



EMISSION TEST REPORT

Test report file No. : **02-IST-094/FB** Date of issue : Jun. 04, 2002.

Model / Type No. : MDP-110L

Kind of product : HD-TV Reception Card

Brand name : MyHD

Applicant : Macro Image Technology, Inc.

Manufacturer : Macro Image Technology, Inc.

Address : East Bldg., 6th Floor, IT Venture Tower 78 Garakbon-Dong,
Songpa-Gu, Seou-City, Korea 138-803

Test result according to the regulation(s)

☒ Positive ☐ Negative

at page 3.

This test report without appendix consists of 16 pages.

It is not allowed to copy this report even partly without the allowance of the Test Laboratory.

This equipment is complied with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-1992.

DIRECTORY

A) Documentation.

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B) Test Data.

Conducted emissions (Mains)	: 450 kHz - 30 MHz	<u>11~13</u>
Radiated emissions	: 30 MHz – 1 GHz	<u>14~15</u>

C) Appendix

TEST REGULATIONS

The tests were performed according to the following regulations ;

-
- - FCC Part 15, Subpart B (Unintentional Radiators, Class B)

Information of Test Laboratory

IST EMC Lab.

San 21-8 Goan-Ri, Baekam-Myun, Yongin-Si, Kyunggi-Do, Korea
International - Tel : 82-31 - 333 - 4093. Fax : 82-31 - 333 - 4094.
Domestic - Tel : 031 - 333 - 4093. Fax : 031 - 333 - 4094.

ENVIRONMENTAL CONDITIONS

Temperature	<u>21</u>
Humidity	<u>40</u> %
Atmospheric pressure	<u>1001</u> mbar

TEST CONDITIONS

The **measurement of the conducted emissions (Interference voltage)** was performed in a shielded room.

Test location :

☒ Shielded room. No.1

☐ Compact chamber 2

Used testing instruments :

Name	Type	Manufacturer	Calibration. Date	Serial Number
ESH 3	Test Receiver	Rohde & Schwarz	Jun. 16, 2001	861742/015
3725/2	LISN	EMCO	Jul. 30, 2001	9101-2068
KNW-407	LISN	Hyup-Rip	Jul. 26, 2001	8-883-10
ESH 3-Z2	Pulse Limiter	Rohde & Schwarz	Jul. 13, 2001	357.8810.52

Test - accessories :

Type	Manufacturer
Aneroid Barometer	Sato
Hygrometer	Sato

Measurement Procedures :

Conducted emissions measurements were made in accordance with ANSI C-63.4-1992, "Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz". The measurement were performed over the frequency range of 0.45MHz to 30MHz using a 50Ω/50uH LISN as the input transducer to an EMI/Field Intensity Meter. The measurements were made with the detector set for "Peak" amplitude within an IF bandwidth of 10kHz or for "quasi-peak" within a bandwidth of 9kHz.

All used test-instruments as well as the test-accessories are calibrated regularly.

Test engineer :



Y.J.Kim / Research Engineer
IST EMC Lab.

The **measurement of the radiated emissions (Electric field)** in the frequency range from 30 MHz to 1GHz was performed in horizontal and vertical antenna polarization at a open-site which meet the site attenuation requirement of ANSI C63.4-1992 and a test distance of :

Location : ☒ Open Site No. 1 ☐ Open Site No. 2 ☐ Open Site No. 3
 Distance : ☒ 3 meters ☐ 10 meters

Used testing instruments :

Name	Type	Manufacturer	Calibration. Date	Serial Number
ESVP	Test Receiver	Rohde & Schwarz	Jun. 12, 2001	861744/018
VULB 9160	Antenna	Schwarzbeck	Jun. 04, 2001	3048

Test - accessories :

Type	Manufacturer
Aneroid Barometer	Sato
Hygrometer	Sato

Measurement procedures

Radiated measurements were in accordance with ANSI C63.4-1992 “Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz”. The measurements were performed over the frequency range of 30MHz to 1GHz using antenna as the input transducer to a EMI/Field Intensity Meter. The measurements were made with the detector set for “quasi-peak” within a bandwidth of 120kHz.

All used test-instruments as well as the test-accessories are calibrated regularly.

Test engineer :



Y.J.Kim / Research Engineer
IST EMC Lab.

EQUIPMENT UNDER TEST

Equipment Description

The Equipment Under Test (EUT) is the **HD-TV Reception Card of Macro Image Technology, Inc.**

Outer dimensions	205.87(W) x 121.02(H) x 21.05(D) mm
DRAM	64MB or more
Graphics Card	DirectX compatible VGA card(8MB memory or recommended)
One available PCI slot, One 9-pin serial port	
Package	Audio card jumper cable
	Remote control handset
	Remote control receiver
	VGA Loop through cable with external A/V connector
PC OS	Windows 98SE, ME, 2000, XP

EUT Type :

- ☒ Table-Top.
- ☐ Floor-Standing.
- ☐ Table-Top and Floor-Standing(Combination).

Operation – mode of the E.U.T. :

The equipment under test was operated during the measurement under following conditions :

- ☐ Standby.
- ☒ Operational Condition : HD-TV Reception mode

Configuration of the equipment under test :

Following peripheral devices and interface cables were connected during the measurement :

Equipment	Type	Brand	Serial No
PC	5003US	Compaq	3D0CJB87L174
Monitor	529B	Daewoo	GC95510039
Printer	A0302384	Northentelecom	26633S60168
Keyboard	SK-2502C	HP	M000456820
Mouse	M-S48a	HP	LZA01051466

Connecting Interface Cables & Ports :

- VGA Loop through cable with external A/V connector: 0.38m
- S-Video Cable: 1.5m(75Ω, 620Ω Termination)
- RCA Cable: 1.3m(75Ω, 620Ω Termination)
- Remote control receiver cable: 2.0m
- SPDIF Output (75Ω Termination)

TEST RESULT

Conducted emissions : 450 kHz - 30 MHz

The requirements are.

☒ KEPT

☐ NOT KEPT

Min. limit margin

16.2 dB at 16.0051 MHz

Remarks : See test-graph to be attached at pages 13~15.

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are.

☒ KEPT

☐ NOT KEPT

Min. limit margin

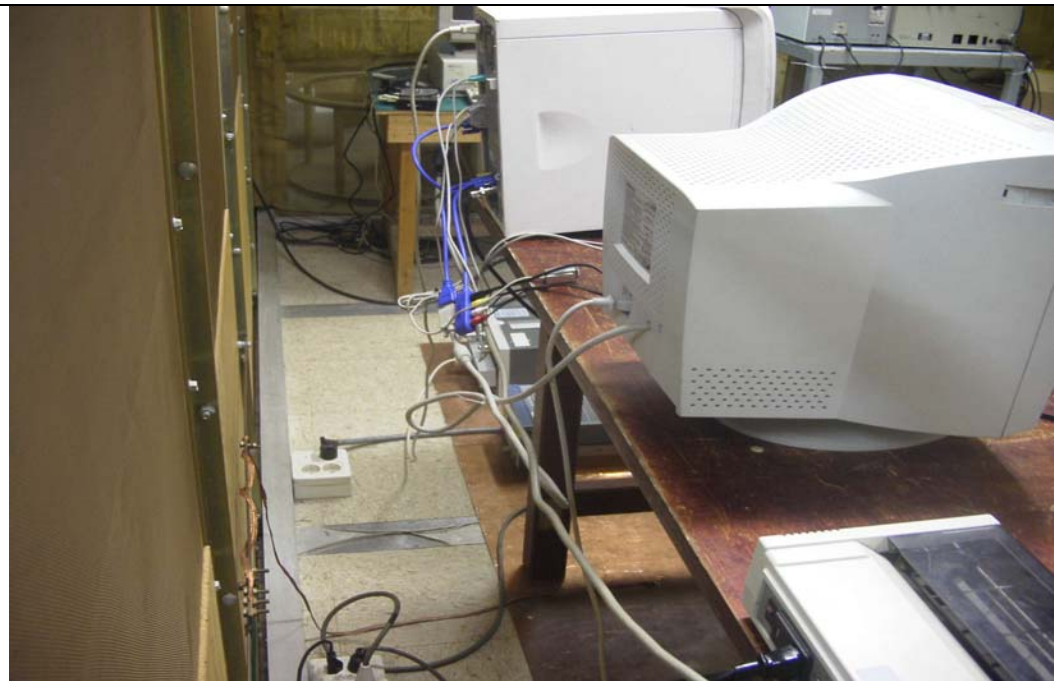
6.6 dB at 405.0 MHz

Remarks : See test-data at page 16~17.

**Test Set-Up
(Type : MDP-110L)**



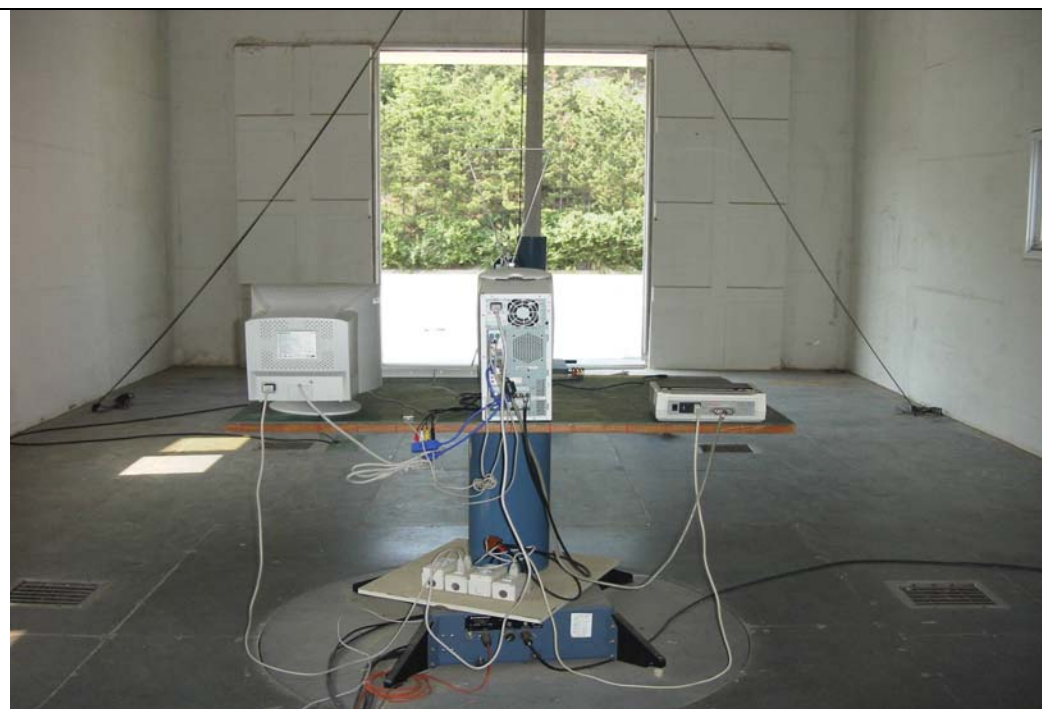
Conducted emission 450kHz ~ 30MHz

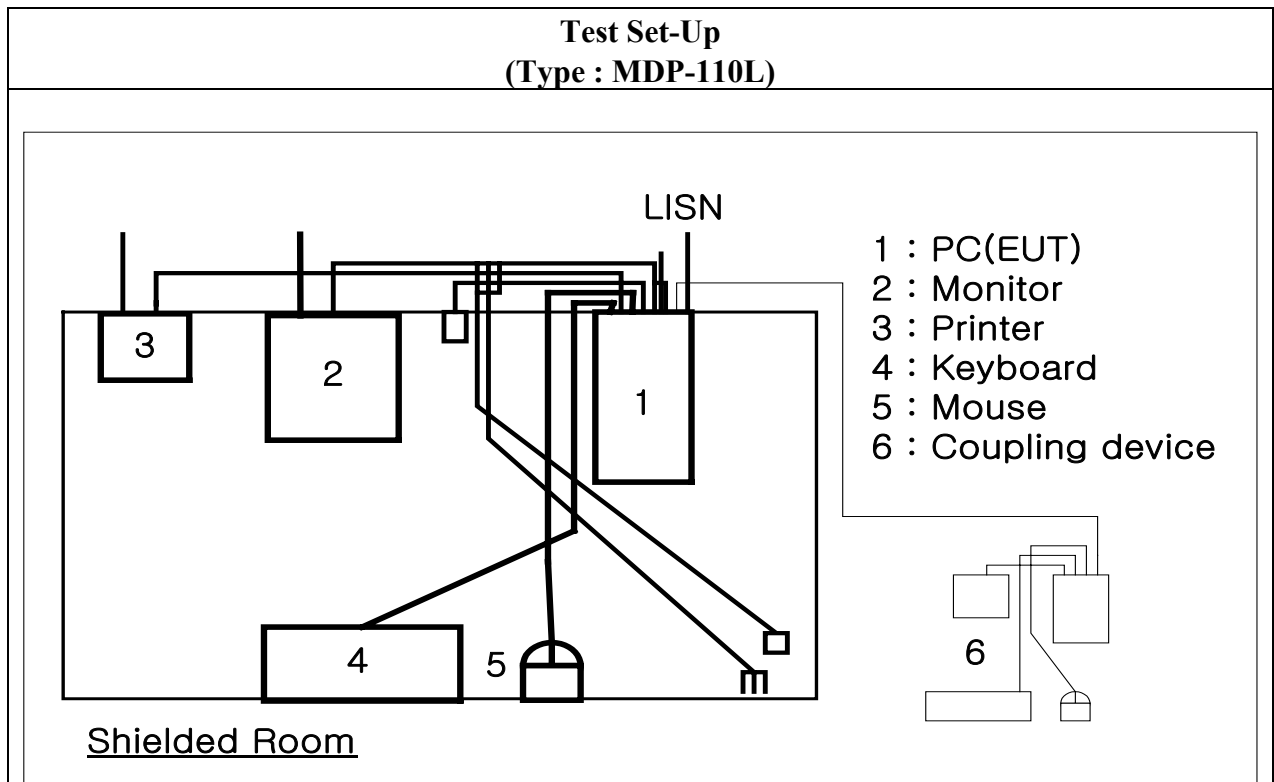


**Test Set-Up
(Type : MDP-110L)**

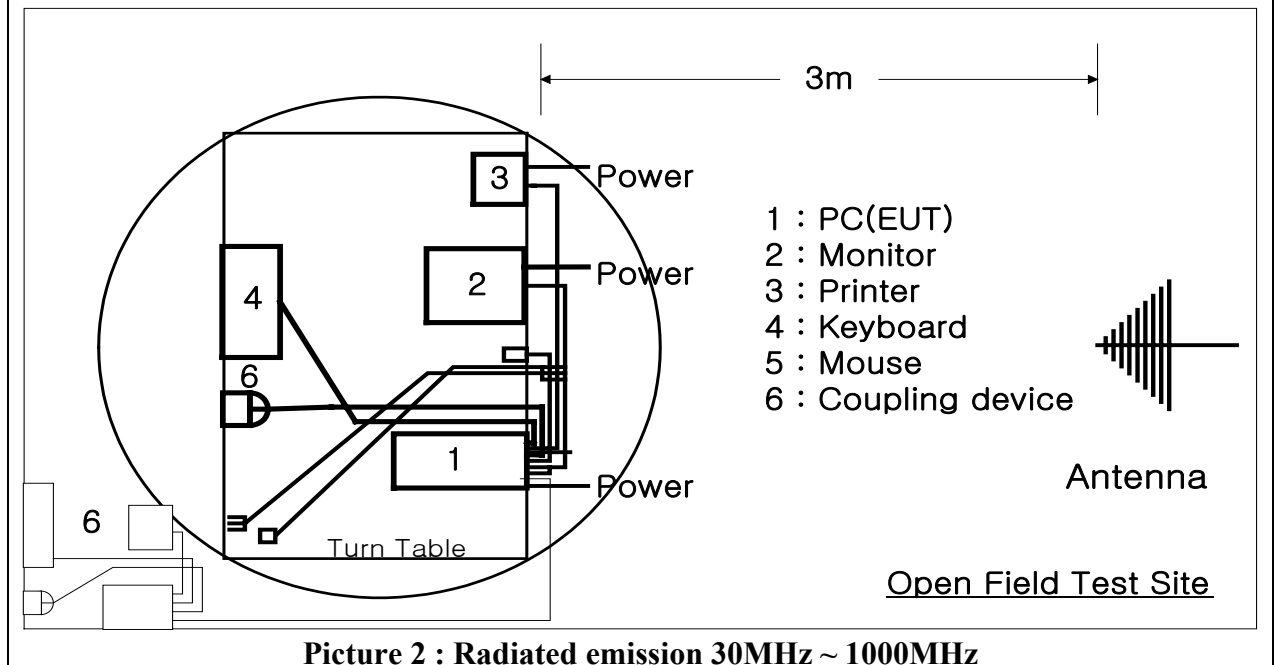


Radiated emission 30MHz ~ 1000MHz





Picture 1 : Conducted emission 450kHz ~ 30MHz



Conducted Emission Test Data

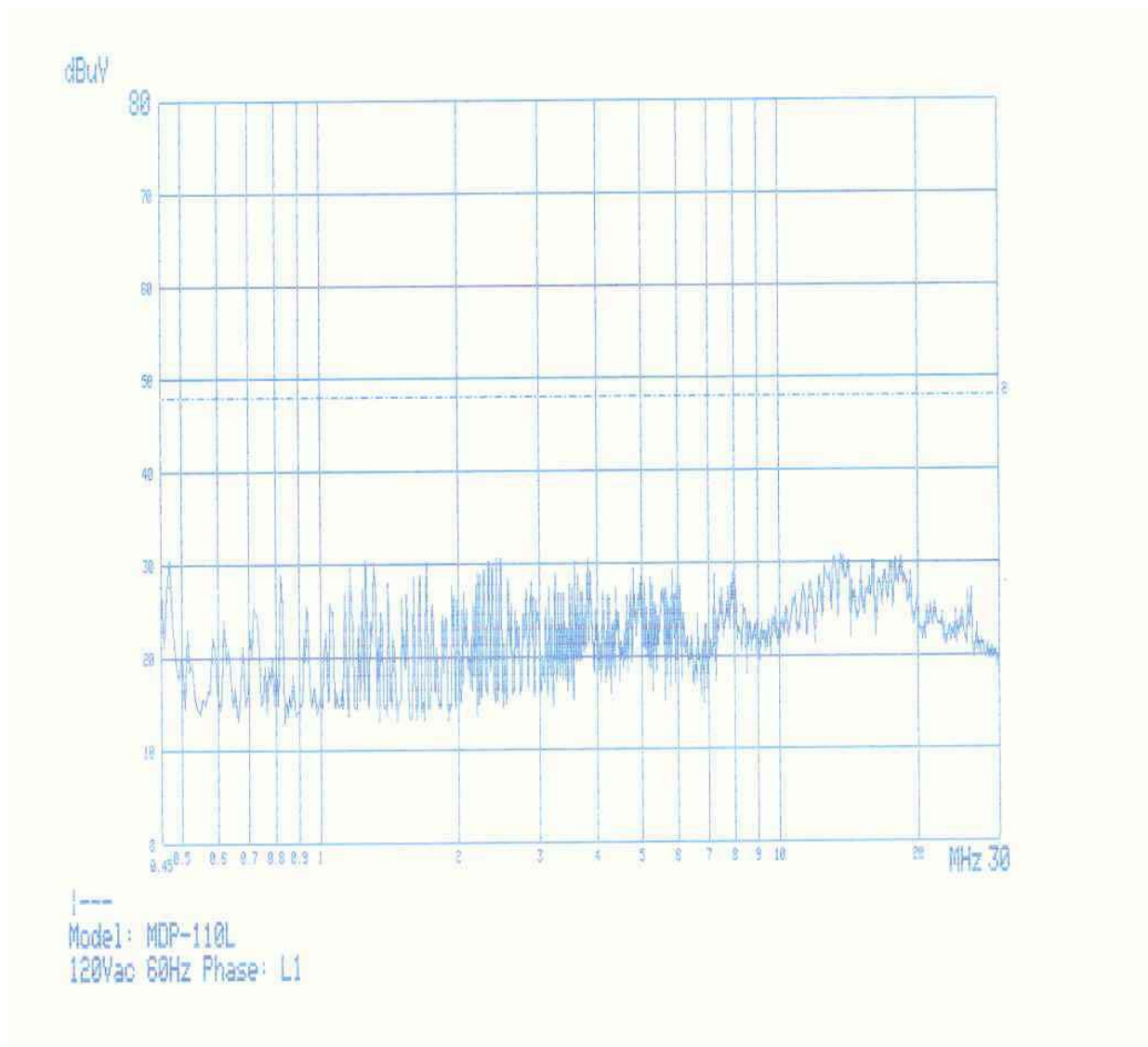
Type : MDP-110L
 Manufacturer : Macro Image Technology, Inc.
 Operation mode : HD-TV Reception mode
 Date : Jun. 03, 2002

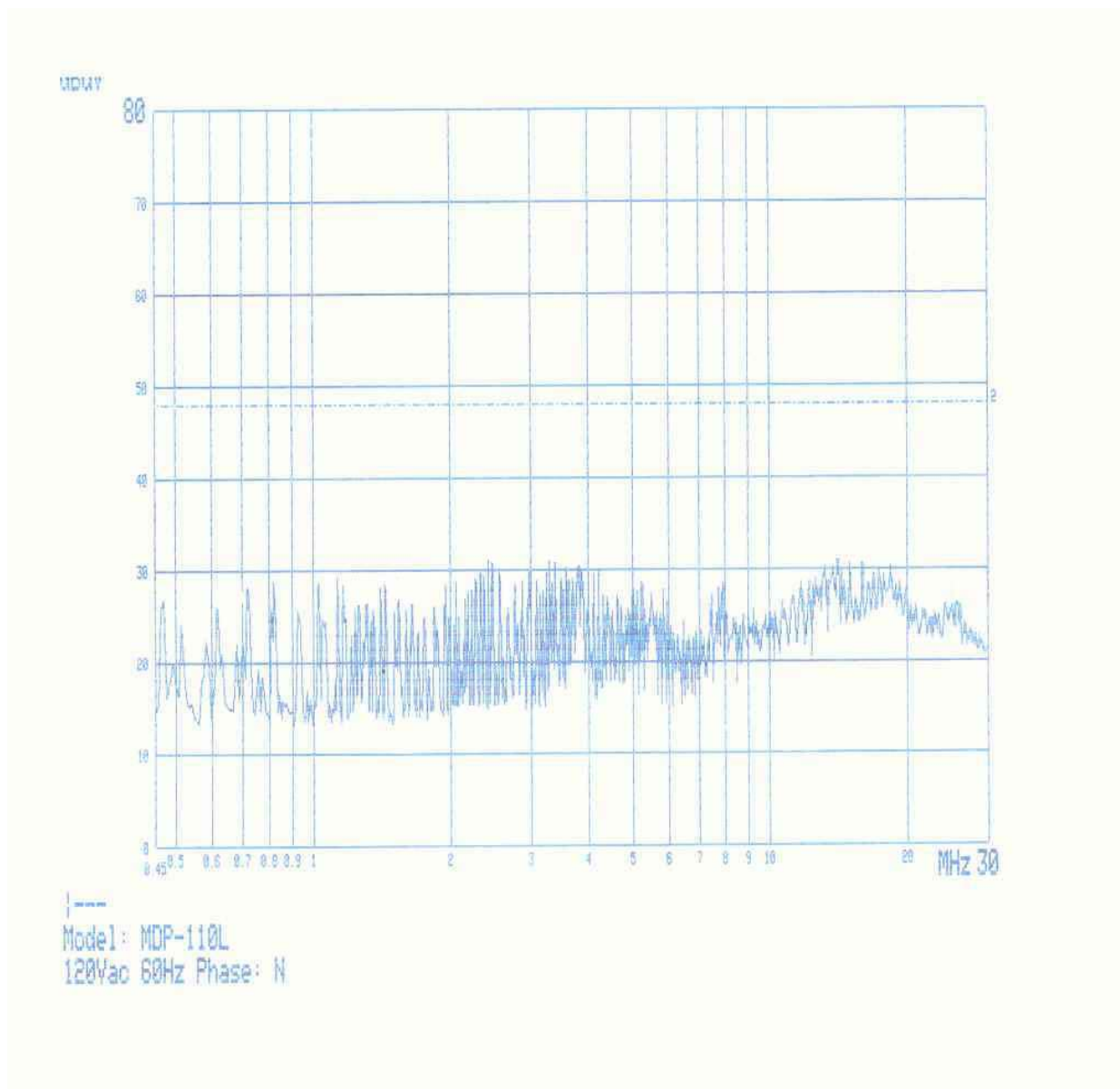
Frequency [MHz]	Reading [dBμV]	Insertion loss [dB]	Phase (L1/N)	Result [dBμV]	Limit [dBμV]	Margin [dB]
0.4700	25.7	0.8	L1	26.6	48.0	21.4
1.2592	29.0	0.8		29.8	48.0	18.2
2.4189	27.0	0.8		27.8	48.0	20.2
2.4701	21.9	0.8		22.7	48.0	25.3
3.8200	28.7	0.8		29.5	48.0	18.5
16.0051	31.0	0.8		31.8	48.0	16.2
2.4657	29.7	0.8	N	30.5	48.0	17.5
3.2899	28.6	0.8		29.4	48.0	18.6
3.8034	29.7	0.8		30.5	48.0	17.5
13.2024	24.8	0.8		25.6	48.0	22.4
14.0274	23.1	0.8		23.9	48.0	24.1
16.0030	27.6	0.8		28.4	48.0	19.6
Cable loss are less than 0.1 dB						

*L1 : Live Line

**N : Neutral Line

*** Please refer to data graphs at page 12 ~ 13



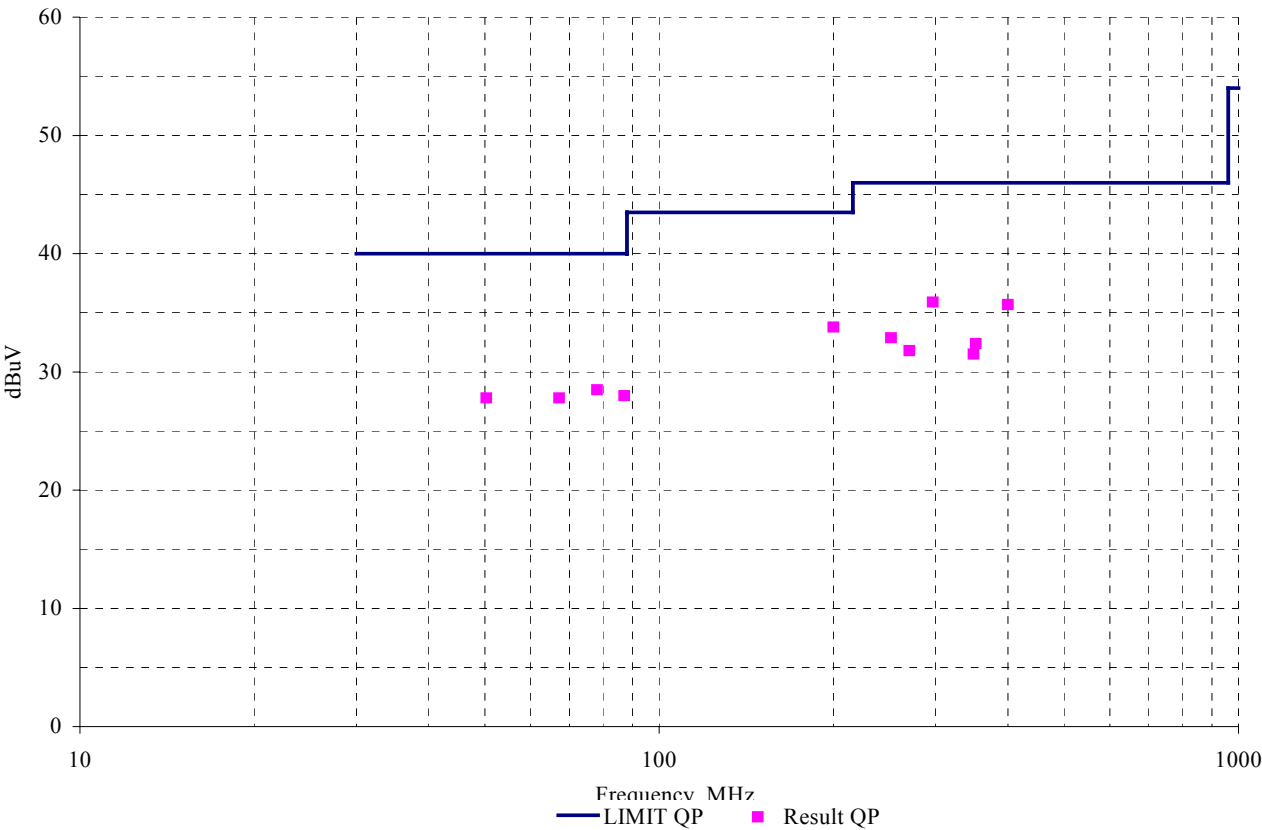


Radiation Test Data

Type : MDP-110L
 Manufacturer : Macro Image Technology, Inc.
 Operation mode : HD-TV Reception mode
 Test distance : 3 m
 Antenna : VULB9160
 Date : Jun. 04, 2002.

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB]	Cable Loss [dB]	Angle [deg]	Height [cm]	Polar [H/V]	Result [dBuV]	Limit [dBuV]	Margin [dB]
50.3	15.9	10.6	1.3	164	119	V	27.8	40.0	12.2
67.2	16.0	10.3	1.5	349	124	V	27.8	40.0	12.2
78.1	18.7	8.2	1.6	334	126	V	28.5	40.0	11.5
87.1	19.1	7.2	1.7	344	118	V	28.0	40.0	12.0
199.9	22.7	8.6	2.5	360	122	V	33.8	43.5	9.7
251.4	19.3	10.8	2.8	324	126	V	32.9	46.0	13.1
270.3	17.2	11.6	3.0	348	219	H	31.8	46.0	14.2
296.7	21.0	11.7	3.2	12	115	V	35.9	46.0	10.1
349.1	16.2	11.7	3.6	11	169	V	31.5	46.0	14.5
351.9	17.1	11.7	3.6	0	102	V	32.4	46.0	13.6
400.0	18.4	13.1	4.2	187	110	V	35.7	46.0	10.3
405.0	21.8	13.3	4.3	179	112	V	39.4	46.0	6.6
498.0	14.8	14.8	4.8	164	121	H	34.4	46.0	11.6
577.7	11.7	16.5	4.7	176	106	V	32.9	46.0	13.1

MEASUREMENT OF DISTURBANCE RADIATION



SUMMARY

GENERAL REMARKS :

The equipment is not modified anything, mechanical or circuit to improve EMI status during a measurement and complied the regulation "Part 15 subpart B Class B of CFR 47"

FINAL JUDGMENT :

The requirements according to the technical regulations are

☒ Kept ☐ Not kept

The equipment under test does

☒ Fulfill the general approval requirements mentioned on page 3.
☐ Not fulfill the general approval requirements mentioned on page 3.

Begin of testing : Jun. 03, 2002

End of testing : Jun. 04, 2002

Reviewed by :



Joon H. Lee, EMC Manager
IST EMC Lab.

Approved by :



G. Chung, Chief of EMC Lab.