IST EMC LAB.

EMISSION TEST REPORT

Test report file No. : **02-IST-069/FB** Date of issue : May. 07, 2002.

Model / Type No. : YTIS-100

Kind of product : SMC Card Reader

Brand name : Flash Memory Driver

Applicant : Hansol Microsystem Co., Ltd.

Manufacturer : Hansol Microsystem Co., Ltd.

Address : Suite 410-2 Building #D, Bundang Techno-Park
151 Yatap-Dong, Bundang-Gu, Sungnam City, Kyung-Gi Do, Korea

Test result according to the regulation(s)

■ Positive ☐ Negative

at page 3.

This test report without appendix consists of 16 pages.
It is not allowed to copy this report even partly without the allowance of the Test Laboratory.
This equipment is complied with the applicable technic al standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-1992.

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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.

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ENVIRONMENTAL CONDITIONS

Temperature	18
Humidity	42 %
Atmospheric pressure	1002 mbar

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 measurments were made in accordance with ANSI G63.4-1992, "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 50? /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 :

Y.J.Kim / Research Engineer
IST EMC Lab.

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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 :

Y.J.Kim / Research Engineer
IST EMC Lab.

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EQUIPMENT UNDER TEST

Equipment Description

The Equipment Under Test (EUT) is the **SMC Card Reader of Hansol Microsystem Co., Ltd.**

Outer dimensions	52.0(W) x 65.0(H) x 9.0(D) : (mm)
Weight	45g
Power requirements	DC 5.0V(Draw power directly from USB port
Read and Write SMC card capacity	2/4/8/16/32/128MB
SMC card format support	SSFDC format ✍ When driver Install
Etc.	PC format support UFI(USB Floppy Interface) protocol application USB high-speed transfer read/write function (Read transfer rate: 6MB, Write transfer rate: 3MB) Secret code function(Application algorism inner cryptograph)
PC OS	Windows 98, ME, 2000, XP, Mc OS support

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 : - Download files from PC to EUT.

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	SG01603779
Monitor	529B	Daewoo	GC95510039
Keyboard	SK-2502C	HP	M000456820
Mouse	M-S48a	HP	LZA01051466

Connecting Interface Cables :

- USB I/O cable : 1.0m

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TEST RESULT

Conducted emissions : 450 kHz - 30 MHz

The requirements are. ☒ KEPT ☐ NOT KEPT

Min. limit margin 9.6 dB at 18.2140 MHz

Remarks : See test-graph to be attached at pages 13~15.

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are. ☒ KEPT ☐ NOT KEPT

Min. limit margin 11.1 dB at 194.3 MHz

Remarks : See test-data at page 16~17.

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Test Set-Up
(Type : YTIS-100)

Conducted emission 450kHz ~ 30MHz

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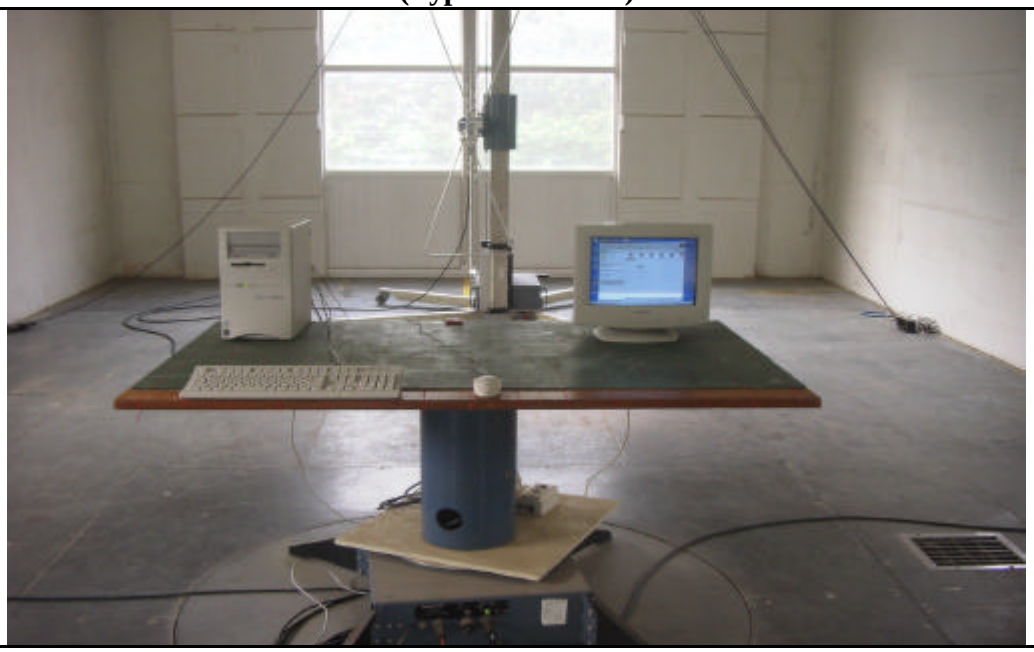
Test Set-Up
(Type : YTIS-100)



Radiated emission 30MHz ~ 1000MHz

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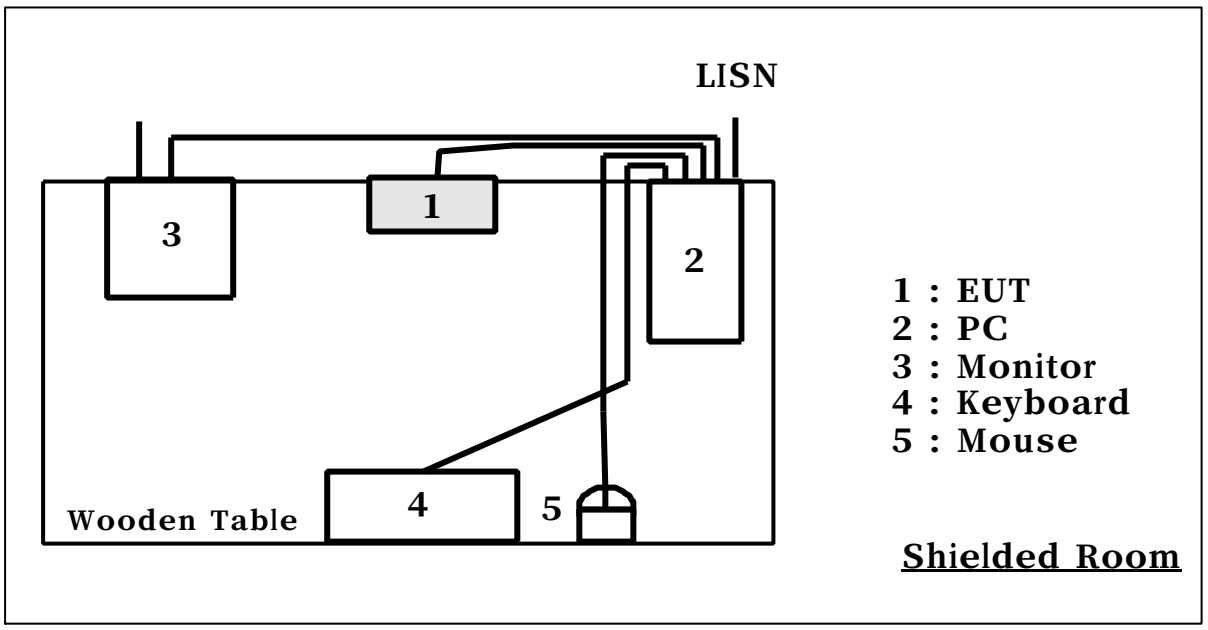
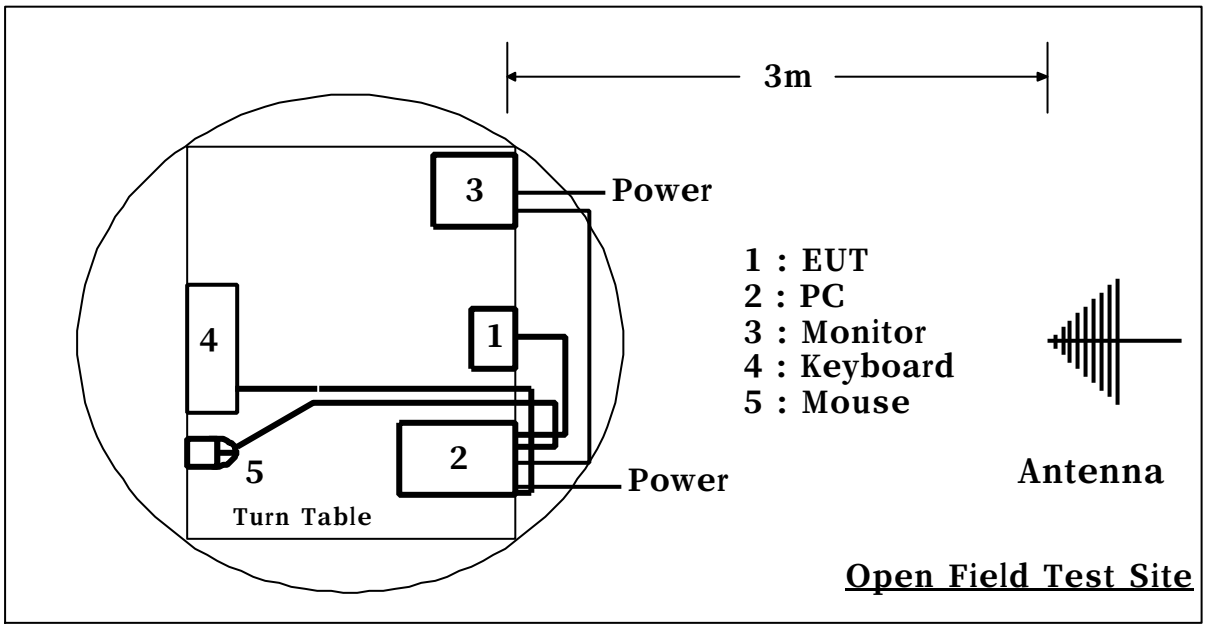
Test Set-Up
(Type : YTIS-100)



Picture 1 : Conducted emission 450kHz ~ 30MHz



Picture 2 : Radiated emission 30MHz ~ 1000MHz

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Conducted Emission Test Data

Type : YTIS-100
Manufacturer : Hansol Microsystem Co., Ltd.
Operation mode : Download files from PC to EUT
Date : May. 02, 2002

Frequency [MHz]	Reading [dB? V]	Insertion loss [dB]	Phase (L1/N)	Result [dB? V]	Limit [dB? V]	Margin [dB]
0.4998	31.6	0.8	L1	32.4	48.0	15.6
0.6004	33.0	0.8		33.8	48.0	14.2
0.7999	32.5	0.8		33.3	48.0	14.7
18.2140	37.6	0.8		38.4	48.0	9.6
18.8869	37.1	0.8		37.9	48.0	10.1
19.2140	37.0	0.8		37.8	48.0	10.2
0.5001	30.8	0.8	N	31.6	48.0	16.4
0.5114	31.9	0.8		32.7	48.0	15.3
0.6007	30.0	0.8		30.8	48.0	17.2
18.2200	37.0	0.8		37.8	48.0	10.2
18.8870	36.9	0.8		37.6	48.0	10.4
19.2141	36.8	0.8		37.6	48.0	10.4
Cable loss are less than 0.1 dB						

*L1 : Live Line
**N : Neutral Line
*** **Please refer to data graphs at page 12 ~ 13**

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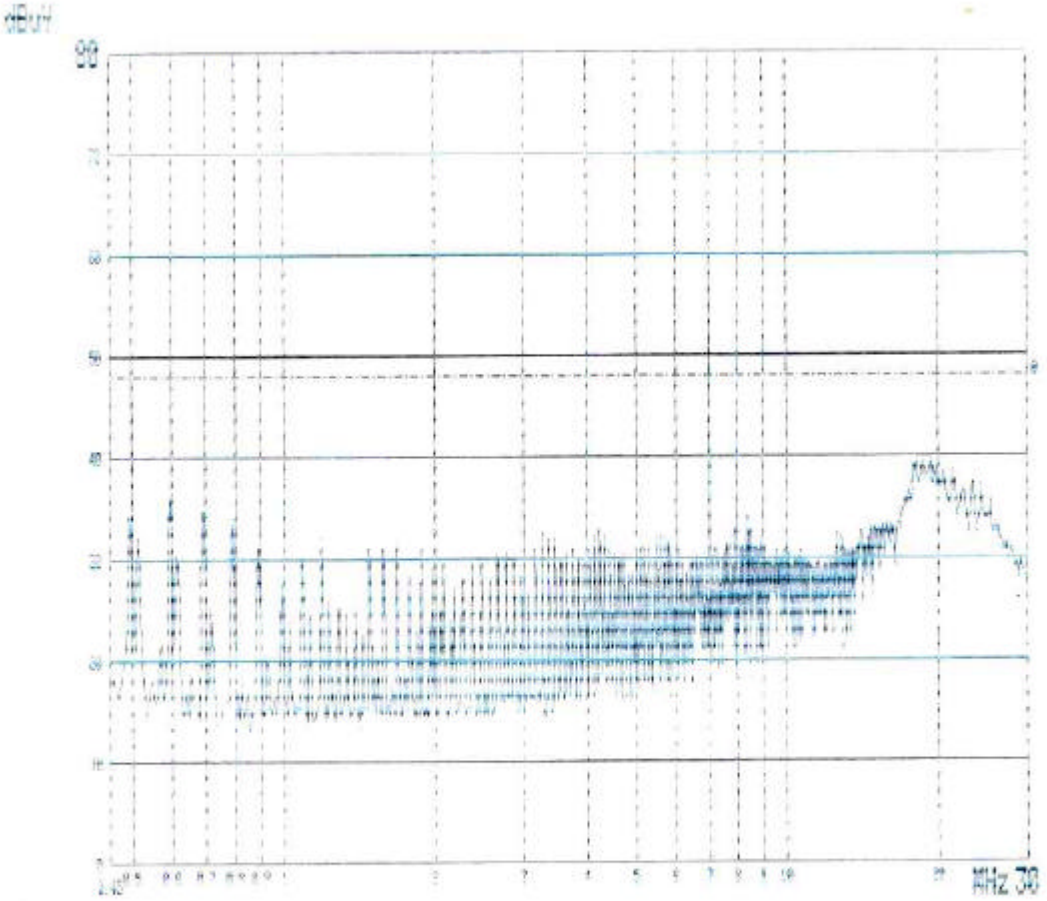

MODEL : YMTS-100
120Vac 60Hz PHASE : L1

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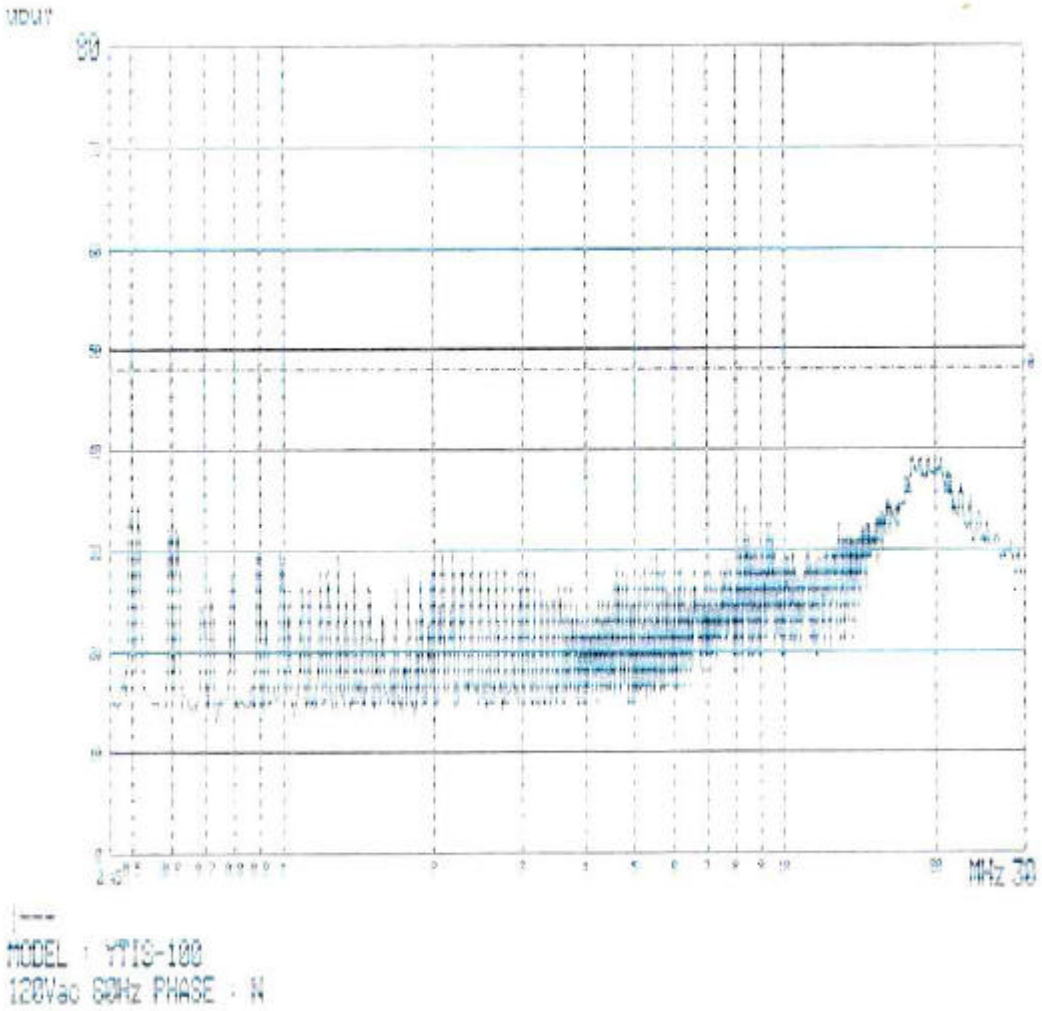

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Radiation Test Data

Type : YTIS-100
Manufacturer : Hansol Microsystem Co., Ltd.
Operation mode : Download files from PC to EUT
Test distance : 3 m
Antenna : VULB9160
Date : May. 03, 2002.

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB]	Cable Loss [dB]	Angle [deg]	Height [cm]	Polar [H/V]	Result [dBuV]	Limit [dBuV]	Margin [dB]
48.5	14.7	10.2	1.3	179	112	V	26.2	40.0	13.8
110.3	13.6	9.4	1.9	188	136	V	24.9	43.5	18.6
143.1	16.3	11.7	2.2	174	133	V	30.2	43.5	13.3
194.3	21.0	8.9	2.5	180	284	H	32.4	43.5	11.1
207.0	20.0	8.4	2.5	14	276	H	30.9	43.5	12.6
213.9	15.4	8.4	2.6	177	147	V	26.4	43.5	17.1
242.1	15.6	10.3	2.9	169	130	V	28.8	46.0	17.2
300.8	17.2	11.7	3.3	12	164	V	32.2	46.0	13.8
348.2	12.0	11.7	3.6	357	174	V	27.3	46.0	18.7
387.6	13.6	12.9	4.1	166	145	V	30.6	46.0	15.4

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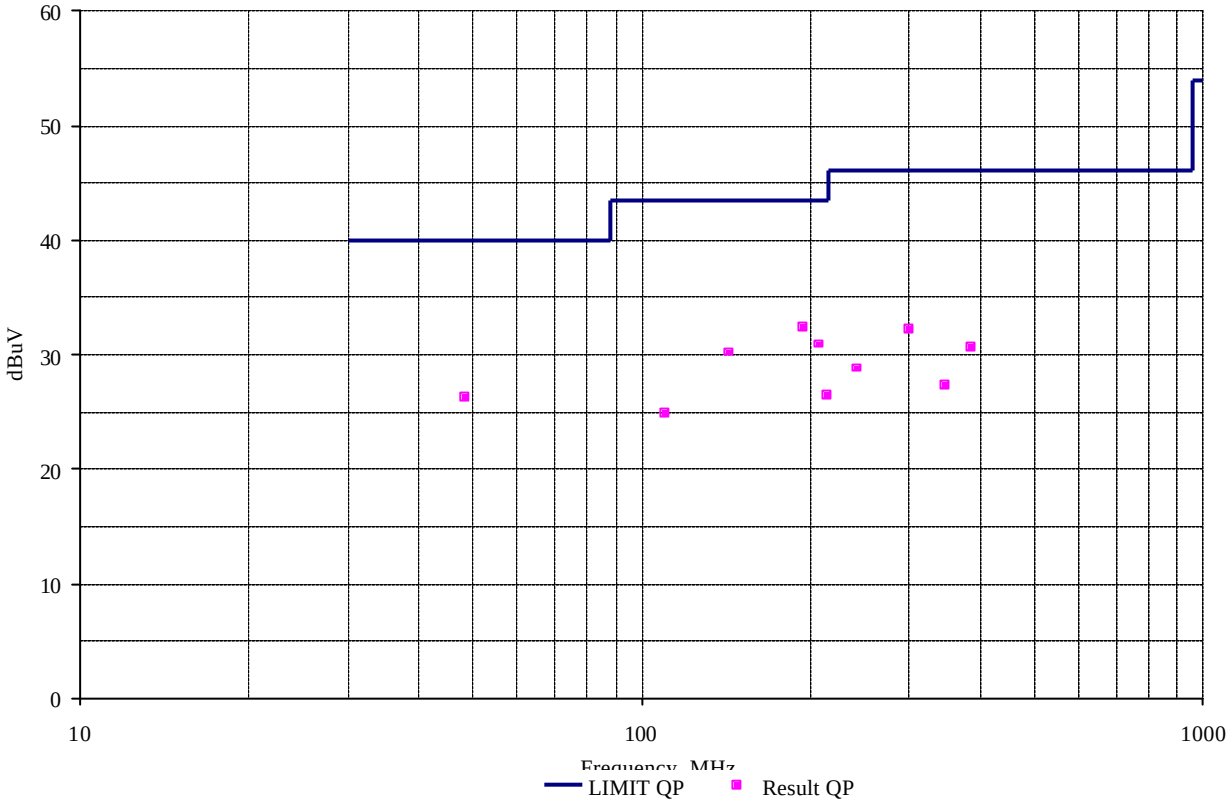
MEASUREMENT OF DISTURBANCE RADIATION



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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 : May. 02, 2002

End of testing : May. 03, 2002

Reviewed by :

Joon H. Lee, EMC Manager
IST EMC Lab.

Approved by :

G. Chung, Chief of EMC Lab.

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