



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

Test report file number : E00NR-052

Applicant : ATEC SYSTEM CO., LTD.

Address : #1451-78, Seocho-Dong, Seocho-Gu, Seoul, 137-866, Korea

Manufacturer : ATEC SYSTEM CO., LTD.

Address : #1451-78, Seocho-Dong, Seocho-Gu, Seoul, 137-866, Korea

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

FCC ID : PDLAL151

Model / Type No. : AL151

Serial number : N/A

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

Date of Incoming : October 30, 2000

Date of Issuing : November 28, 2000

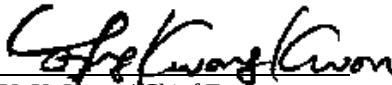
SUMMARY

The equipment complies with the regulation; FCC PART 15 SUBPART B, SECTION 15.101

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.

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1. VERIFICATION OF COMPLIANCE

APPLICANT : ATEC SYSTEM CO., LTD.
 ADDRESS : #1451-78, Seocho-Dong, Seocho-Gu, Seoul, 137-866, Korea
 CONTACT PERSON : Mr. J. H. Oh / Engineer
 TELEPHONE NO : 82-2-2190-5155
 FCC ID : PDLAL151
 MODEL NO/NAME : AL151
 SERIAL NUMBER : N/A
 DATE : November 28, 2000

DEVICE TYPE	Class B Computing Device Peripheral - Unintentional Radiator
E.U.T. DESCRIPTION	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 (Class B)
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 ATEC SYSTEM CO., LTD., Model AL151 (referred to as the EUT in this report) is a LCD MONITOR which is a super-slim TFT LCD Monitor with 1/5 of the size, weight and power consumption of comparable sized CRT Monitor. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	14.318 MHz, 6 MHz, 12 MHz
POWER REQUIREMENT	DC12V, 3A from AC/DC Adapter
MAX RESOLUTION	XGA 1024 x 768 @ 75Hz
NUMBER OF LAYERS	4 Layers (Main B'd), 2 Layers (DC/DC Converter B'D, USB B'd, OSD B'd)
EXTERNAL CONNECTOR	VGA INPUT (15pin D-SUB), DC IN, USB port x 5EA, Audio input

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
AL151	ATEC SYSTEM CO., LTD.	PDLAL151	LCD MONITOR(EUT)	PC
N/A	SAMSUNG ELECTRIC	N/A	AC/DC ADAPTER	EUT
PC100	N/A	DOC	PC	-
3500U	BTC KOREA.	DOC	KEYBOARD (USB)	EUT
LS-A32NB	LOOK & SAY CO., LTD.	DOC	USB CAMERA (1)	EUT
LS-P32NB	LOOK & SAY CO., LTD.	DOC	USB CAMERA (2)	EUT
ICU 200UV	LOOK & SAY CO., LTD.	DOC	USB CAMERA (3)	EUT
OK-720	A4 TECH	DOC	MOUSE	PC
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 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	ATEC SYSTEM CO., LTD.	GMZSIL	N/A
DC/DC CONVERTER BOARD	LG ELECTRONICS	N001C	N/A
USB BOARD	ATEC SYSTEM CO., LTD.	USB B'D	N/A
OSD BOARD	ATEC SYSTEM CO., LTD.	N/A	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.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
LCD MONITOR (EUT)	N	N	1.2(P), 1.5(D)
AC/DC ADAPTER	N	N	1.5(P), 1.2(D)
PC	N	-	1.5(P)
PC CAMERA (1)	N	N	1.5(D)
PC CAMERA (2)	N	N	1.5(D)
PC CAMERA (3)	N	N	1.5(D)
KEYBOARD	N/A	Y	1.2 (D)
MOUSE	N/A	Y	1.2(D)
MODEM	N	Y	1.5(P), 1.5(D)
PRINTER	N	Y	1.5(P), 1.5 (D)

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



3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
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
PC CAMERA (1)	N	N/A	Y	BOTH END
PC CAMERA (2)	N	N/A	Y	BOTH END
PC CAMERA (3)	Y	BOTH END	Y	BOTH END
MOUSE	N	N/A	Y	PC 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.

The EUT has same 4 USB ports, so the 4 USB Ports were connected to the EUT to determine the effect these cables or wires have on emissions from the EUT in preliminary testing, but these additional cables does not significantly affect the emission level from EUT.

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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	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	X



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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 : 55 % Temperature : 22 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107
 Type of Test : CLASS B
 Result : PASSED BY -6.24 dB at 5.02 MHz

EUT : LCD MONITOR Date: November 07, 2000
 Operating Condition : Resolution 1024X768 mode
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

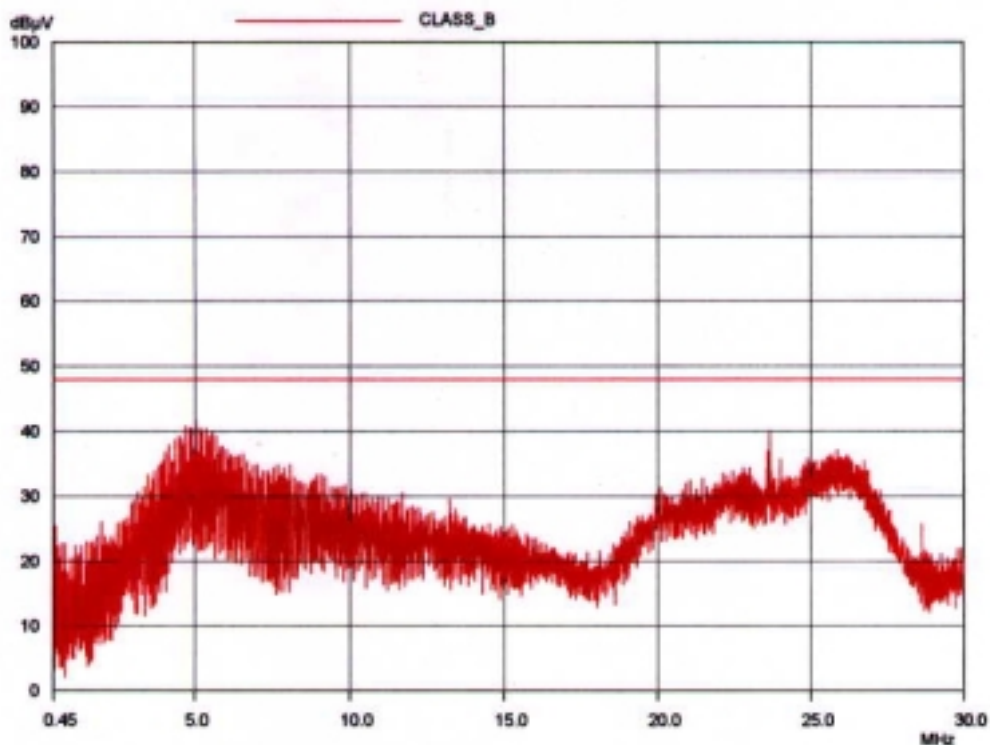
Power Line Conducted Emission			FCC CLASS B	
Frequency (MHz)	Amplitude (dBuV)	Conductor	Limit (dBuV)	Margin (dB)
5.02	41.76	HOT	48.00	-6.24
8.06	34.80	HOT	48.00	-13.20
22.66	36.66	NEUTRAL	48.00	-11.34
23.65	40.06	HOT	48.00	-7.94
25.86	37.07	HOT	48.00	-10.93
26.11	38.30	NEUTRAL	48.00	-9.70

Line Conducted Emission Tabulated Data

Measuring by: Seung Hyun, Nam / Test Engineer

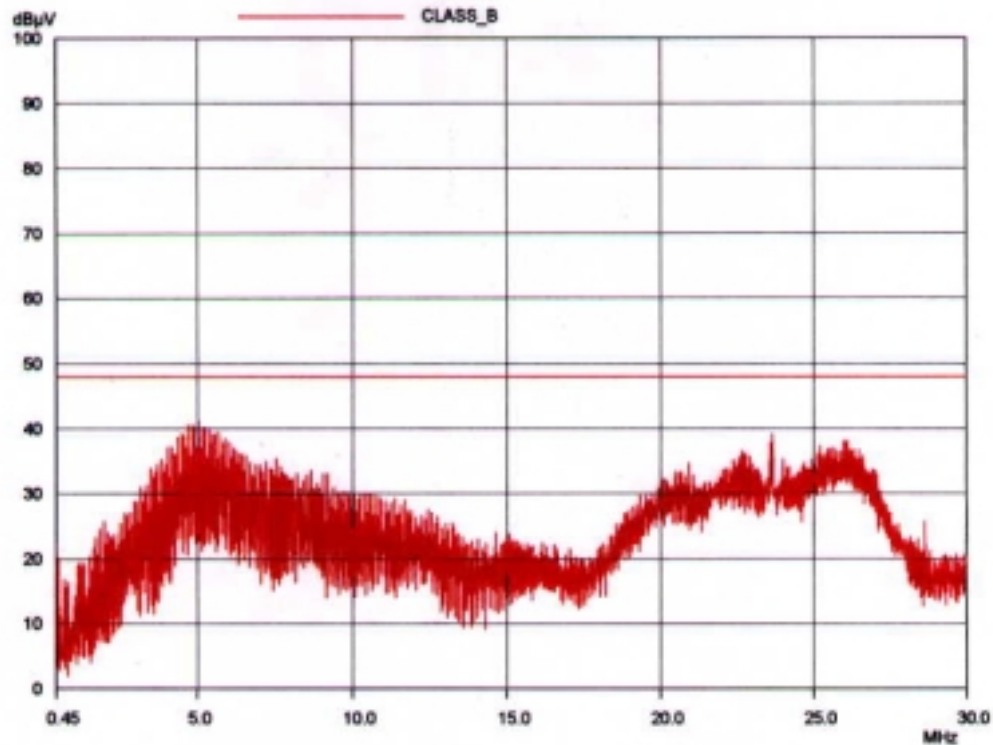


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HOT LINE



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 : 56 % Temperature : 16 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109
 Type of Test : CLASS B
 Result : PASSED BY -5.88 dB at 652.8 MHz

EUT : LCD MONITOR Date: November 08, 2000
 Operating Condition : Resolution 1024X768 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)
65.45	23.40	V	8.46	1.00	32.86	40.00	-7.14
78.55	19.80	H	6.32	1.00	27.12	40.00	-12.88
91.43	22.30	V	8.94	1.11	32.35	43.50	-11.15
130.52	15.00	H	12.98	1.26	29.24	43.50	-14.26
137.00	14.20	V	12.76	1.30	28.26	43.50	-15.24
182.99	14.50	V	16.18	1.47	32.15	43.50	-11.35
208.80	15.60	H	11.68	1.62	28.90	43.50	-14.60
228.40	14.70	H	12.01	1.72	28.43	46.00	-17.57
248.00	17.80	V	12.34	1.82	31.96	46.00	-14.04
288.20	13.70	H	14.71	1.95	30.36	46.00	-15.64
457.20	19.30	V	17.13	2.56	38.99	46.00	-7.01
522.80	12.40	V	18.41	2.73	33.54	46.00	-12.46
652.80	16.80	V	20.23	3.09	40.12	46.00	-5.88

Radiated Emissions Tabulated Data

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Measuring by: Seung Hyun, Nam / Test 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 Hard disk drive	HP	98581C 9153C	98543A CMC762Z9153	N/A N/A	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	■