMBER : 00090014
 DATE : January 12, 2001

DEVICE TYPE	Peripheral Device for Class B Computing Device -Unintentional Radiator
E.U.T. DESCRIPTION	DIGITAL AUDIO 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)	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 MAYCOM CO., LTD., Model maycom MP-2000 (referred to as the EUT in this report) is a DIGITAL AUDIO PLAYER which played music files recorded in a 32MB Memory card. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Metal
PROCESSOR	DSP / 32DVC5416PGE
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	6.0 MHz, 11.2896 MHz
POWER REQUIREMENTS	Input : AC 120V/60Hz, Output : DC 6V/500mA
NUMBER OF LAYERS	4 Layers
INTERNAL BATTERY	Rechargeable Battery (1.2V, AAA x 2/ 900mA)
MEMORY	32Mbytes CompactFlash Memory Card
EXTERNAL CONNECTOR	Earphone Jack, USB Port, DC Input Port, External battery Port

Model Differences:

-. None

2.2 Related Submittal(s) / Grant(s)

Original submittal only.



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2.3 Test System Details

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

Model	Manufacturer	FCC ID	Description	Connected to
maycom MP-2000	MAYCOM CO., LTD.	N6MMAYCOMM-2000	DIGITAL AUDIO PLAYER (EUT)	PC
TC-PA1000	TAEIL	LIZ-TCPA1000	PC	-
AV-5T	KDS	EVOKD-1510T	MONITOR	PC
5530	BTC	DOC	KEYBOARD	PC
9532	ARTEC.	ITEUECMN9532	MOUSE	PC
2225C	HP	DSI6XU2225	PRINTER	PC
020-0470	CARDINAL	GDE0196	MODEM	PC
-	MG Tech	N/A	EAR PHONE	EUT
DW-2000U	Hankook Power Source	N/A	AC/DC Adapter	EUT

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 January 12, 1999. (Registration Number: 92819)

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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 B/D	MAYCOM CO., LTD.	M40E162A	N/A

3.2 EUT exercise Software

After EUT was connected to the personal computer by USB cable and the earphone was connected to the EUT, and then the EUT was operated as following operation mode during the testing.

- 1) The EUT was played music files recorded in a memory card
- 2) The EUT was download music files from the PC continuously

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
DIGITAL AUDIO PLAYER (EUT)	N	Y	1.5(P), 1.0(D)
PC	N	Y	1.5(P), 1.0(D)
MONITOR	N	Y	1.5(P), 1.8(D)
KEYBOARD	N/A	Y	1.5 (D)
MOUSE	N/A	Y	1.8(D)
MODEM	N	Y	1.5(P), 1.5(D)
PRINTER	N	Y	1.5(P), 1.2 (D)
EARPHONE	N/A	N	1.0(D)

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



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3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
DIGITAL AUDIO PLAYER (EUT)	N	N/A	Y	BOTH 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
PRINTER	N	N/A	Y	BOTH END
EARPHONE	N	N/A	Y	EUT END

3.5 Equipment Modifications

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

“Not Applicable”

3.6 Configuration of Test System

Line Conducted Test: EUT was connected to the PC using USB cable and AC/DC Adapter supplied to EUT was connected to LISN, all supporting equipment 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 3 meters open area test site.



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4. PRELIMINARY TEST

4.1 Conducted Emission Test

During Preliminary Test, the following operating mode was investigated.

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



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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 : 46 % Temperature : 20 °
Limits apply to : FCC CFR 47, PART 15, SUBPART B
Type of Test : CLASS B
Result : PASSED BY -15.48 dB at 13.60 MHz

EUT : DIGITAL AUDIO PLAYER Date: December 7, 2000
Operating Condition : Continuously Downloaded music files from a PC.
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)
0.51	31.19	NEUTRAL	48.00	-16.81
0.64	32.00	HOT	48.00	-16.00
6.25	32.46	NEUTRAL	48.00	-15.54
9.34	32.21	HOT	48.00	-15.79
13.60	32.52	HOT	48.00	-15.48
20.40	29.68	HOT	48.00	-18.32
22.58	30.97	HOT	48.00	-17.03
24.00	28.88	HOT	48.00	-19.12

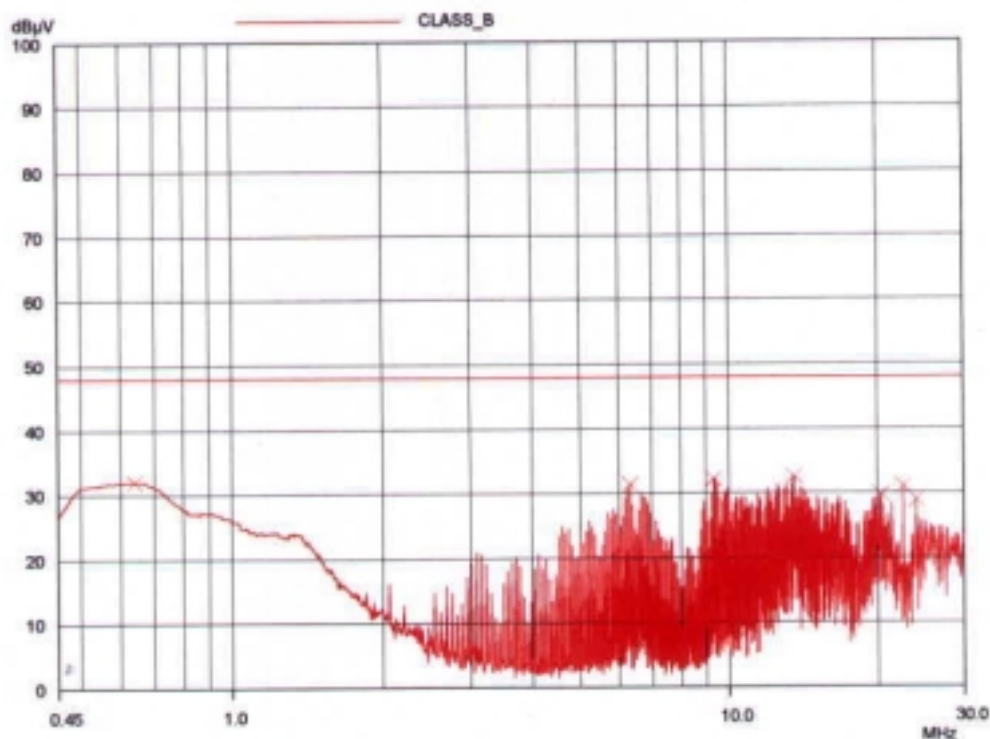
Line Conducted Emission Tabulated Data

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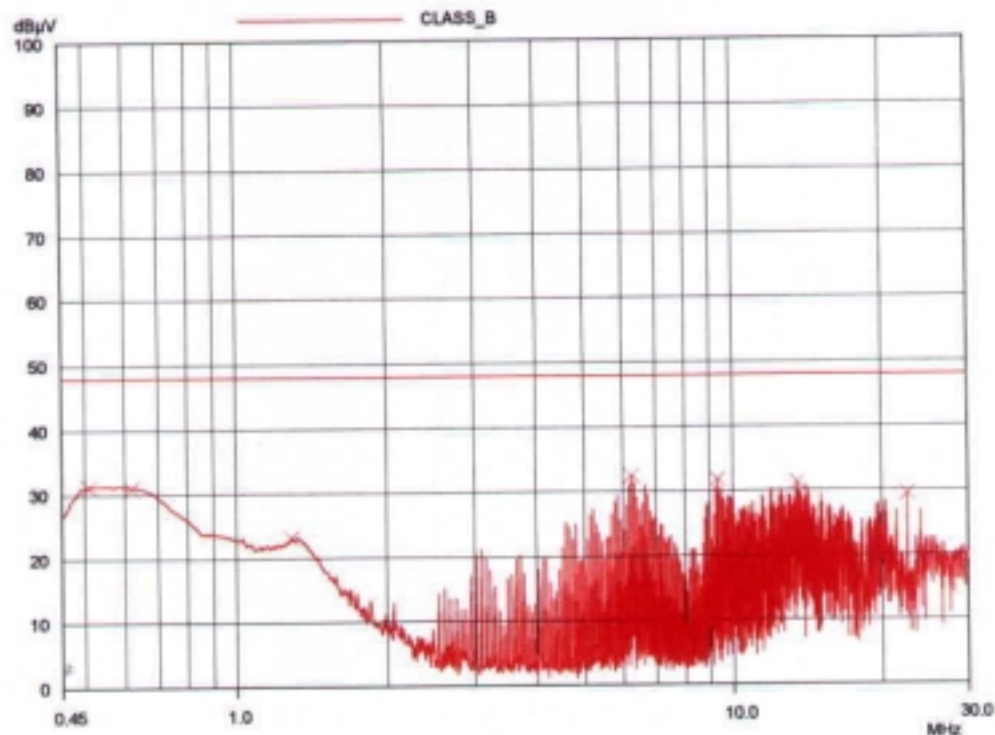
Measuring by: Young Min, Choi / Project Engineer



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HOT LINE



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NEUTRAL LINE



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5.2 Radiated Emission Test

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

Humidity Level : 46 % Temperature : 17•
 Limits apply to : FCC CFR 47, PART 15, SUBPART B
 Type of Test : CLASS B
 Result : PASSED BY -3.53 dB at 228.40 MHz

EUT : DIGITAL AUDIO PLAYER Date: December 7, 2000
 Operating Condition : Continuously played music files recorded in a memory card.
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Distance : 3 Meter

Radiated Emission		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)
177.79	16.60	H	16.17	1.45	34.22	43.50	-9.28
228.40	22.90	H	17.85	1.72	42.47	46.00	-3.53
279.40	20.90	V	17.23	1.91	40.04	46.00	-5.96
482.60	20.00	V	16.89	2.62	39.51	46.00	-6.49
634.80	14.00	V	19.21	3.03	36.24	46.00	-9.76
685.80	16.60	V	20.07	3.24	39.91	46.00	-6.09
736.80	14.70	V	20.77	3.48	38.95	46.00	-7.05
838.00	11.40	H	21.72	3.80	36.92	46.00	-9.08
889.00	11.80	H	22.23	3.91	37.94	46.00	-8.06

Radiated Emission Tabulated Data



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Measuring by: Young Min, Choi / Project Engineer

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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)

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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	SEP/00	12MONTH	■
2.	Test receiver	R/S	ESHS10	834467/007	APRIL/00	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3026A0226	SEP/00	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	SEP/00	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	SEP/00	12MONTH	■
6.	Dipole Antenna	EMCO	3121C	9107-745	JUN/00	12MONTH	
7.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	MAR/00	12MONTH	■
8.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	MAR/00	12MONTH	■
9.	LISN	EMCO	3825/2	9109-1867 9109-1869	FEB/00	12MONTH	■
10.	RF Amplifier	HP	8447F	3113A04554	JUN/00	N/A	
11.	Spectrum Analyzer	HP	8591A	3131A02312	APR/00	12MONTH	
12.	Computer System	HP	98581C	98543A	N/A	N/A	■
	Hard disk drive		9153C	CMC762Z9153	N/A	N/A	■
13.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
14.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
15.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
16.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■