



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test report file number : E025R-003

Applicant : MARUSYS CO., LTD.

Address : HongWoo Buliding 4F., 945-1, Daechi-Dong, Kangnam-Ku, Seoul, 135-280, Korea

Manufacturer : MARUSYS CO., LTD.

Address : HongWoo Buliding 4F., 945-1, Daechi-Dong, Kangnam-Ku, Seoul, 135-280, Korea

Type of Equipment : Digital Picture Frame (Class B Computing Device Peripheral)

FCC ID : P7JMOMMYFRAME

Model Name : MommyFrame

Multiple Model Name : N/A

Serial number : N/A

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

Date of Incoming : December 18, 2001

Date of Issuing : May 03, 2002

SUMMARY

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

This test report contains only the results 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.

Prepared by: 
G. W. Lee/ Assistant Chief Engineer
EMC & Telecom Div.

Reviewed by: 
Y. K. Kwon/ Chief Engineer
EMC & Telecom Div.



ONETECH

Testing & Evaluation Lab.

Page 2 of 13

FCC ID. : **Error!** **Unknown**

File No. : **Error!** **Unknown**

document property name.

ONETECH Corp.

ONETECH Corp.

document property name.

CONTENTS

	Page
1. VERIFICATION OF COMPLIANCE	4
2. GENERAL INFORMATION	5
2.1 PRODUCT DESCRIPTION	5
2.2 RELATED SUBMITTAL(S) / GRANT(S)	5
2.3 TEST SYSTEM DETAILS	5
2.4 TEST METHODOLOGY	5
2.5 TEST FACILITY	5
3. SYSTEM TEST CONFIGURATION.....	7
3.1 JUSTIFICATION	7
3.2 EUT EXERCISE SOFTWARE	7
3.3 CABLE DESCRIPTION	7
3.4 NOISE SUPPRESSION PARTS ON CABLE	8
3.5 EQUIPMENT MODIFICATIONS	7
3.6 CONFIGURATION OF TEST SYSTEM	8
4. PRELIMINARY TEST.....	9
4.1 AC POWER LINE CONDUCTED EMISSION TEST	9
4.2 RADIATED EMISSION TEST	9
5. FINAL RESULT OF MEASUREMENT	10
5.1 CONDUCTED EMISSION TEST.....	10
5.2 RADIATED EMISSION TEST	13
6. FIELD STRENGTH CALCULATION.....	15
7. LIST OF TEST EQUIPMENT	16

document property name.

1. VERIFICATION OF COMPLIANCE

-. APPLICANT : MARUSYS CO., LTD.
 -. ADDRESS : HongWoo Buliding 4F., 945-1, Daechi-Dong, Kangnam-Ku, Seoul, 135-280, Korea
 -. CONTACT PERSON : Mr. Won-Jeong, Park / Senior Engineer
 -. TELEPHONE NO : +82-2-3445-3999(EXT103)
 -. FCC ID : P7JMOMMYFRAME
 -. MODEL NO/NAME : MommyFrame
 -. SERIAL NUMBER : N/A
 -. DATE : May 03, 2002

DEVICE TYPE	Class B Computing Device Peripheral - Unintentional Radiator
E.U.T. DESCRIPTION	Digital Picture Frame
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.

document property name.

2. GENERAL INFORMATION

2.1 Product Description

The MARUSYS CO., LTD., Model MommyFrame (referred to as the EUT in this report) is a Digital Picture Frame that is connected a personal computer via USB port. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Wood (Front), Metal (Rear)
DISPAY	10.4inch TFT LCD Display (800 x 600 Pixels)
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	40 MHz, 20 MHz, 3.6864 MHz, 1.8432 MHz
NUMBER OF LAYERS	4 Layers (MAIN B'D), 2 Layers (DC/AC Inverter B'D)
EXTERNAL CONNECTOR	USB Slave Port, Ethernet Port, Adapter Port

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 that were used in the tested system is:

Model	Manufacturer	FCC ID	Description	Connected to
MommyFrame	MARUSYS CO., LTD.	P7JMOMMYFRAME	Digital Picture Frame (EUT)	NOTEBOOK PC
PW118KA	AULT Korea Corp.	N/A	AC/DC ADAPTER	EUT
S690	Samsung Elect.	DOC	NOTEBOOK PC	-
AD-6019(V)	Samsung Elect.	N/A	AC/DC ADAPTER	NOTEBOOK PC
M-S48a	Logitech	JNZ201213	MOUSE	NOTEBOOK PC
2225C	HP	DSI6XU2225	PRINTER	NOTEBOOK PC

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

This report shall not be reproduced except in full without our written approval.

FCC-003 (Rev.0)

HEAD OFFICE : #505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City, Kyunggi-Do, 462-121, Korea
 (TEL: +82-31-746-8500, FAX: +82-31-746-8700)

EMC Testing Dept : 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea (TEL: +82-31-765-8288, FAX: +82-31-766-2904)

document property name.

January 18, 2002. (Registration Number: 92819)

document property name.

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	MARUSYS CO., LTD.	Digital Picture Frame	N/A
LCD Panel	UNIPAC	UB104S01	N/A
DC-AC Inverter B'D	PIS Corp.	AT0104HD	N/A

3.2 EUT exercise Software

- . The image files in the HDD of PC was uploading into the EUT via USB port and than the EUT continuously displayed uploaded image files on LCD.
- . The EUT continuously communicated with PC using ping program via Ethernet port.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
Digital Picture Frame (EUT)	N	N	1.0(P), 1.5(D)
AC/DC ADAPTER (for the EUT)	N	N	1.5(P), 1.0(D)
NOTEBOOK PC	N	-	1.5 (P)
AC/DC ADAPTER (for the notebook PC)	N	N	1.2(P), 1.0(D)
MOUSE	N/A	N	1.2(D)
PRINTER	N	Y	1.5(P), 1.5(D)

* The marked "(P)" means the Power Cable and "D" means the I/O Cable.

document property name.

3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
Digital Picture Frame (EUT)	Y	BOTH END (USB)	Y	BOTH END (USB)
	N	N/A (Ethernet)	N	N/A (Ethernet)
AC/DC ADAPTER (for the EUT)	N	N/A	Y	EUT END
NOTEBOOK PC	-	-	-	-
AC/DC ADAPTER (for the notebook PC)	Y	Notebook PC END	Y	Notebook PC END
MOUSE	N	N/A	Y	PC END
PRINTER	N	N/A	Y	BOTH 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 connected to AC/DC adapter and the adapter 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.

document property name.

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)
Uploading of image files via USB port.	
Displayed picture on screen and communicated via Ethernet port.	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)
Uploading of image files via USB port.	
Displayed picture on screen and communicated via Ethernet port.	X

document property name.

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 : 49 % Temperature : 19 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107
 Type of Test : CLASS B
 Result : PASSED BY -4.45 dB at 2.34 MHz

EUT : Digital Picture Frame Date: January 08, 2002
 Operating Condition : Displayed picture on screen and communicated via Ethernet port.
 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)
2.34	43.55	NEUTRAL	48.00	-4.45
2.47	41.68	NEUTRAL	48.00	-6.32
2.67	41.91	HOT	48.00	-6.09
6.61	39.78	NEUTRAL	48.00	-8.22
21.49	42.06	NEUTRAL	48.00	-5.94
22.03	39.21	HOT	48.00	-8.79

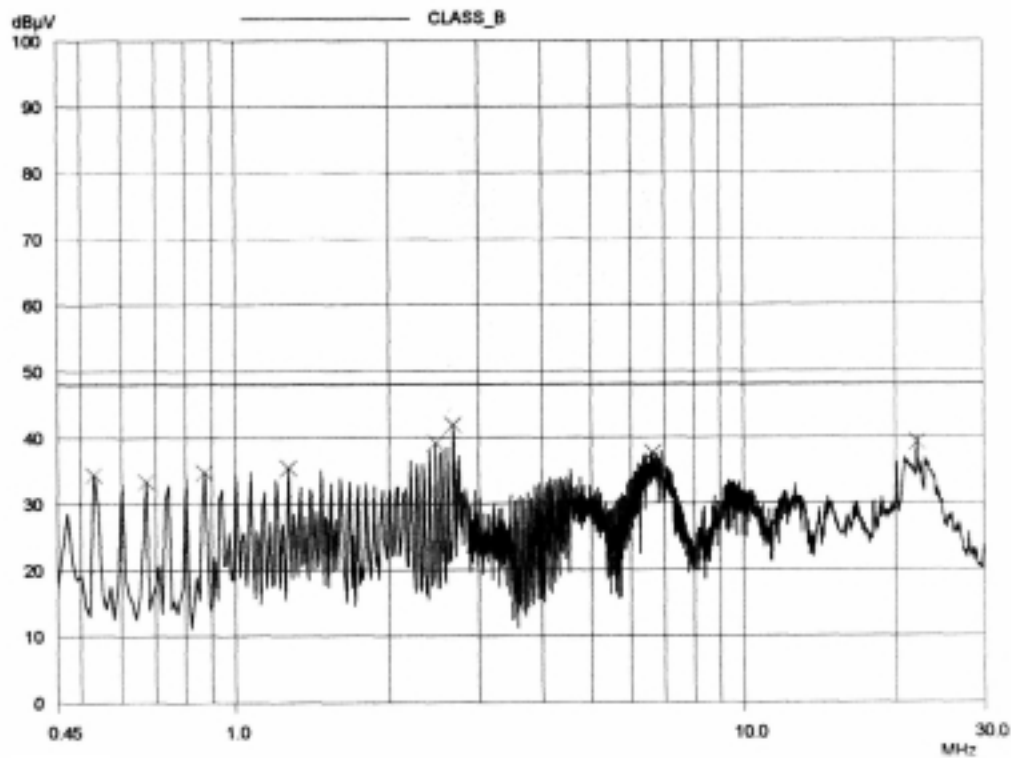
Line Conducted Emission Tabulated Data



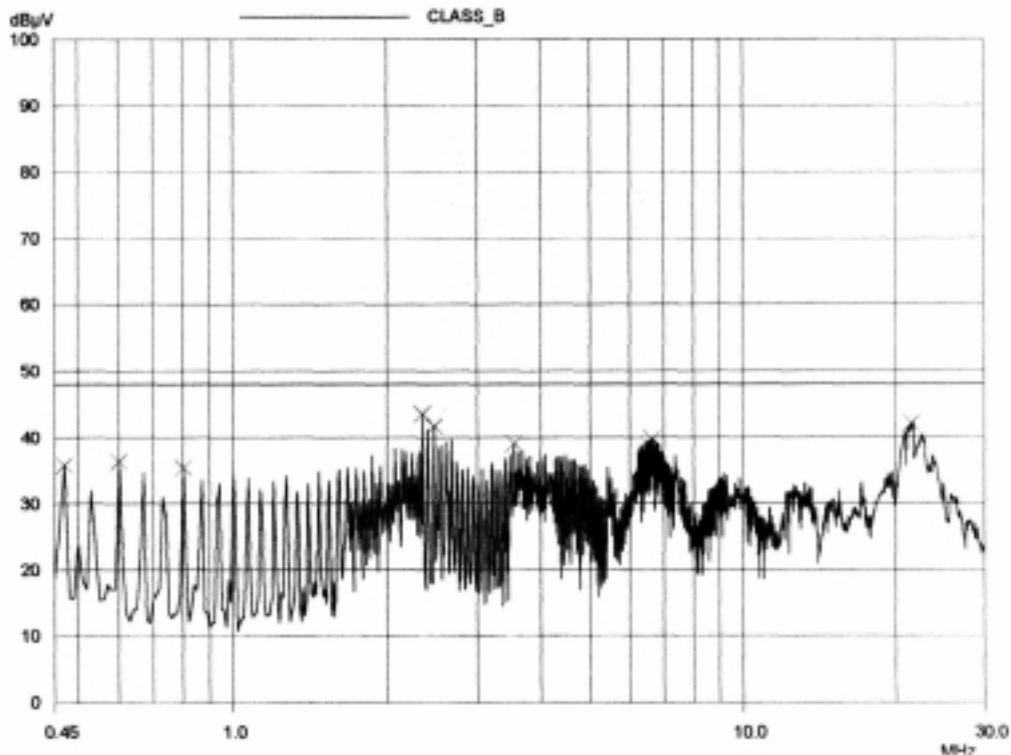
Tested by: Sue-Yong, Lee / Test Engineer



document property name.



HOT LINE



This report shall not be reproduced except in full without our written approval.

FCC-003 (Rev.0)

HEAD OFFICE : #505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City, Kyunggi-Do, 462-121, Korea
(TEL: +82-31-746-8500, FAX: +82-31-746-8700)

EMC Testing Dept : 426-1 Daeangryong-Ri Chong-Myun Kwangju-City, Kyunggi-Do 464-860 Korea (TEL: +82-31-765-8288, FAX: +82-31-766-2904)

document property name.

NEUTRAL LINE

document property name.

5.2 Radiated Emission Test

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

Humidity Level : 49 % Temperature : 17 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109
 Type of Test : CLASS B
 Result : PASSED BY -3.45 dB at 722.65 MHz

EUT : Digital Picture Frame Date: January 05, 2002
 Operating Condition : Displayed picture on screen and communicated via Ethernet port.
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Distance : 3 Meter

Radiated Emissions		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)
40.30	13.40	H	10.47	0.82	24.69	40.00	-15.31
80.03	18.50	V	6.38	1.00	25.88	40.00	-14.12
103.24	15.10	V	12.46	1.16	28.72	43.50	-14.78
120.00	20.69	V	13.19	1.23	35.11	43.50	-8.39
160.00	14.90	H	15.03	1.38	31.31	43.50	-12.19
200.00	21.50	V	11.30	1.57	34.37	43.50	-9.13
206.40	20.90	H	11.14	1.60	33.64	43.50	-9.86
240.00	23.00	H	11.36	1.78	36.14	46.00	-9.86
280.00	26.70	V	13.32	1.91	41.93	46.00	-4.07
309.80	25.10	H	14.45	2.06	41.61	46.00	-4.39
320.20	24.90	H	14.30	2.12	41.32	46.00	-4.68
360.40	19.60	H	14.68	2.33	36.61	46.00	-9.39
412.40	16.40	H	15.68	2.45	34.53	46.00	-11.47
480.40	19.60	H	17.19	2.62	39.41	46.00	-6.59
516.25	16.50	V	17.65	2.71	36.86	46.00	-9.14
560.40	20.80	V	18.31	2.81	41.92	46.00	-4.08
619.45	15.10	V	19.07	2.98	37.15	46.00	-8.85

This report shall not be reproduced except in full without our written approval.

FCC-003 (Rev.0)

HEAD OFFICE : #505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City, Kyunggi-Do, 462-121, Korea
 (TEL: +82-31-746-8500, FAX: +82-31-746-8700)

EMC Testing Dept : 46-1 Daeangyong-Ri Chong-Myun Kwangju-City, Kyunggi-Do 464-860 Korea (TEL: +82-31-765-8289, FAX: +82-31-766-2904)



document property name.

722.65	18.17	V	20.94	3.44	42.55	46.00	-3.45
826.00	14.90	V	21.76	3.75	40.41	46.00	-5.59
840.00	11.70	H	22.14	3.81	37.65	46.00	-8.35
880.40	12.40	V	22.63	3.89	38.92	46.00	-7.08
928.80	14.00	V	22.79	4.04	40.83	46.00	-5.17

Radiated Emissions Tabulated Data

Tested by: Sue-Yong, Lee / Test Engineer

document property name.

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)

document property name.

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/01	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	APR/02	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3109A05456	APR/02	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	APR/02	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	APR/02	12MONTH	■
6.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	APR/02	12MONTH	■
7.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	APR/02	12MONTH	■
8.	LISN	EMCO	3825/2	9109-1867 9109-1869	JUL/01	12MONTH	■
9.	Computer System	HP	98581C	98543A	N/A	N/A	■
	Hard disk drive		9153C	CMC762Z9153	N/A	N/A	■
10.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
11.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
12.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■