



EMISSION TEST REPORT

Test report file No. : **02-IST-186/FB**Date of issue : Aug. 28, 2002Model / Type No. : GSM-141☒ Basic ☐ AlternateKind of product : LCD MonitorBrand name : GTTApplicant : GTT Co., Ltd.Manufacturer : GTT Co., Ltd.License holder : GTT Co., Ltd.Address : Suite 509, Pungsan Apt. Factory, 1141-2, Baeksok-dong, Ilsan-gu,
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>
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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.

EQUIPMENT UNDER TEST

Equipment Description :

LCD Pannel :	Active area: 14.1 inch, Pixel Pitch: 0.297 x 0.297 mm Amorphous active matrix TFT-LCD N141X202 (Maker: Chi Mei Optoelectronics Corp.)
Frequency Range :	Vertical: 50 ~ 160 Hz, Horizontal: 30 ~ 95 kHz
Plug and Play :	VESA Compatible
Dimensions (W x H x D) :	326.4 x 264.3 x 166.3 (set with stand)
Power consumption :	Under 30 W
Power Supply (Adapter) :	AD-40A (Maker: ARITECH Co.,Ltd.) Input : 100 ~ 240 Vac, 1.0A (Max.), 50/60 Hz Output : 12 Vdc, 3.0 A

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 :

Equipment	Type	Brand	Serial No
PC	Brio BA600/550	HP	SG01603779
Keyboard	SK-2502C	HP	M000456820
Printer	A0302384	Northern Telecom	25L9S60856
Mouse1	M-S48A	HP	LZA01051466
Mouse2	M-M28	Logitech	LCA53305547

Connecting Interface Cables :

- Unshielded AC power cable : 1.8 m
- Shielded monitor's signal cable : 1.7 m
- Shielded printer's signal cable : 1.8 m
- Unshielded AC power cable for Adapter : 1.7 m
- Unshielded DC power cable for Adapter : 1.4 m
- Unshielded speaker's signal cable of monitor : 1.4 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	Jul. 25, 2002	892108/018
3725/2	LISN	EMCO	Aug. 22, 2002	9101-2068
KNW-407	LISN	Hyup-Rip	Aug. 21, 2002	8-883-10
ESH 3-Z2	Pulse Limiter	Rohde & Schwarz	Jul. 25, 2002	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. G. 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	Aug. 16, 2002	861744/004
VULB 9160	Antenna	Schwarzbeck	Jul. 10, 2002	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. G. Kim / Research Engineer
IST EMC Lab.

TEST RESULT

Conducted emissions : 450 kHz - 30 MHz

The requirements are.

☒ KEPT ☐ NOT KEPT

Min. limit margin

4.5 dB at 5.000 MHz

Remarks : See test-graph to be attached at pages 12 ~ 14.

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are.

☒ KEPT ☐ NOT KEPT

Min. limit margin

3.2 dB at 314.2 MHz

Remarks : See test-data at page 15 ~ 16.

TEST SETUP (Photos)

Type : GSM-141

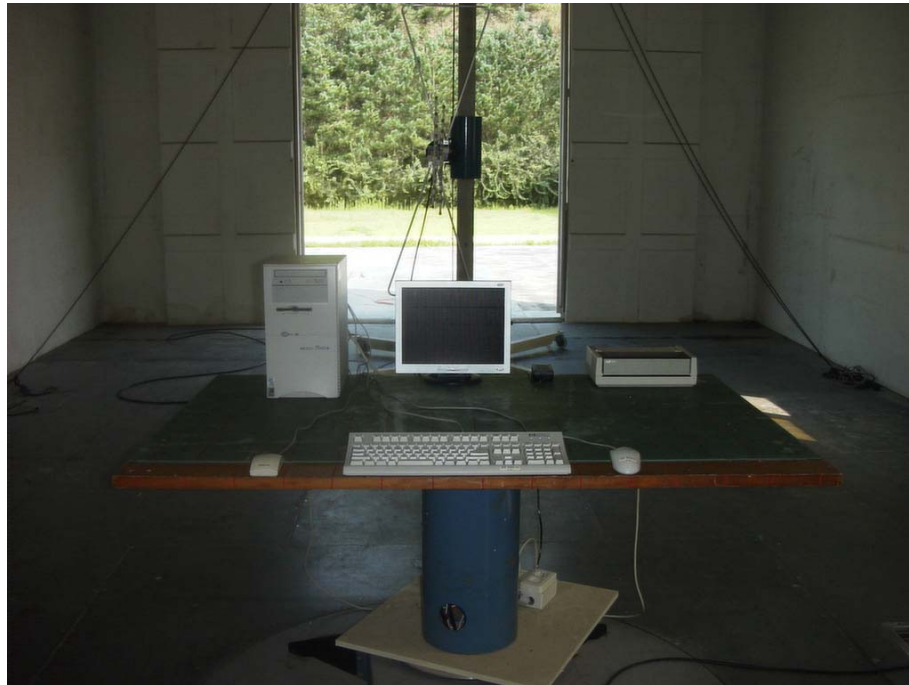


Conducted Emissions 0.15 MHz - 30 MHz



TEST SETUP (Photos)

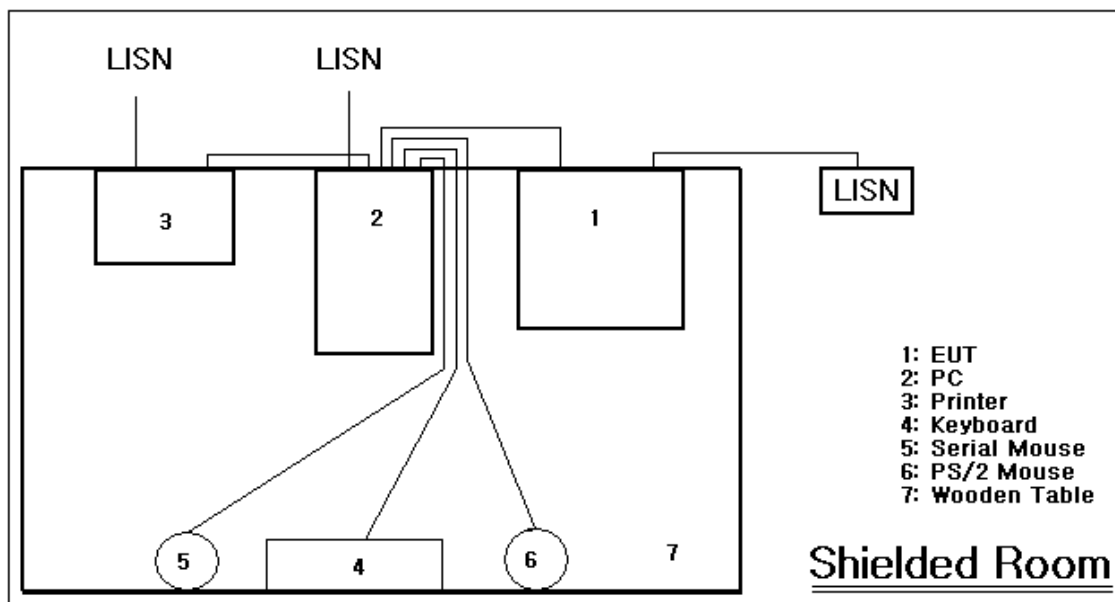
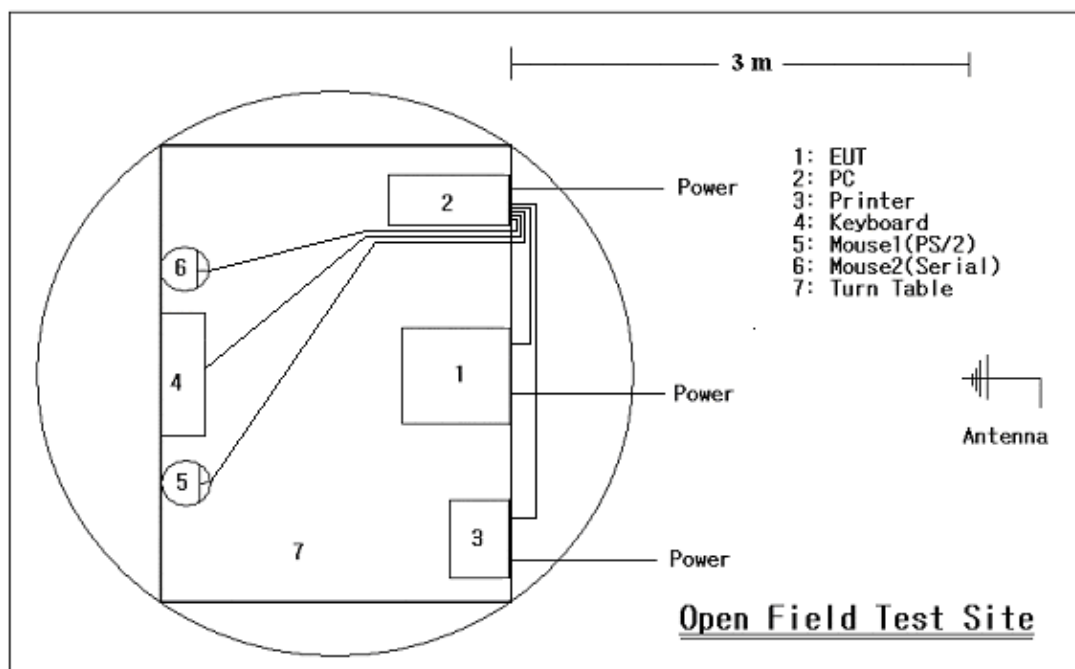
Type : GSM-141



Radiated Emissions 30 MHz - 1000 MHz



TEST SETUP (Drawings)

Type : GSM-141Conducted Emissions 0.45 MHz - 30 MHzRadiated Emissions 30 MHz - 1000 MHz

Conducted Emission Test Data

Type	GSM-141		
Manufacturer	GTT Co., Ltd.		
Operation mode	Scrolling "H" pattern display 1024 x 768, 75Hz		
Environmental Condition	Temperature	:	26 °C
	Humidity	:	44 %
	Atmospheric pressure	:	1000 mbar
Date	Aug. 22, 2002		

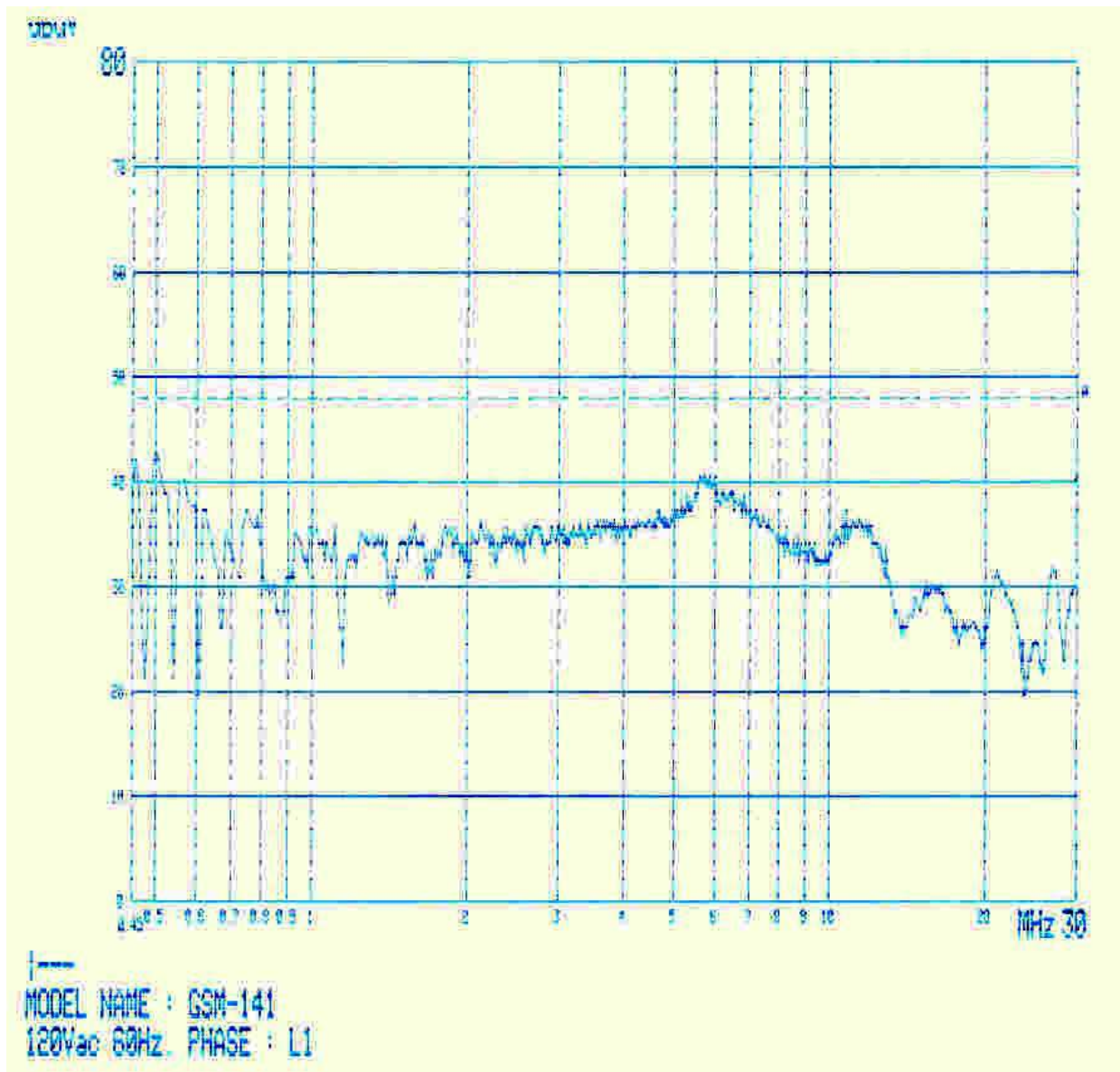
Highest Emissions relative to the limit

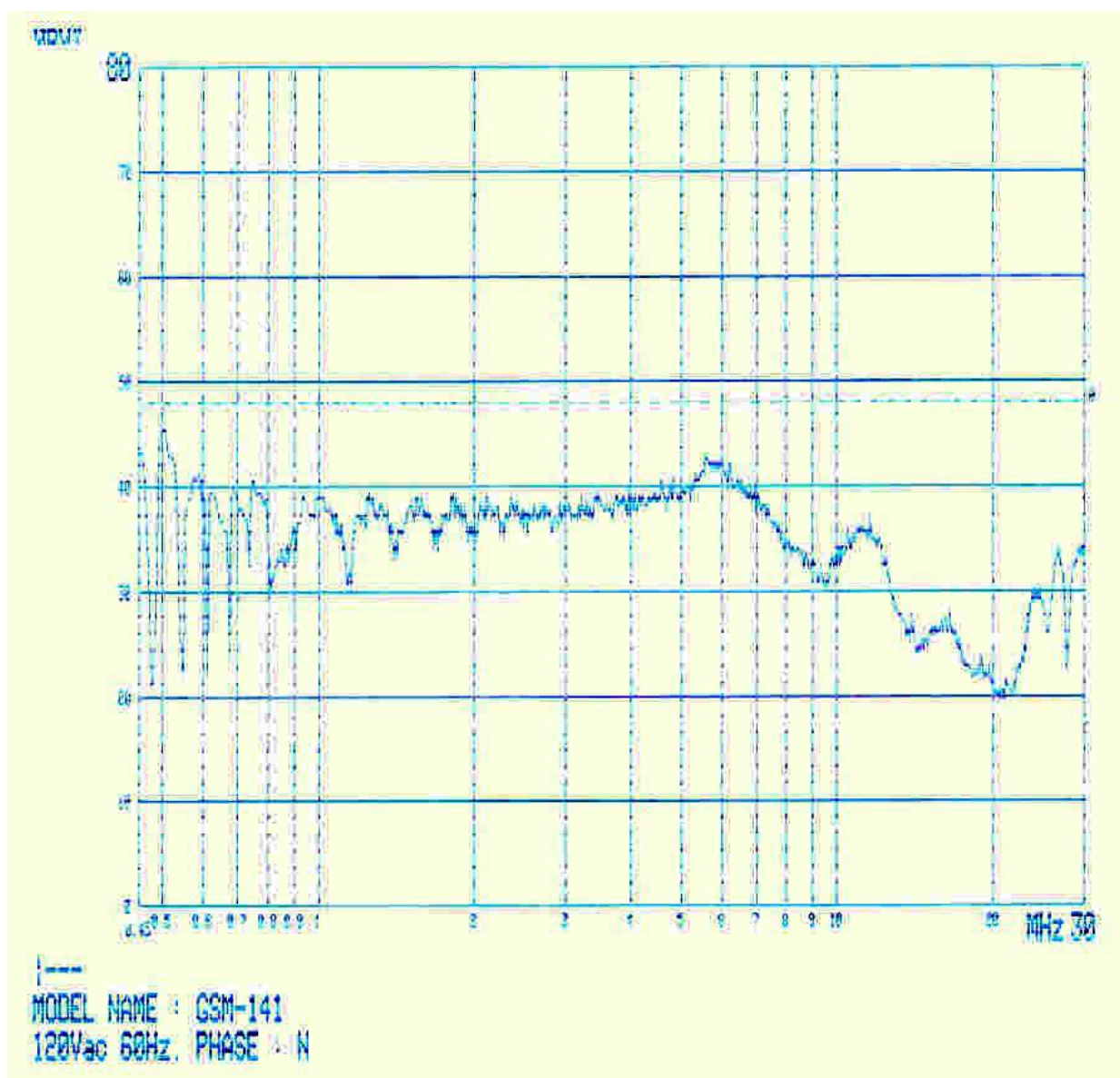
Frequency [MHz]	Reading [dBμV]	Insertion loss [dB]	Phase (L1/N)	Result [dBμV]	Limit [dBμV]	Margin [dB]
0.458	38.8	0.8	L1	39.6	48.0	8.4
0.498	40.3	0.8		41.1	48.0	6.9
0.558	38.3	0.8		39.1	48.0	8.9
5.641	35.8	0.8		36.6	48.0	11.4
5.713	36.1	0.8		36.9	48.0	11.1
10.777	31.2	0.8		32.0	48.0	16.0
0.455	39.0	0.8	N	39.8	48.0	8.2
0.500	42.7	0.8		43.5	48.0	4.5
0.585	38.1	0.8		38.9	48.0	9.1
5.587	38.9	0.8		39.7	48.0	8.3
5.832	38.6	0.8		39.4	48.0	8.6
11.779	32.6	0.8		33.4	48.0	14.6
Cable loss are less than 0.1 dB						

*L1 : Live Line

**N : Neutral Line

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

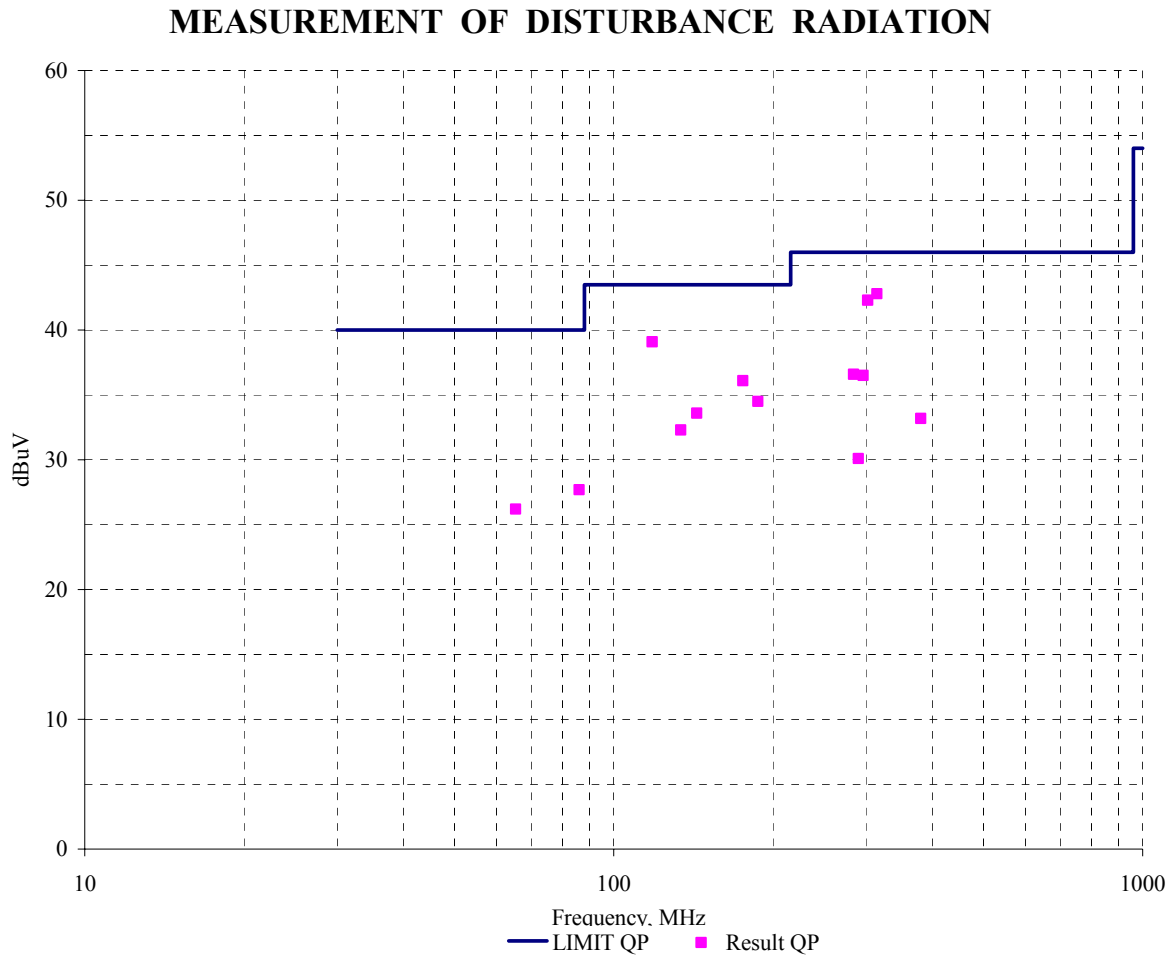




Radiation Test Data

Type	GSM-141
Manufacturer	GTT Co., Ltd.
Operation mode	Scrolling "H" pattern display 1024 x 768, 75Hz
Environmental Condition	Temperature : 28 °C Humidity : 45 % Atmospheric pressure : 1000 mbar
Test distance	3 m
Antenna	VULB9160
Date	Aug. 23, 2002

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB]	Cable Loss [dB]	Angle [deg]	Height [cm]	Polar [H/V]	Result [dBuV]	Limit [dBuV]	Margin [dB]
67.3	23.3	10.3	1.5	295	400	V	35.1	40.0	4.9
86.0	18.8	7.3	1.7	215	100	V	27.8	40.0	12.2
118.2	27.4	9.7	2.0	137	100	V	39.1	43.5	4.4
133.9	19.3	10.9	2.1	163	100	V	32.3	43.5	11.2
143.6	19.6	11.7	2.2	86	100	V	33.5	43.5	10.0
175.3	22.3	11.4	2.4	216	400	V	36.1	43.5	7.4
187.3	22.4	9.6	2.5	292	400	V	34.5	43.5	9.0
284.1	21.6	11.9	3.1	176	386	H	36.6	46.0	9.4
290.1	15.2	11.8	3.1	173	344	H	30.1	46.0	15.9
296.1	21.6	11.7	3.2	178	365	V	36.5	46.0	9.5
302.1	27.3	11.7	3.3	178	362	V	42.3	46.0	3.7
314.2	27.7	11.7	3.4	178	362	V	42.8	46.0	3.2
380.4	16.9	12.5	3.8	178	362	V	33.2	46.0	12.8



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 : Aug. 22, 2002

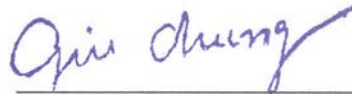
End of testing : Aug. 23, 2002

Reviewed by :



Joon H. Lee. EMC Manager
Daewoo EMC Lab.

Approved by :



G. Chung. Chief of EMC Lab.