



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test report file number : E035R-007

Applicant : Macro Image Technology, Inc.

Address : 723 Yoksam-Dong, Gangnam-Gu, Seoul, 135-080, Korea

Manufacturer : Macro Image Technology, Inc.

Address : 723 Yoksam-Dong, Gangnam-Gu, Seoul, 135-080, Korea

Type of Equipment : Digital TV Receiving PC Card

FCC ID : PN7MDP-120

Model Name : MDP120

Serial number : N/A

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

Date of Incoming : April 09, 2003

Date of Issuing : May 13, 2003

SUMMARY

The equipment complies with the regulation; **FCC CFR 47 PART 15 SUBPART B, Class B.**

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

Reviewed by: 
G. W. Lee/ Chief Engineer
EMC Dept.
ONETECH Corp.

Approved by: 
Y. K. Kwon/ Director
ONETECH Corp.



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**1. VERIFICATION OF COMPLIANCE**

APPLICANT : Macro Image Technology, Inc.
ADDRESS : 723 Yoksam-Dong, Gangnam-Gu, Seoul, 135-080, Korea
CONTACT PERSON : Mr. Seung-Chol, Ryu / Engineer
TELEPHONE NO : +82-2-2142-4058
FCC ID : PN7MDP-120
MODEL NO/NAME : MDP120
SERIAL NUMBER : N/A
DATE : May 13, 2003

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	Digital TV Receiving PC Card
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 CFR 47 PART 15 §15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

- This device has shown compliance with the conducted emissions limits in 15.107 adopted under FCC 02-107 (ET Docket 98-80). The device may be marketed after July 11, 2005 affected by the 15.37(j) transition provisions.
- 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.



2. GENERAL INFORMATION

2.1 Product Description

The Macro Image Technology, Inc., Model MDP120 (referred to as the EUT in this report) is a Digital TV Receiving PC Card which is PCI-based card for enjoying Digital TV on a PC. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	PC Card (PCI Slot)
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	13.5MHz, 25.140MHz, 18.432MHz on Main Board
NUMBER OF LAYERS	4 Layers
USED TUNER	Model No: FCV1236D, Manufacturer: Philips
ELECTRICAL RATING	DC 5V and 12V supplied by a personal computer
EXTERNAL TERMINALS	2 Antenna Input, VGA In, Video In/Out, Audio In, SPDIF Out, DVI In/Out, SPDIF Optical Out.

Model Differences

The difference(s) compared to the EUT is as follows: none

2.2 Related Submittal(s) / Grant(s)

Original submittal only

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
MDP120	Macro Image Technology, Inc..	PN7MDP-120	Digital TV Receiving PC Card (EUT)	Inside PC
MDP120R	Macro Image Technology, Inc..	"	Remote Control Receiver (EUT)	PC
Pavilion 7955	HP	DoC	PC	-
M-SAS51	Logitech	JNZ211167	MOUSE	PC
KB-9963	Compaq	DoC	KEYBOARD	PC
2225C	HP	DSI6XU2225	PRINTER	PC
E551	DELL Computer Corp.	DoC	MONITOR	EUT (VGA Out)
AL191	ATECH	N/A	DVI MONITOR	EUT (DVI Out)
GHV-S9990	GoldStar	N/A	VCR	EUT
LSE9901B1260	LISHIN	N/A	ADAPTOR of DVI MONITOR	DVI MONITOR

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 18, 2002. (Registration Number: 92819)

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
DVI Board	Macro Image Technology, Inc.	MDP120_DVI	N/A
DVI Receiving Board	Macro Image Technology, Inc.	MDP120	N/A
Remote Receiving Board	Macro Image Technology, Inc.	N/A	N/A

3.2 EUT exercise Software

The EUT was received the signal of the terrestrial broadcast continuously via antenna input port and displaying the picture on the screen of the PC monitor.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
Digital TV Receiving PC Card (EUT)	-	Y	0.3(D) – DVI RCV B/D 1.0(D) – DVI B/D
Remote Control Receiver (EUT)	N/A	Y	1.0(D)
PC	N	-	1.5(P)
MOUSE	N/A	N	1.5(D)
KEYBOARD	N/A	N	1.5(D)
PRINTER	N	Y	1.5(P), 1.5(D)
MONITOR	N	Y	1.5(P), 1.8(D)
DVI MONITOR	N	Y	1.5(P), 1.8(D)
VCR	N	N	1.5(P), 1.5(D)
ADAPTOR of DVI MONITOR	N	N (DC OUT)	1.5 (P), 1.0 (D)

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

3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
Digital TV Receiving PC Card (EUT)	Y N	BOTH END (DVI B/D) N/A (DVI Receiving B/D)	Y	BOTH END
Remote Control Receiver (EUT)	N	N/A	Y	PC
PC	-	-	-	-
MOUSE	N	N/A	Y	PC END
KEYBOARD	N	N/A	Y	PC END
PRINTER	N	N/A	Y	BOTH END
MONITOR	Y	EUT END	Y	BOTH END
DVI MONITOR	Y	BOTH END	Y	BOTH END
VCR	N	N/A	Y	BOTH END
ADAPTOR of DVI MONITOR	Y	DVI MONITOR END	Y	DVI MONITOR END

3.5 Equipment Modifications

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

“There was no Modified items during EMI test”

3.6 Configuration of Test System

Line Conducted Test: The EUT was inserted into the PC, and the power line of PC was connected to LISN. All supporting equipments 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.



4. PRELIMINARY TEST

4.1 AC Power line Conducted Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
The signal of the terrestrial broadcast receiving via antenna input port and displaying the picture on the screen of the PC monitor.	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)
The signal of the terrestrial broadcast receiving via antenna input port and displaying the picture on the screen of the PC monitor.	X



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 : 38%

Temperature : 25°C

Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107(a)

Type of Test : CLASS B

Result : PASSED BY -16.42 dB at 4.89 MHz

EUT : Digital TV Receiving PC Card

Date: April 28, 2003

Operating Condition : Terrestrial broadcast receiving mode on the screen of the monitor.

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

Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
1.02	H	39.48	56.00	-16.52
1.46	H	38.75	56.00	-17.25
1.96	N	38.55	56.00	-17.45
4.89	H	39.58	56.00	-16.42
10.85	N	41.96	60.00	-18.04
12.57	N	42.71	60.00	-17.29
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
-				
-				

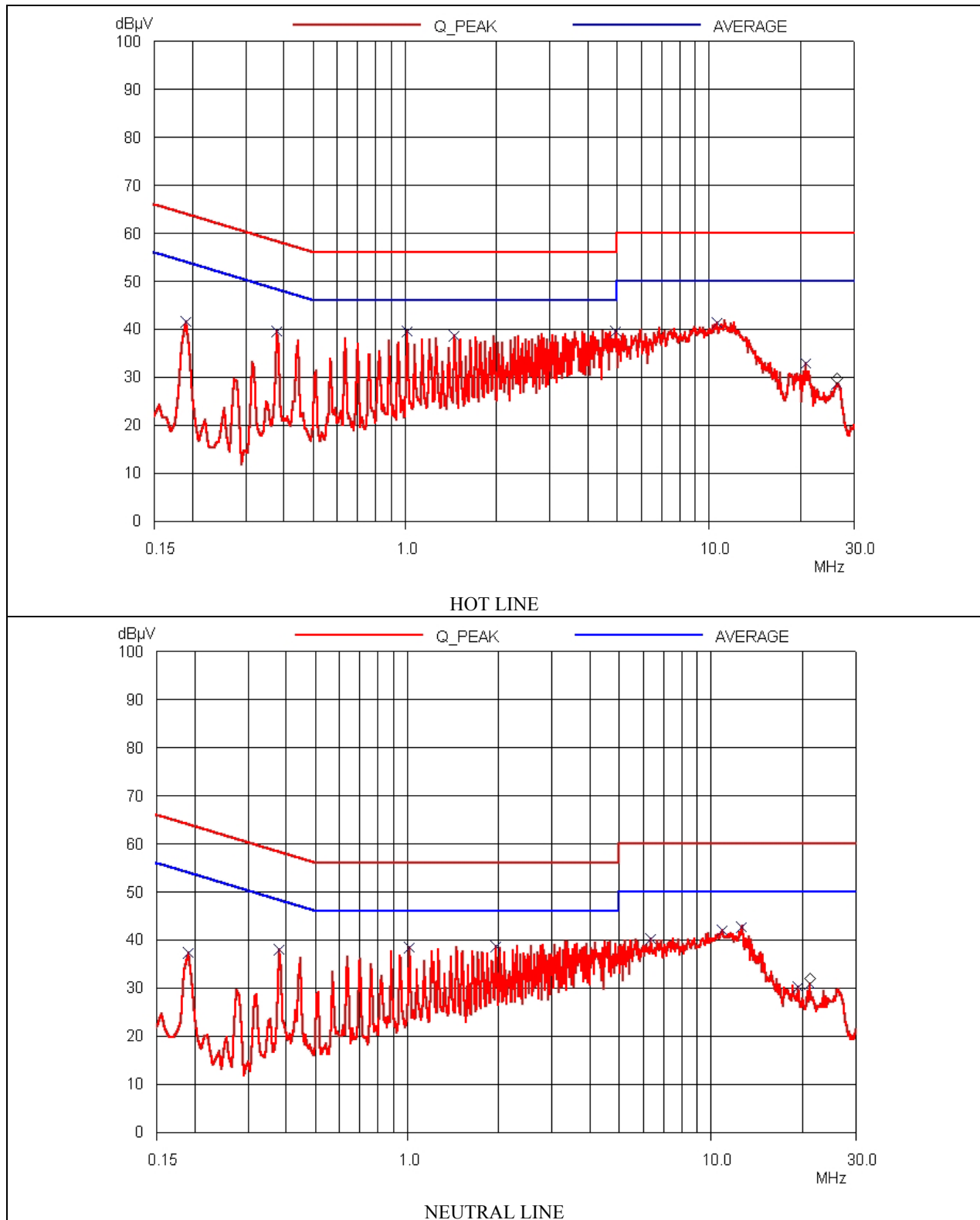
Line Conducted Emission Tabulated Data

Remark : "H": Hot Line, "N": Neutral line

Average data was not measured, because Peak values were under the Average limit.

See next page for an overview sweep performed with peak detector.

Tested by: Young Min, Choi / Test Engineer



**5.2 Radiated Emission Test**

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

Humidity Level : 40 %

Temperature : 22□

Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109(a)

Type of Test : CLASS B

Result : PASSED BY -5.05 dB at 371.00 MHz

EUT : Digital TV Receiving PC Card

Date: April 21, 2003

Operating Condition : Terrestrial broadcast receiving mode on the screen of the monitor.

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)
74.18	13.30	V	7.16	1.00	21.46	40.00	-18.54
111.20	15.90	V	12.94	1.20	30.04	43.50	-13.46
126.80	11.60	H	13.11	1.25	25.96	43.50	-17.54
137.20	16.20	H	12.67	1.30	30.17	43.50	-13.33
146.00	14.60	H	13.11	1.33	29.04	43.50	-14.46
148.30	17.30	H	13.32	1.34	31.96	43.50	-11.54
222.40	24.00	H	10.93	1.69	36.62	46.00	-9.38
297.00	18.20	H	14.84	1.99	35.03	46.00	-10.97
371.00	24.00	H	14.58	2.37	40.95	46.00	-5.05
445.40	16.00	H	16.20	2.54	34.74	46.00	-11.26
520.00	19.00	H	17.53	2.72	39.25	46.00	-6.75
593.40	14.70	H	18.65	2.89	36.24	46.00	-9.76
667.58	15.80	V	20.52	3.15	39.47	46.00	-6.53
741.80	14.90	H	20.68	3.49	39.07	46.00	-6.93
816.00	14.40	H	21.66	3.74	39.80	46.00	-6.20
964.30	12.70	V	23.54	4.12	40.36	54.00	-13.64

Radiated Emission Tabulated Data

Tested by: Young Min, Choi / Test Engineer



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)

**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	OCT/02	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	APR/03	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3109A05456	MAY/03	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	APR/03	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	APR/03	12MONTH	■
6.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	APR/03	12MONTH	■
7.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	APR/03	12MONTH	■
8.	LISN	EMCO	3825/2	9109-1867 9109-1869	AUG/02	12MONTH	■
9.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
10.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
11.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■