



EMISSION TEST REPORT

Test report file No. : **01-IST-186/FB** Date of issue : Dec. 27, 2001.

Model / Type No. : UPT-100

Kind of product : PC PHONE

Applicant : IR-LINK Corporation.

Manufacturer : IR-LINK Corporation.

Address : #702 Shinkwang B/D, Karak-Dong 160-8, Songpa-Ku, Seoul, 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 technical 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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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.

Domestic - Tel : 031 - 333 - 4093. Fax : 031 - 333 - 4094.

ENVIRONMENTAL CONDITIONS

Temperature	<u>11</u>
Humidity	<u>38</u> %
Atmospheric pressure	<u>1004</u> 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 measurements 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 Ω /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.

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.

EQUIPMENT UNDER TEST

Equipment Description

The Equipment Under Test (EUT) is the **PC PHONE of IR-LINK Corporation.**

Power supply	USB(DC 5V / 33mA)
Mic. type / Sensitivity	Omni-directional type electret microphone / -62dB (Wired headset)
Indicator	LED : PC, TEL, ARS, Hold
	LAMP : Ringer
Dimension	91(W) x 141(H) x 32(D) mm
	Telephone line (RJ-11)
	PC speaker/Mic (PC sound card)
Connections	Wired headset
	External speaker
	PC USB
PC system	Windows based PC(Windows 98/98SE/ME/2000)
requirement	USB port & sound card built-in PC system

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 : After connecting EUT and PC by USB, communication state was kept during testing.

Configuration of the equipment under test :

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

Equipment	Type	Brand	Serial No
PC	Pavillion 8821	HP	KR1105100
Monitor	529B	Daewoo	GC95510077
Keyboard	5181	HP	BM10206995
Mouse	M-S48a	HP	LZA10201213

Connecting Interface Cables :

- USB I/O cable(with core) : 1.5m
- Headset cable : 1.1 m
- Telephone line : 1.9 m
- Mic/Speaker cable : 1.5 m

TEST RESULT

Conducted emissions : 450 kHz - 30 MHz

The requirements are.

☒ KEPT

☐ NOT KEPT

Min. limit margin

7.3 dB at 13.4852 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

8.5 dB at 40.1 MHz

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

**Test Set-Up
(Type : UPT-100)**



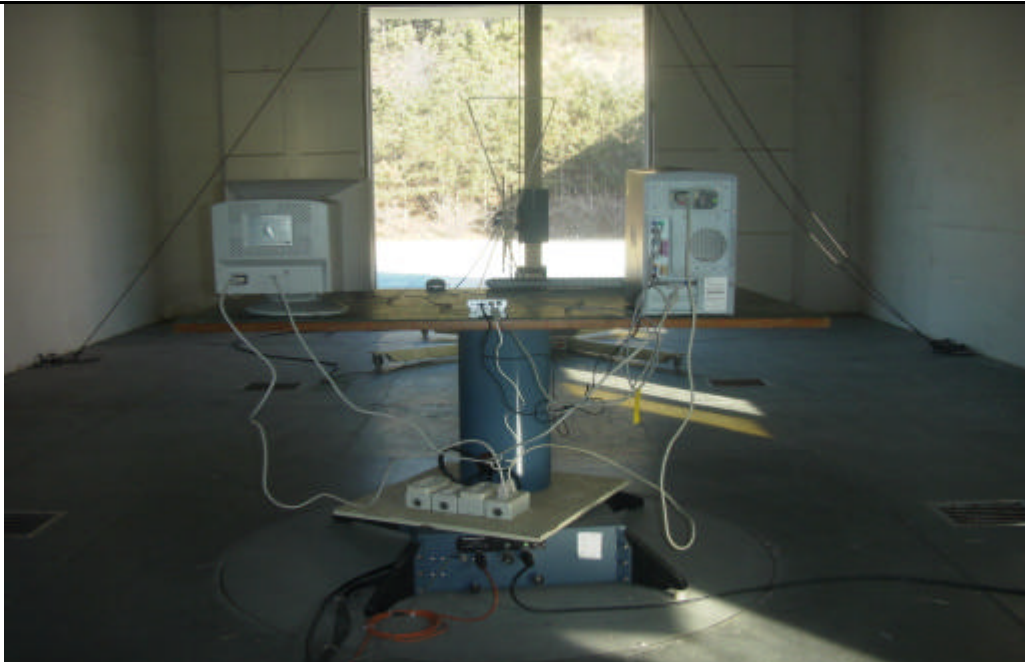
Conducted emission 450kHz ~ 30MHz

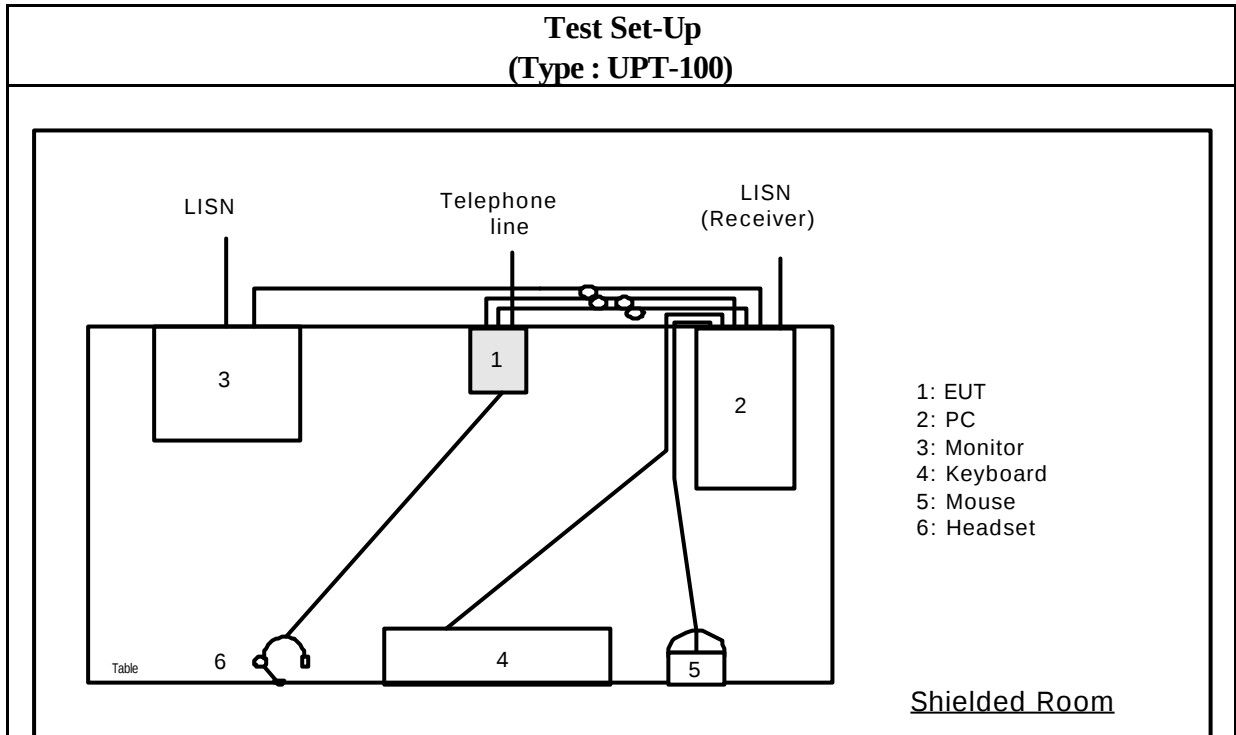


**Test Set-Up
(Type : UPT-100)**

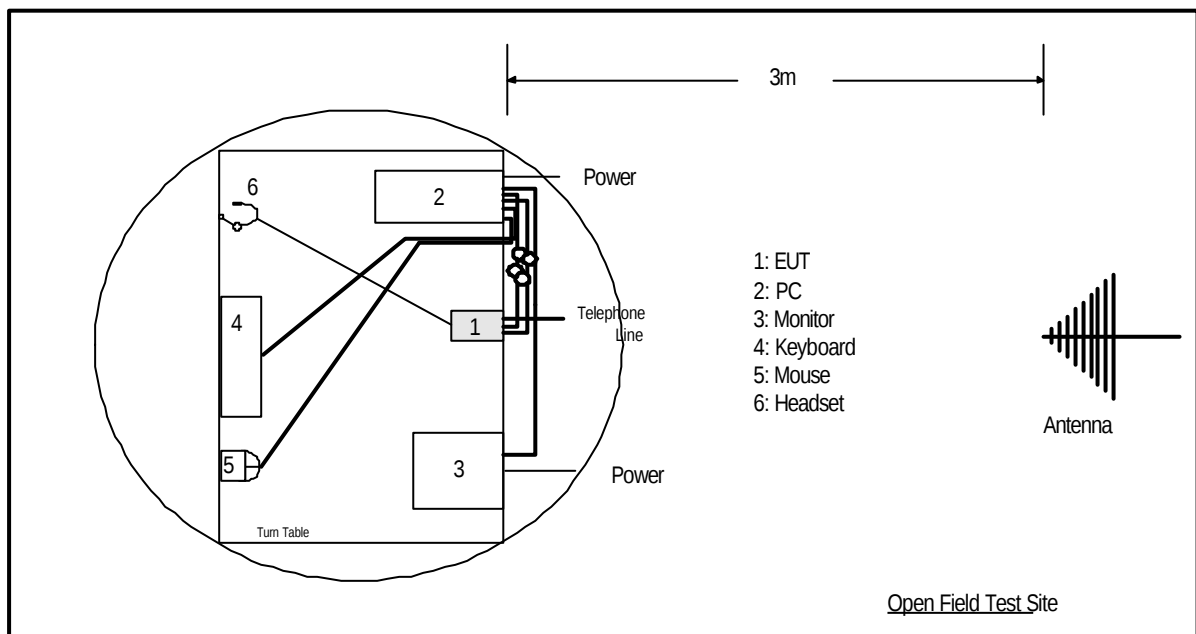


Radiated emission 30MHz ~ 1000MHz





Picture 1 : Conducted emission 450kHz ~ 30MHz



Picture 2 : Radiated emission 30MHz ~ 1000MHz

Conducted Emission Test Data

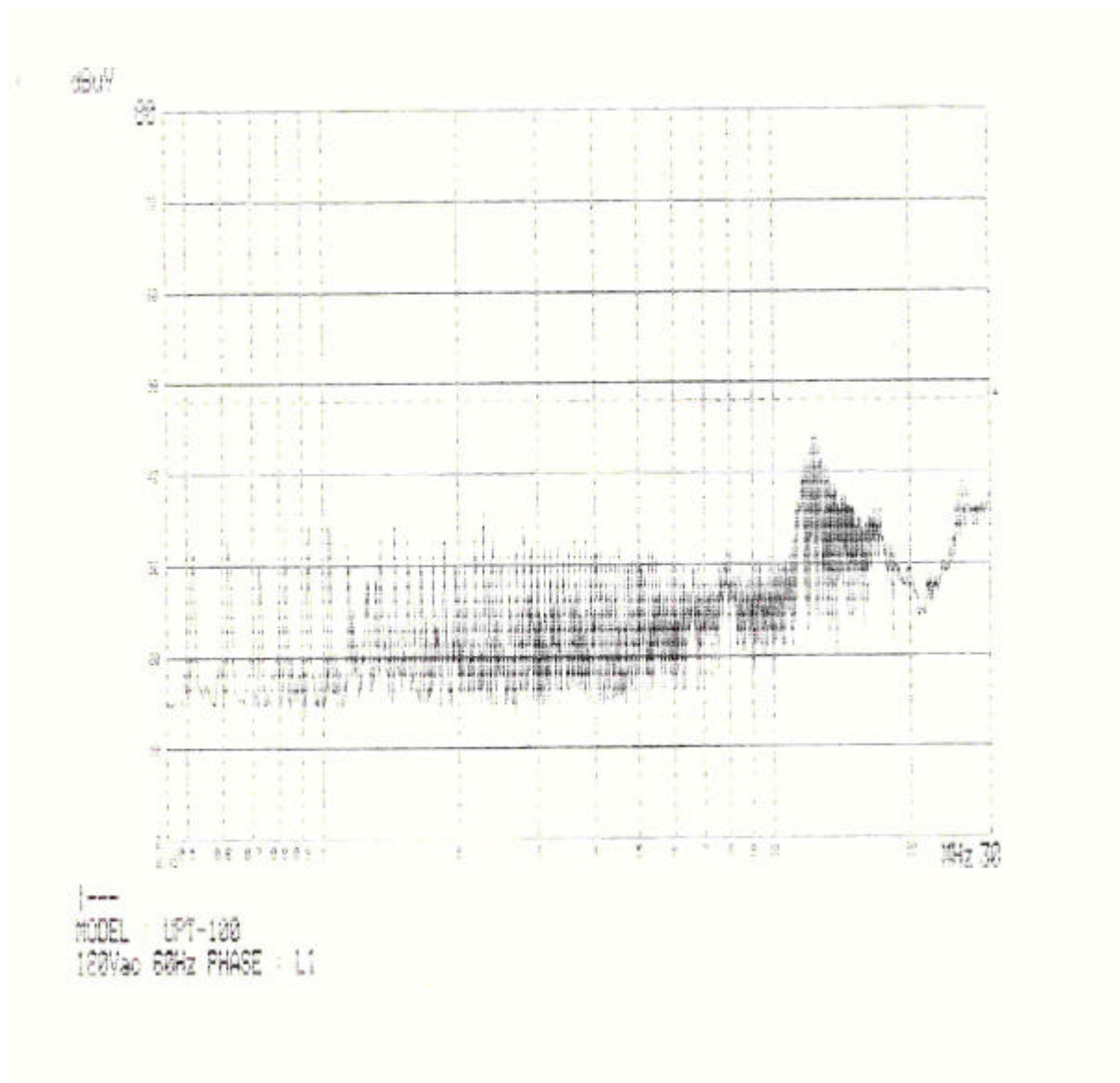
Type	: UPT-100
Manufacturer	: IR-LINK Corporation.
Operation mode	: After connecting EUT and PC by USB, communication state was kept during testing.
Date	: Dec. 24, 2001

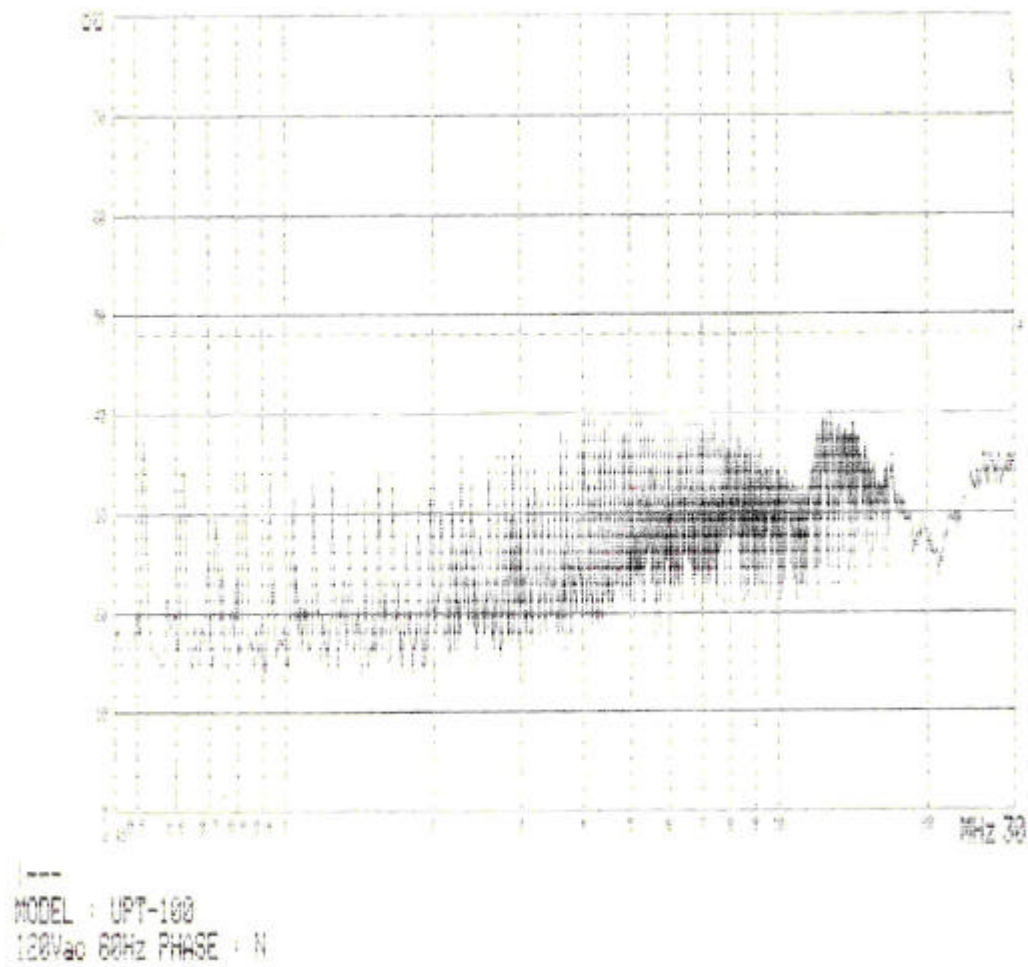
Frequency [MHz]	Reading [dB _m V]	Insertion loss [dB]	Phase (L1/N)	Result [dB _m V]	Limit [dB _m V]	Margin [dB]
0.9327	31.8	0.8	L1	32.6	48.0	15.4
1.0147	29.7	0.8		30.5	48.0	17.5
1.1025	31.5	0.8		32.3	48.0	15.7
2.3745	32.2	0.8		33.0	48.0	15.0
13.4852	39.9	0.8		40.7	48.0	7.3
26.7899	37.9	0.8		38.7	48.0	9.3
0.5214	34.2	0.8	N	35.0	48.0	13.0
0.9330	32.0	0.8		32.8	48.0	15.2
4.0112	38.3	0.8		39.1	48.0	8.9
5.1124	37.8	0.8		38.6	48.0	9.4
13.8752	37.9	0.8		38.7	48.0	9.3
15.0211	36.0	0.8		36.8	48.0	11.2
Cable loss are less than 0.1 dB						

*L1 : Live Line

****N : Neutral Line**

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

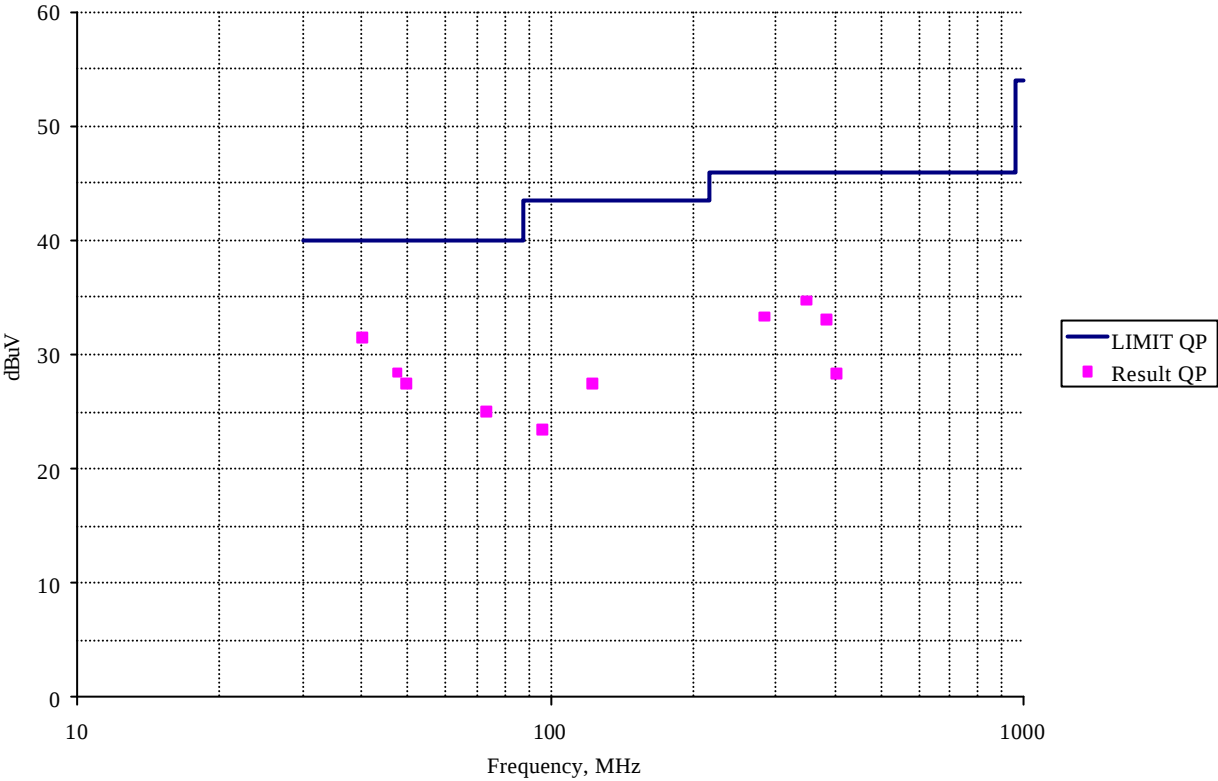




Type	: UPT-100
Manufacturer	: IR-LINK Corporation.
Operation mode	: After connecting EUT and PC by USB, communication state was kept during testing.
Test distance	: 3 m
Antenna	: VULB9160
Date	: Dec. 26, 2001.

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB]	Cable Loss [dB]	Angle [deg]	Height [cm]	Polar [H/V]	Result [dBuV]	Limit [dBuV]	Margin [dB]
40.1	16.7	13.6	1.2	11	115	V	31.5	40.0	8.5
47.5	16.9	10.2	1.3	147	112	V	28.4	40.0	11.6
49.6	15.7	1.5	1.3	158	108	V	27.5	40.0	12.5
73.2	14.2	9.2	1.6	155	124	V	25.0	40.0	15.0
96.1	14.0	7.6	1.8	0	174	V	23.4	43.5	20.1
122.2	15.5	10.0	2.0	179	150	V	27.5	43.5	16.0
282.3	18.3	11.9	3.1	170	225	H	33.3	46.0	12.7
346.7	19.4	11.7	3.6	16	224	H	34.7	46.0	11.3
384.0	16.7	12.5	3.8	188	200	H	33.0	46.0	13.0
402.0	10.7	13.3	4.3	182	189	H	28.3	46.0	17.7

MEASUREMENT OF DISTURBANCE RADIATION



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 : Dec. 24, 2001

End of testing : Dec. 26, 2001

Reviewed by :



Joon H. Lee, EMC Manager
IST EMC Lab.

Approved by :



G. Chung, Chief of EMC Lab.