



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test report file number : E021R-052

Applicant : MAX MEDIA INC.

Address : 327-14, Dangjung-Dong, Kunpo-City, Kyounggi-Do, 435-030, Korea

Manufacturer : MAX MEDIA INC.

Address : 327-14, Dangjung-Dong, Kunpo-City, Kyounggi-Do, 435-030, Korea

Type of Equipment : 17.0" TFT LCD MONITOR (Class B Computing Device Peripheral)

FCC ID : PBF-MF170D

Model / Type No. : MF170D,

Multiple Model/ Type No. : N/A

Serial number : N/A

Total page of Report : 14 pages (including this page)

Date of Incoming : November 20, 2001

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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: 
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Reviewed by: 
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FCC-003 (Rev.0)

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ONETECH

ONETECH Testing & Evaluation Lab.

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1. VERIFICATION OF COMPLIANCE

-. APPLICANT : MAX MEDIA INC.
 -. ADDRESS : 327-14, Dangjung-Dong, Kunpo-City, Kyunggi-Do, 435-030, Korea
 -. CONTACT PERSON : Mr. Harrison Kim / Chief Research Engineer
 -. TELEPHONE NO : +82-31-284-9434
 -. MODEL NO/NAME : MF170D
 -. SERIAL NUMBER : N/A
 -. DATE : January 26, 2002

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	17.0" TFT LCD MONITOR
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 MAX MEDIA INC., Model MF170D (referred to as the EUT in this report) is a 17.0" TFT LCD MONITOR that is connected a personal computer. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
IMAGE DISPAY TYPE	ACTIVE MATRIX COLOR TFT LCD
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	12 MHz, 14.318 MHz, 24.576 MHz, 6 MHz
INPUT FREQUENCY	HORIZONTAL: 31~80kHz / VERTICAL: 56~75 Hz
MAX RESOLUTION	SXGA 1280 x 1024 @ 75Hz
NUMBER OF LAYERS	4 Layers (Main B'd), 1 Layer (Key B'd), 2 Layers (Inverter B'd)
EXTERNAL CONNECTOR	VGA Input (15pin D-Sub), DVI-D In, USB 1Up/2Down, C-Video In (RCA), S-Video In

Model Differences:

The difference(s) compared to the EUT is as follows: 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
MF170D	MAX MEDIA INC.	PBF-MF170D	17.0" TFT LCD MONITOR (EUT)	PC
LSE9901B1260	LI SHIN	N/A	AC/DC ADAPTER	EUT
KDT-3863	KDS	DOC	PC	-
GHV-S9990	GOLDSTAR	DOC	VCR	EUT
STC-930	SOTEC	DOC	KEYBOARD (USB)	EUT
STM-930	SOTEC	DOC	MOUSE (USB)	EUT
2225C	HP	DSI6XU2225	PRINTER	PC
020-0470	CARDINAL	GDE0196	MODEM	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 January 18, 2002. (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
LCD PANEL	SAMSUNG	LTM170EH-L01	N/A
MAIN LOGIC B'D	MAX MEDIA INC.	MF170D V1.A	N/A
INVERTER BOARD	Green C&C Tech	GH035	N/A
KEY CONTROL BOARD	MAX MEDIA INC.	MF170D KEY	N/A

3.2 EUT exercise Software

The windows program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. This program was included into HOST. Once loaded, this program sequentially exercises each system component in turn. The sequence used is: (1) series of H characters are printed on the monitor until the screen is completely full, (2) copy series of H characters to mass storage device (if one is used), (3) print series of H characters to printer. The complete cycle is repeated continuously.

The investigated resolution mode of the EUT was at 1280 x 1024 at 75Hz.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
17.0" TFT LCD MONITOR (EUT)	N	Y N	1.2(P), 1.5(D), 1.2(D)
AC/DC ADAPTER	N	N/A	1.2(P)
PC	N	-	1.5(P)
KEYBOARD	N/A	Y	1.2(D)
MOUSE	N/A	Y	1.2(D)
VCR	N	N	1.5(P), 1.2(D)
MODEM	N	Y	1.5(P), 1.5(D)
PRINTER	N	Y	1.5(P), 1.5(D)

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

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3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
17.0" TFT LCD MONITOR (EUT)	Y	BOTH END	Y	BOTH END
AC/DC ADAPTER	Y	EUT END	Y	EUT END
PC	-	-	-	-
KEYBOARD	N	N/A	Y	EUT END
MOUSE	N	N/A	Y	EUT END
VCR	N	N/A	Y	BOTH END
MODEM	N	N/A	Y	BOTH 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.

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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)
Resolution: 640x480	
Resolution: 800x600	
Resolution: 1024x768	
Resolution: 1280 x 1024	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)
Resolution: 640x480	
Resolution: 800x600	
Resolution: 1024x768	
Resolution: 1280 x 1024	X

Remark: When connecting the EUT to the DVI-D port on personal computer, the emission level was investigated the worst case.

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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 : 50 % Temperature : 20 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107
 Type of Test : CLASS B
 Result : PASSED BY -8.68 dB at 2.87 MHz

EUT : 17.0" TFT LCD MONITOR Date: November 23, 2001
 Operating Condition : Resolution 1280 x 1024 mode
 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)
0.67	35.09	NEUTRAL	48.00	-12.91
1.22	35.94	NEUTRAL	48.00	-12.06
2.87	39.32	NEUTRAL	48.00	-8.68
3.42	37.52	HOT	48.00	-10.48
5.15	34.83	NEUTRAL	48.00	-13.17
9.54	37.79	HOT	48.00	-10.21

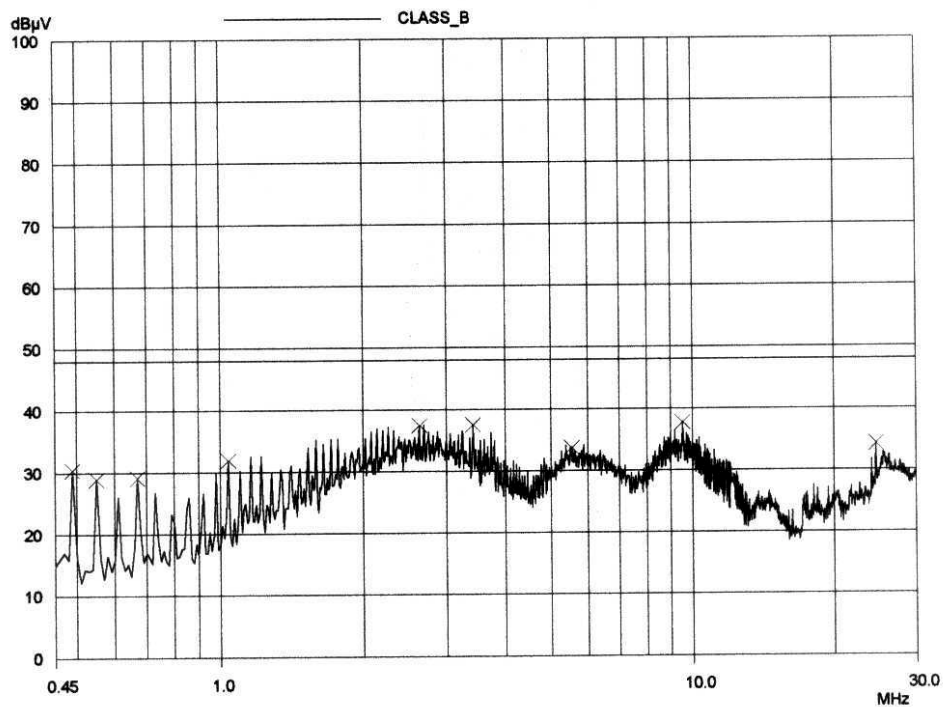
Line Conducted Emission Tabulated Data



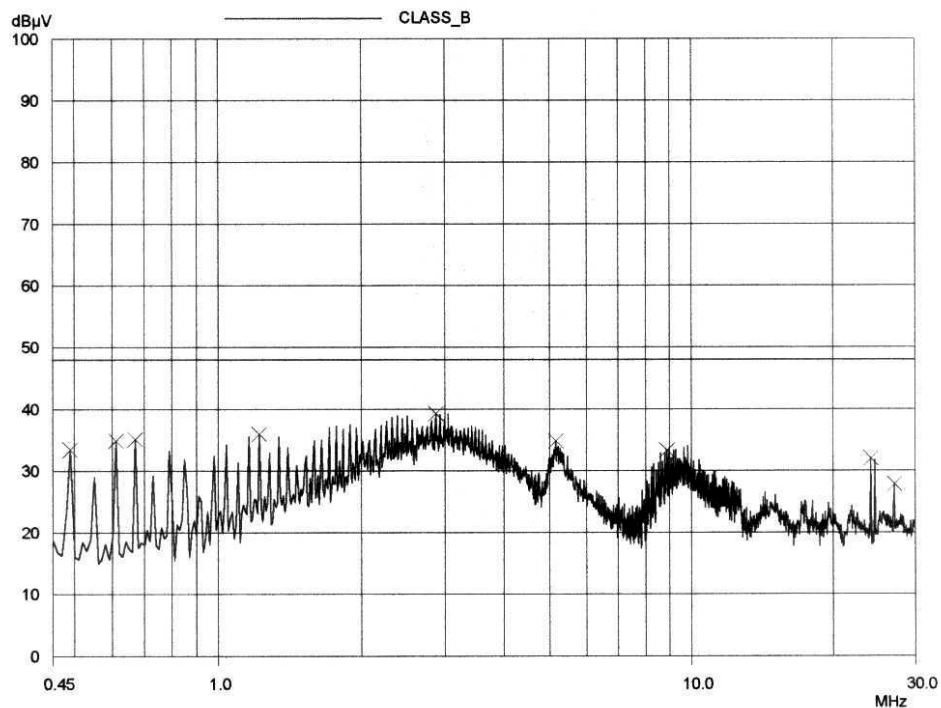
Tested by: Young-Min Choi / Project Engineer



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HOT LINE



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 : 51 % Temperature : 15 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109
 Type of Test : CLASS B
 Result : PASSED BY -2.41dB at 730.80MHz

EUT : 17.0" TFT LCD MONITOR Date: December 12, 2001
 Operating Condition : Resolution 1280 x 1024 mode
 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)
42.40	17.50	V	10.41	0.85	28.76	40.00	-11.24
60.19	20.20	V	9.91	0.98	31.09	40.00	-8.91
68.70	21.10	V	7.96	1.00	30.06	40.00	-9.94
77.30	26.90	V	6.72	1.00	34.62	40.00	-5.38
85.90	27.90	V	7.50	1.10	36.50	40.00	-3.50
94.50	25.30	V	9.84	1.13	36.27	43.50	-7.23
103.17	19.80	V	12.45	1.16	33.41	43.50	-10.09
128.90	18.70	V	13.24	1.26	33.20	43.50	-10.30
214.60	22.40	H	10.94	1.65	34.99	43.50	-8.51
257.80	21.50	H	12.19	1.85	35.54	46.00	-10.46
279.40	19.30	V	13.28	1.91	34.49	46.00	-11.51
301.00	17.80	H	14.58	2.01	34.39	46.00	-11.61
324.20	13.90	H	14.24	2.15	30.29	46.00	-15.71
344.20	22.60	V	14.51	2.25	39.36	46.00	-6.64
387.40	19.30	V	15.12	2.41	36.83	46.00	-9.17
412.40	15.00	H	15.68	2.45	33.13	46.00	-12.87
429.60	16.20	H	16.03	2.49	34.72	46.00	-11.28

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472.80	14.50	H	17.01	2.60	34.11	46.00	-11.89
498.60	18.40	H	17.62	2.68	38.70	46.00	-7.30
540.20	22.70	V	17.95	2.75	43.40	46.00	-2.60
602.00	21.50	V	18.84	2.91	43.25	46.00	-2.75
648.80	14.00	H	19.91	3.08	36.99	46.00	-9.01
730.80	19.20	H	20.93	3.46	43.59	46.00	-2.41
755.60	17.50	H	20.84	3.53	41.87	46.00	-4.13
773.60	14.00	H	20.85	3.60	38.45	46.00	-7.55
864.40	16.50	V	22.54	3.87	42.91	46.00	-3.09
903.20	15.10	H	22.63	3.95	41.68	46.00	-4.32
972.40	16.10	V	23.48	4.14	43.72	54.00	-10.28
989.60	15.50	V	24.05	4.20	43.75	54.00	-10.25

Radiated Emissions Tabulated Data

Tested 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	OCT/01	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	APR/01	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3109A05456	APR/01	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	APR/01	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	APR/01	12MONTH	■
6.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	APR/01	12MONTH	■
7.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	APR/01	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.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
11.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
12.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
13.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■