



EMISSION TEST REPORT

Test report file No. : **02-IST-023/FB**Date of issue : Feb. 04, 2001Model / Type No. : L520B☒ Basic ☐ AlternateKind of product : LCD MonitorBrand name : DaewooApplicant : Daewoo Electronics Co., Ltd. Display Business DivisionManufacturer : Daewoo Electronics Co., Ltd. Display Business DivisionLicense holder : Daewoo Electronics Co., Ltd. Display Business DivisionAddress : 543, Dangjung-Dong, Kunpo-City, Kyonggi-Do, Korea**Test result** according to the regulation(s)☒ Positive ☐ Negative

at page 3.

This test report with appendix consists of 16 pages.

The test result only responds to the tested sample.

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.

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EQUIPMENT UNDER TEST

Equipment Description :

LCD Pannel :	15.0 inch TFT LCD
	Pixel Pinch 0.297 x 0.297 mm
Frequency Range :	Vertical 50 ~ 75 Hz, Horizontal 30 ~ 62 kHz
PC Input Signal :	H / V separated (TTL)
	15 pin mini D-Sub (Analog RGB)
Power Supply Input :	100 ~ 240 Vac, 50/60 Hz
Power consumption :	26 W (Max)
Micom Type :	MTV312MV64U (MYSON) – clock 12 MHz
Dimensions (W x H x D) :	370 x 352 x 205 mm (with stand)

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 : Scrolling “H” characters under MS Windows 98,
 Test mode : 1024 X 768, 75 Hz

Configuration of the equipment under test :

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

Equipment	Type	Brand	Serial No.
PC	Brio BA600/550	HP	SG01902402
Keyboard	SK-2502C	HP	M0004102821
Mouse1	M-S48A	HP	LZE01251424
Printer	A0302384	Northern Telecom	26633S60168
Mouse2	M-MD14-2	Logitech	N/A

Connecting Interface Cables :

- Unshielded AC power cable : 1.8 m
- Shielded monitor's signal cable : 1.5 m
- Shielded printer's signal cable : 1.8 m

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 :



S. J. Oh / 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 :



S. J. Oh / Research Engineer
IST EMC Lab.

TEST RESULT

Conducted emissions : 450 kHz - 30 MHz

The requirements are.

☒ KEPT

☐ NOT KEPT

Min. limit margin

4.1 dB at 3.849 MHz

Remarks : See test-graph to be attached at pages 11 ~ 13.

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are.

☒ KEPT

☐ NOT KEPT

Min. limit margin

4.1 dB at 330.7 MHz

Remarks : See test-data at page 14 ~ 15.

TEST SETUP (Photos)

Type : L520B



Conducted Emissions 0.15 MHz - 30 MHz



TEST SETUP (Photos)

Type : L520B

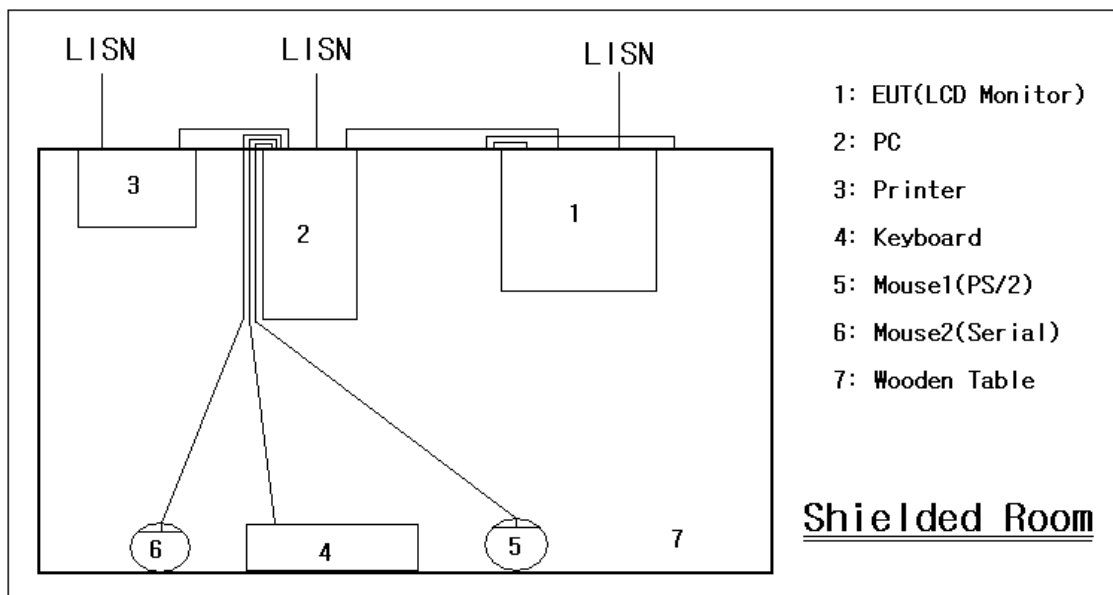
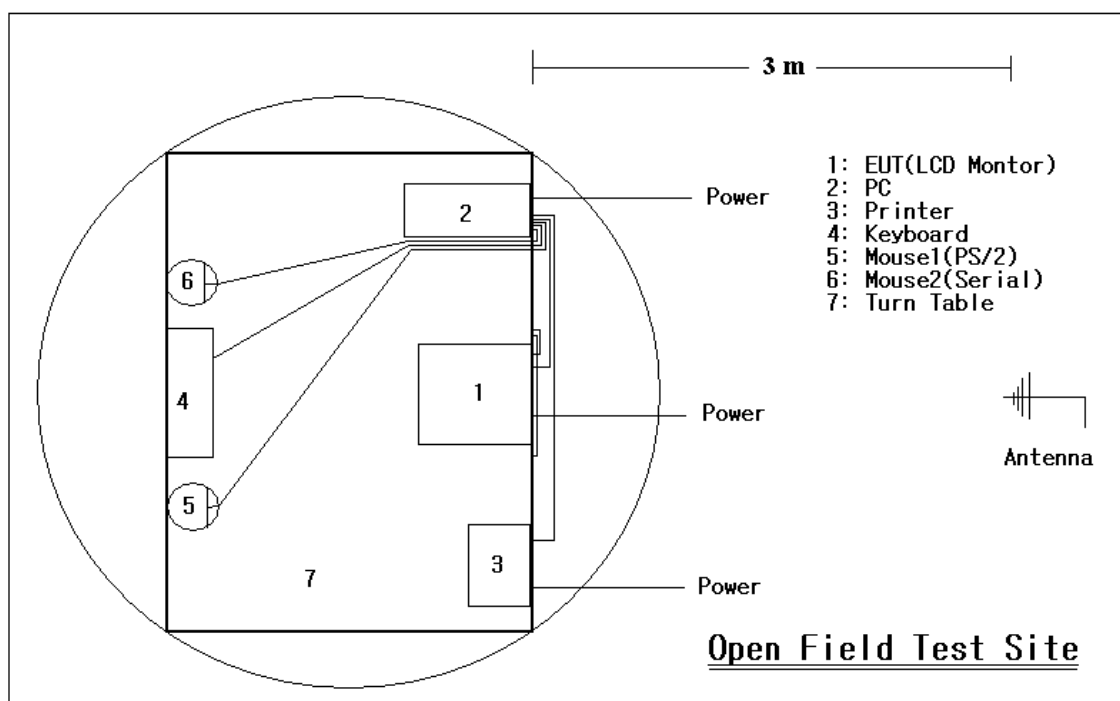


Radiated Emissions 30 MHz - 1000 MHz



TEST SETUP (Drawings)

Type : L520B

Conducted Emissions 0.15 MHz - 30 MHzRadiated Emissions 30 MHz - 1000 MHz

Conducted Emission Test Data

Type	L520B		
Manufacturer	Daewoo Electronics Co., Ltd. Display Business Division		
Operation mode	Scrolling "H" pattern display 1024 x 768, 75Hz		
Environmental Condition	Temperature	:	18 °C
	Humidity	:	40 %
	Atmospheric pressure	:	1000 mbar
Date	Jan. 24, 2002		

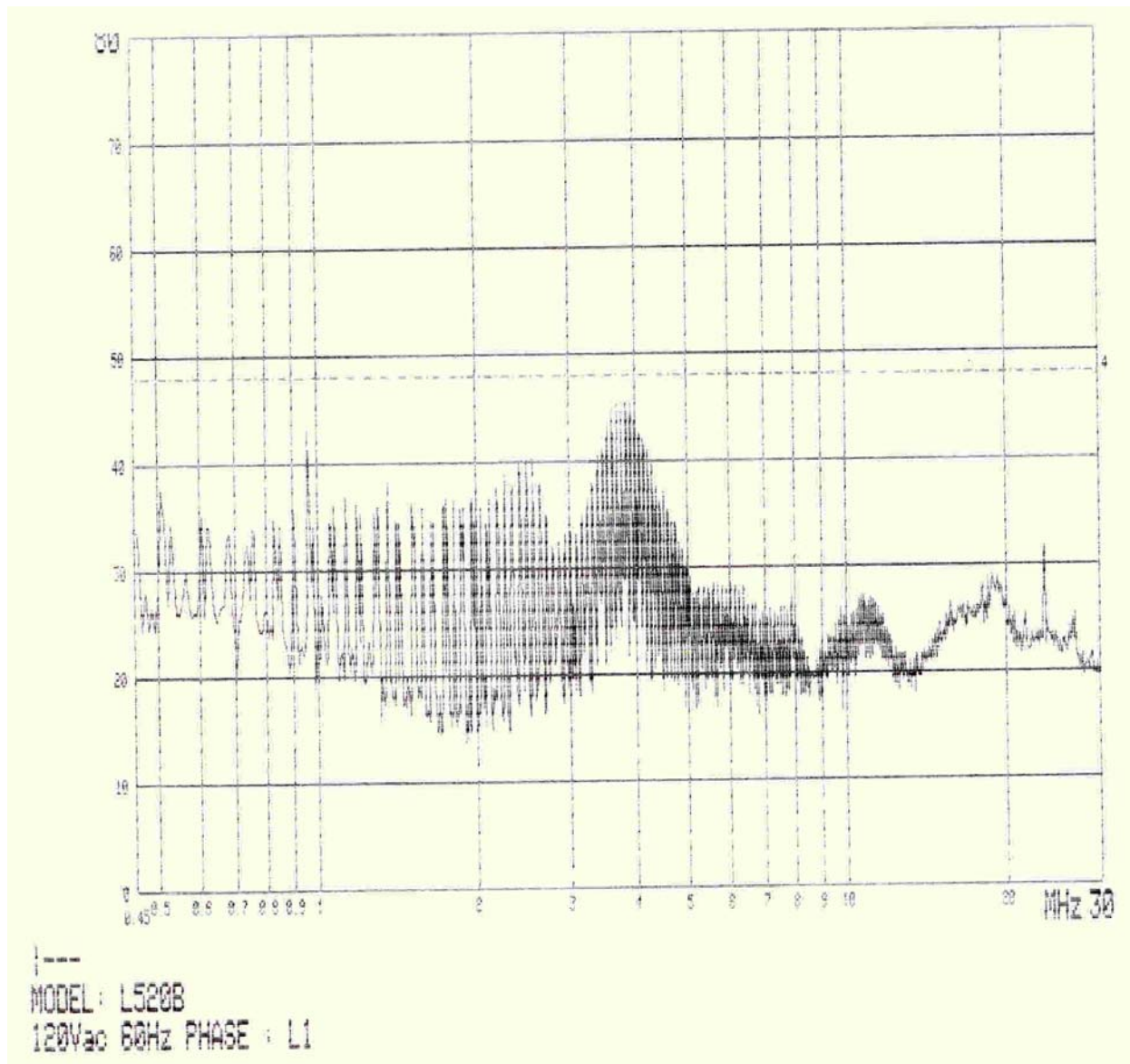
Highest Emissions relative to the limit

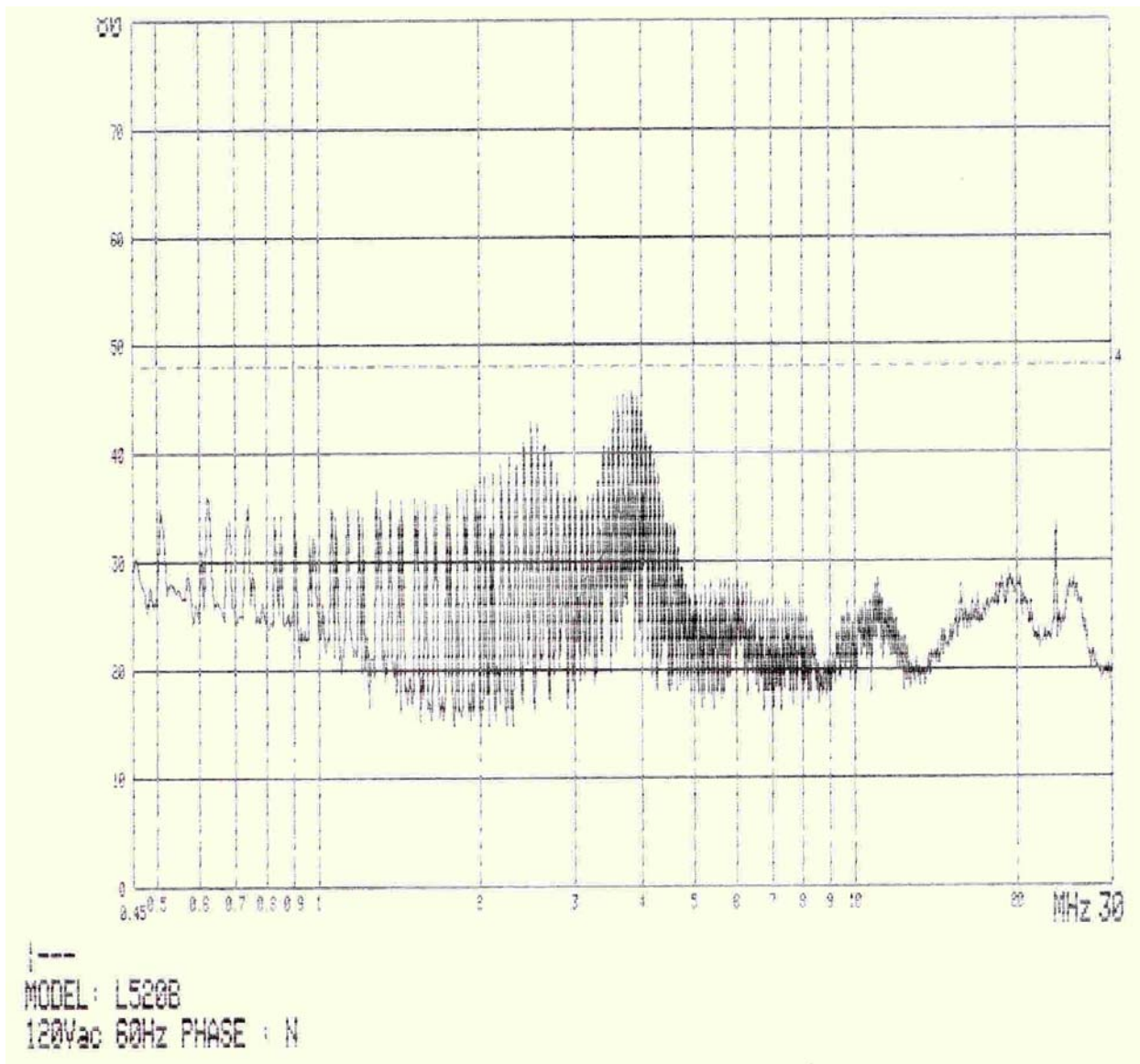
Frequency [MHz]	Reading [dBμV]	Insertion loss [dB]	Phase (L1/N)	Result [dBμV]	Limit [dBμV]	Margin [dB]
0.509	35.8	0.8	L1	36.6	48.0	11.4
0.964	42.5	0.8		43.3	48.0	4.7
2.564	37.6	0.8		38.4	48.0	9.6
3.625	42.3	0.8		43.1	48.0	4.9
3.846	43.0	0.8		43.8	48.0	4.2
23.652	32.1	0.8		32.9	48.0	15.1
1.285	35.1	0.8	N	35.9	48.0	12.1
2.492	40.9	0.8		41.7	48.0	6.3
2.564	40.5	0.8		41.3	48.0	6.7
3.698	43.0	0.8		43.8	48.0	4.2
3.849	43.1	0.8		43.9	48.0	4.1
23.651	33.2	0.8		34.0	48.0	14.0
Cable loss are less than 0.1 dB						

*L1 : Live Line

**N : Neutral Line

*** Please refer to data graphs at page 11 ~ 12

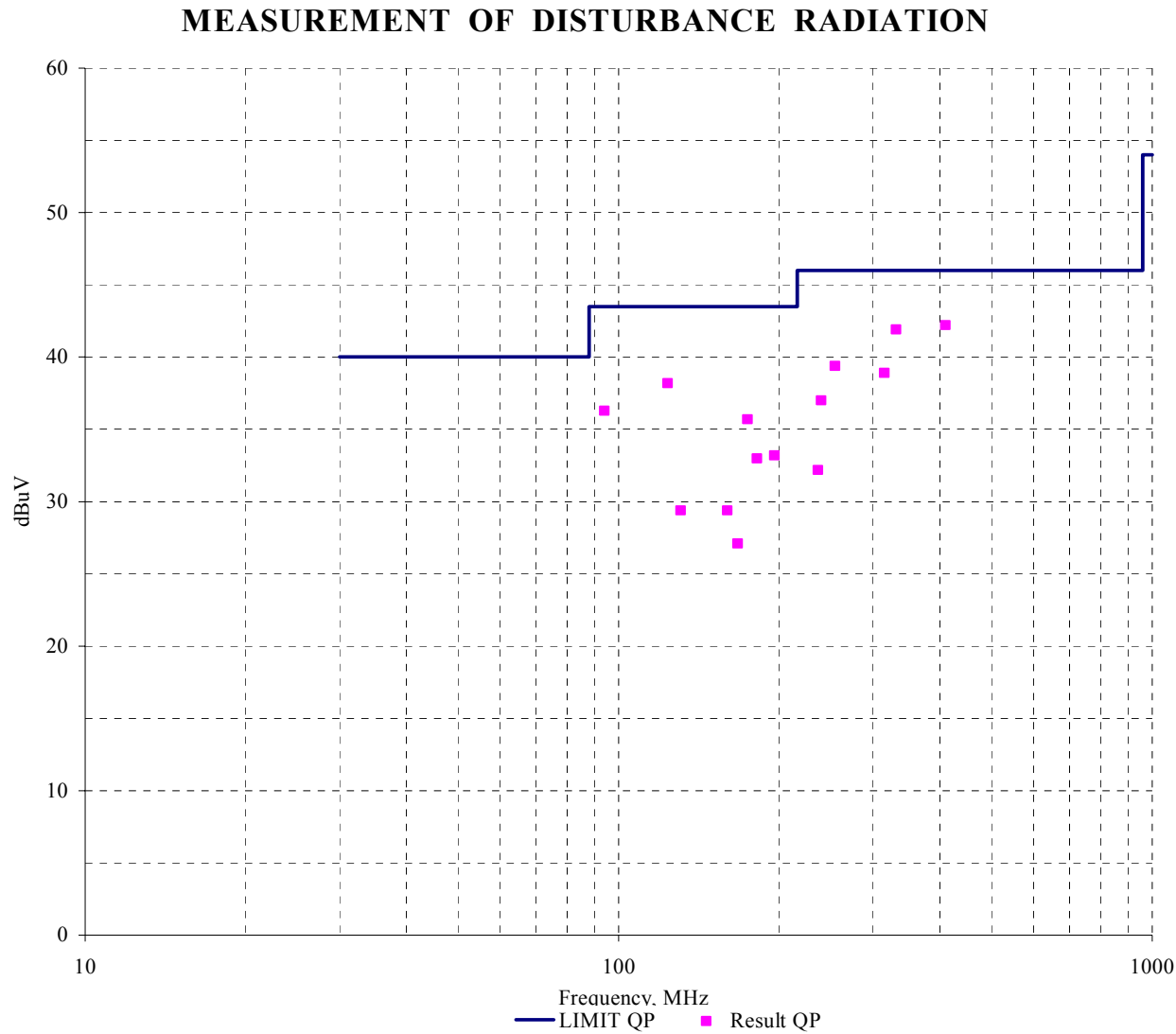




Radiation Test Data

Type	L520B
Manufacturer	Daewoo Electronics Co., Ltd. Display Business Division
Operation mode	Scrolling "H" pattern display 1024 x 768, 75Hz
Environmental Condition	Temperature : 18 °C Humidity : 40 % Atmospheric pressure : 1000 mbar
Test distance	3 m
Antenna	VULB9160
Date	Jan. 25, 2002

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB]	Cable Loss [dB]	Angle [deg]	Height [cm]	Polar [H/V]	Result [dBuV]	Limit [dBuV]	Margin [dB]
94.0	27.1	7.4	1.7	117	134	H	36.2	43.5	7.3
123.4	26.0	10.2	2.1	11	146	H	38.3	43.5	5.2
130.7	16.8	10.5	2.1	58	162	V	29.4	43.5	14.1
159.7	14.8	12.3	2.3	130	100	V	29.4	43.5	14.1
167.0	12.4	12.3	2.4	275	100	V	27.1	43.5	16.4
174.2	21.7	11.6	2.4	267	100	V	35.7	43.5	7.8
181.5	20.3	10.3	2.4	264	100	V	33.0	43.5	10.5
196.0	21.9	8.8	2.5	310	100	V	33.2	43.5	10.3
236.2	19.4	9.9	2.9	264	100	V	32.2	46.0	13.8
239.6	24.0	10.1	2.9	253	100	V	37.0	46.0	9.0
254.1	25.6	10.9	2.8	68	100	V	39.3	46.0	6.7
315.0	23.8	11.7	3.4	45	100	V	38.9	46.0	7.1
330.7	26.8	11.7	3.4	153	181	V	41.9	46.0	4.1
409.5	24.6	13.3	4.3	285	104	H	42.2	46.0	3.8



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 : Jan. 21, 2002

End of testing : Jan. 28, 2002

Reviewed by :

Approved by :



Joon H. Lee. EMC Manager
IST EMC Lab.



G. Chung Chief of EMC Lab.