Certification of Compliance

CFR 47 Part 15 Subpart B

Test Report File No.: 09-IST-0715 **Date of Issue** : September 2, 2009

Model(s) : UPT-200 (Basic model)

Kind of Product : USB headset phone

Applicant : IR-link Corporation

Address : 5-6F, Hanyoung Bldg, Munjeong-Dong, Songpa-Ku, Seoul, Korea

Manufacturer : IR-link Corporation

Address : 5-6F, Hanyoung Bldg, Munjeong-Dong, Songpa-Ku, Seoul, Korea

Test Result ■ **Positive** □ **Negative**

Reviewed By

S.K.Lee / EMC Group Manager

Approved By

B. S. Kim / Chief

Comment(s)

- Investigations requested : Measurement to the relevant clauses of FCC rules and regulations Part 15 Subpart B – Unintentional Radiators, Class B.

- The test report with appendix consists of 17 pages.
- The test result only responds to the tested sample.
- It is not allowed to copy this report even partly without the allowance of IST EMC Laboratory.
- This equipment as for has been shown to be capable of continued compliance 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 2003.

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Note:

INFORMATIONS OF TEST LABORATORY

EMC LABORATORY of IST Co., Ltd. ***(FCC Filing Lab.)***

400-19, Singal-dong, Giheung-gu, Yongin-si, Gyeonggi-do, 446-599, Korea

TEL : +82 31 326 6700 FAX : +82 31 326 6797

ENVIRONMENTAL CONDITIONS

Temperature	24 ℃
Humidity	48 %

POWER SUPPLY SYSTEM USED

Power supply system	120 V, 60 Hz (Refer to the product information)

PRODUCT INFORMATION

OS	MS Windows 98 etc.
USB	USB 1.1 , 2.0
Dimension	90(W) x 140(D) x 25(H) mm

- EMC suppression device is not used during the test.
- Please refer to user's manual.

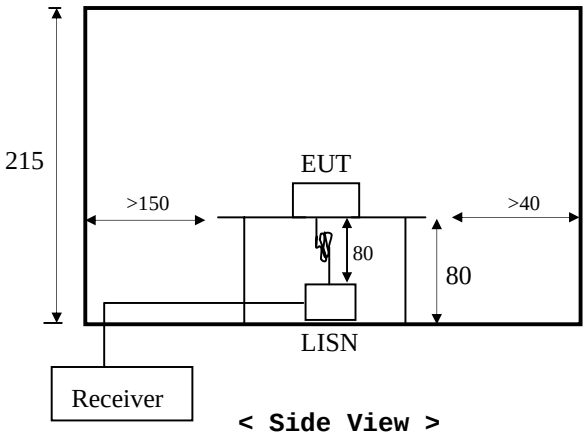
DESCRIPTIONS OF TEST

Conducted Emissions:

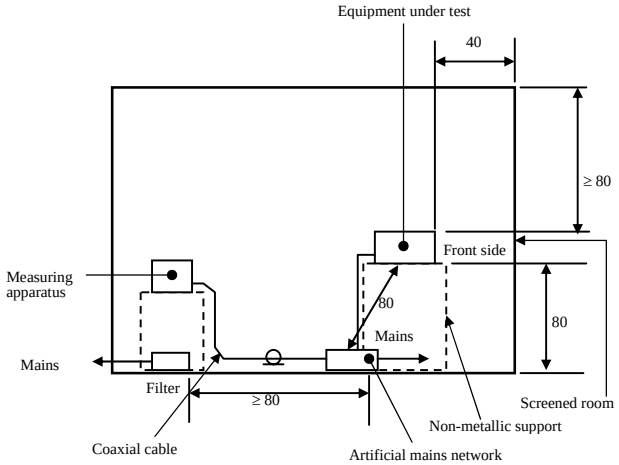
The measurement were performed over the frequency range of 0.15 MHz to 30 MHz using a 50 Ω/50uH LISN as the input transducer to a Spectrum Analyzer or a Field Intensity Meter. The measurements were made with the detector set for "Peak" amplitude within a bandwidth of 10KHz or for "quasi-peak" & "Average" within a bandwidth of 9 KHz.

-Procedure of Test

The line-conducted facility is located inside a shielded room No.1. A 1 m X 1.5 m wooden table 80 cm height is placed 40 cm away from the vertical wall and 1.5 m away from the other wall of the shielded room. The R/S ESH3-Z5 and Hyup-Rip KNW-407 LISN are bonded to bottom of the shielded room. The EUT is located on the wooden table with distance more than 80 cm from the LISN and powered from the Hyup-Rip LISN. The peripheral equipment is powered from the other LISN. Power to the LISNs are filtered by a noise cut power line filters. All electrical cables are shielded by braided tinned steel tubing with inner ϕ 1.2 cm. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply lines will be connected to the Hyup-Rip LISN. All interconnected cables more than 1 m were shortened by non-inductive bundling to a 1 m length. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating conditions. The RF output of the LISN was connected to the R/S receiver to determine the frequency producing the maximum emission from the EUT. The frequency producing the maximum level was reexamined using Quasi-Peak mode by manual measurement, after scanned by automatic Peak mode for frequency range from 0.15 to 30 MHz. The bandwidth of the receiver was set to 10 kHz. The EUT, peripheral equipment, and interconnecting cables were arranged and manipulated to maximize each EME emission.



< Side View >



< Concept Drawing >

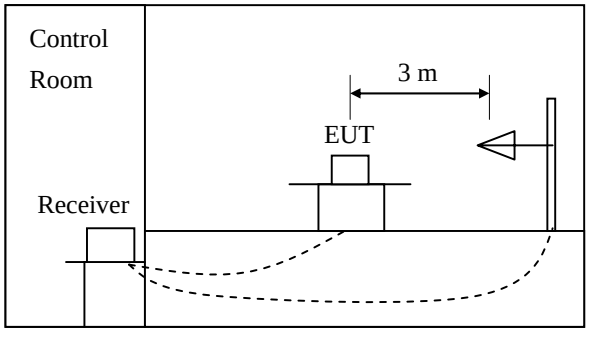
DESCRIPTION OF TEST

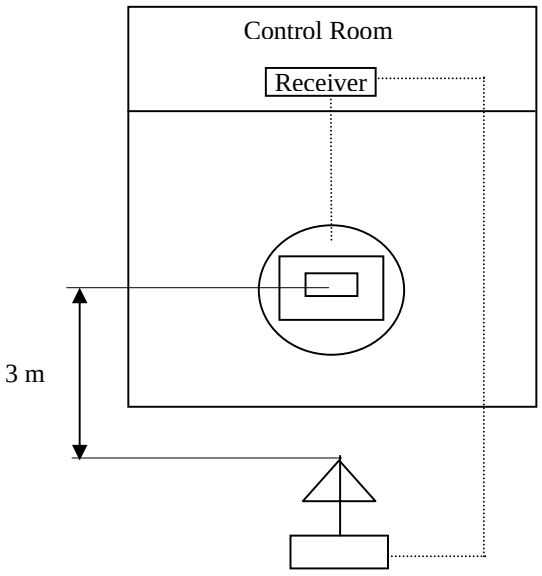
Radiated Emissions:

The measurement was performed over the frequency range of 30 MHz to 1 GHz using antenna as the input transducer to a Spectrum analyzer or a Field Intensity Meter. The measurement was made with the detector set for "quasi-peak" within a bandwidth of 120 KHz.

-Procedure of Test

Preliminary measurements were made at 3 meter using bi-conical and log-periodic antennas, and spectrum analyzer to determine the frequency producing the max. emission in anechoic chamber. Appropriate precaution was taken to ensure that all emission from the EUT were maximized and investigated. The system configuration, mode of operation, turn-table azimuth and height with respect to the antenna were noted for each frequency found. The spectrum was scanned from 30 MHz to 300 MHz using S/B bi-conical antenna and 300 to 1000 MHz using S/B log-periodic antenna. Above 1 GHz, linearly polarized double ridge horn antennas were used. Final measurements were made at open site with 10-meters test distance using S/B bi-log antenna or horn antenna. The OATS have been verified in regular for its normalized site attenuation. The test equipment was placed on a wooden table. Sufficient time for the EUT, peripheral equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. Each frequency found during pre-scan measurements was re-examined by manual. The detector function was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 120 kHz or 1 MHz depending on the frequency of type of signal. The EUT, peripheral equipment and interconnecting cables were re-configured to the set-up producing the max. emission for the frequency and were placed on top of a 0.8-meter high nonmetallic 1 x 1.5 meter table. The EUT, peripheral equipment, and interconnecting cables were re-arranged and manipulated to maximize each emission. The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission. Each emission was maximized by: varying the mode of operation to the EUT and/or peripheral equipment and changing the polarity of the antenna, whichever determined the worst-case emission.





Equipment Under Test

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 Mode
■ Operational Condition : Dialing mode.

Configuration of the equipment under test :

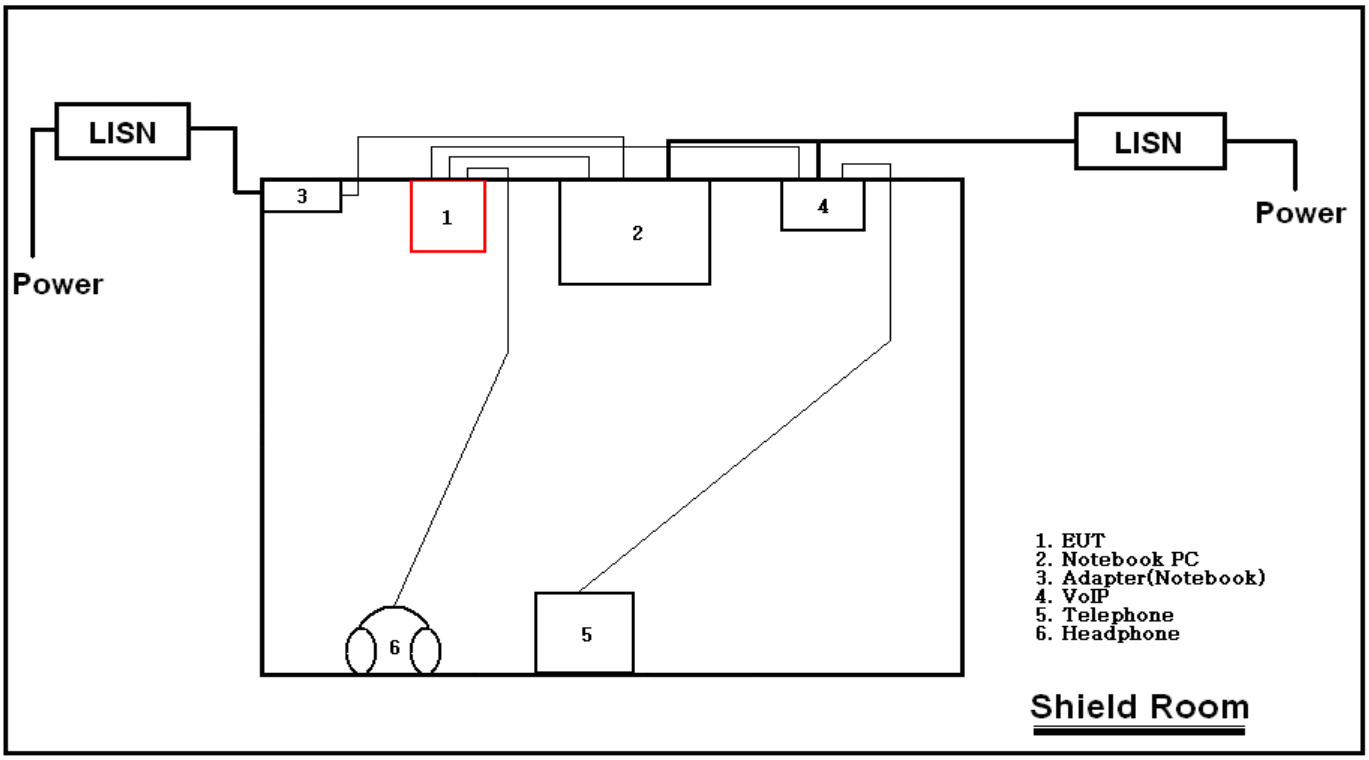
Following peripheral devices and interface cables were connected during the measurement :

Equipment	Type	Brand	Serial No.	FCC Compliance Info.
Notebook PC	2007	Lenovo Pte. Ltd.	L3-HB733	DoC
Adapter (Notebook)	PA-1900-09	Dongguang Lite Power 2nd Plant	N/A	-
VoIP	AP200	AddPac Technology	N/A	DoC
Telephone	GS-460F	LG	N/A	-

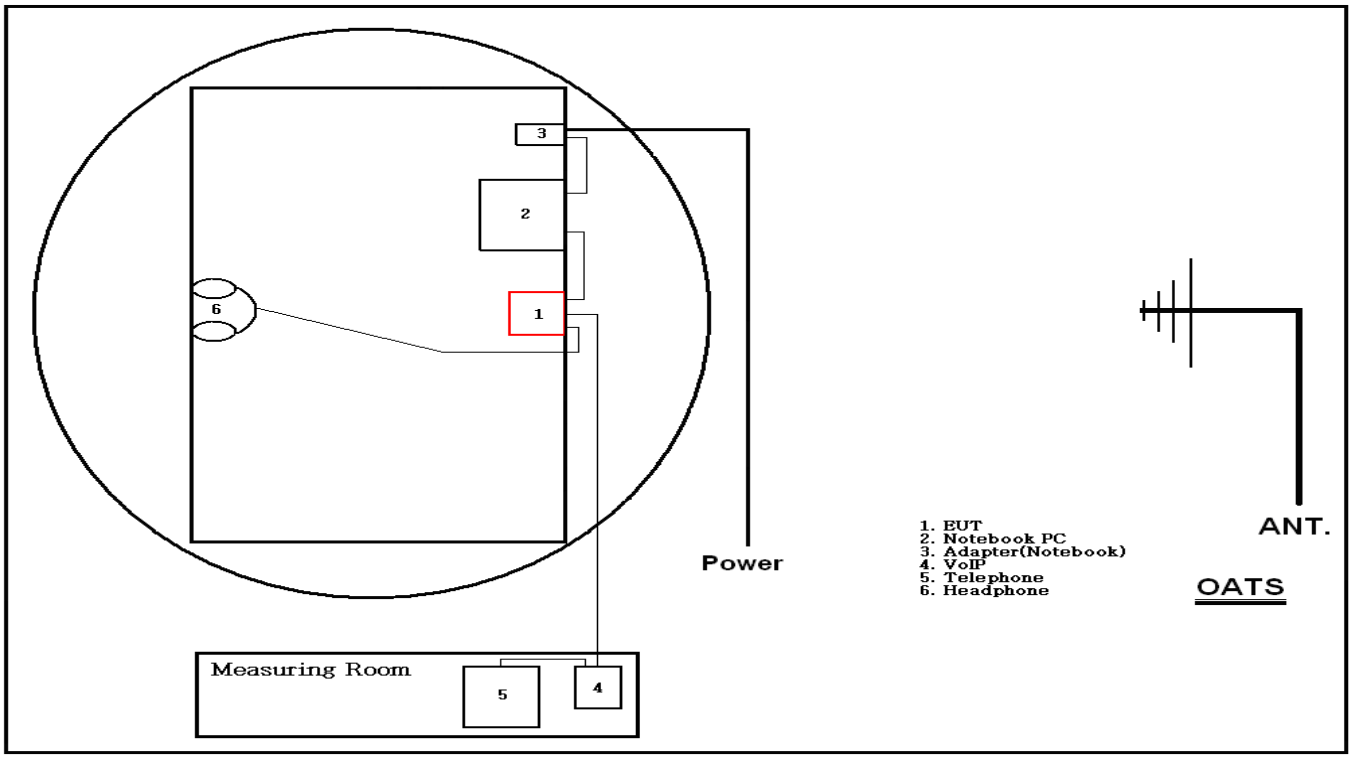
Connecting Including Cables :
- Unshielded EUT's USB cable (with one ferrite core) : 1.8 m
- Unshielded EUT's Headphone cable (without ferrite core) : 1.5 m
- Unshielded VoIP's RJ-11 cable (without ferrite core) : 5.0 m
- Unshielded Telephone's RJ-11 cable (without ferrite core) : 1.2 m

Note :

Test Set-Up



Conducted Emissions



Radiated Emissions

SUMMARY

Emissions

■ Conducted Emission

The requirements are ● MET ○ Not MET
Minimum limit margin 5.86 dB at 0.402 MHz
Maximum limit exceeding
Remarks : Limits are kept with more than 3dB margin.
Find the test data in following page 11 to 12.

■ Radiated Emission

The requirements are ● MET ○ Not MET
Minimum limit margin 5.80 dB at 171.795 MHz
Maximum limit exceeding
Remarks : Limits are kept with more than 3dB margin.
Find the test data in following page 14 to 15.

Test Date

Begin of Testing : August 27, 2009
End of Testing : August 28, 2009

Note :

- ■ means the test is applicable,
- □ is not applicable.

Prepared By

K.W. Kim / EMC Engineer

TEST CONDITIONS AND DATA

Conducted Emissions

[Applicable]

◆ Test Equipment Used

Model Name	Description	Manufacturer	Calibration Date	Serial No.
ESCI	Test Receiver	Rohde & Schwarz	July 09, 2009	100373
KNW-407	LISN	Hyup-Rip	October 11, 2008	8-833-10
ESH3-Z2	Pulse Limiter	Rohde & Schwarz	May 21, 2009	357.8810.52

◆ Test Accessories Used

Type	Manufacturer
Aneroid Barometer	Sato
Hygrometer	Sato

◆ Test Program

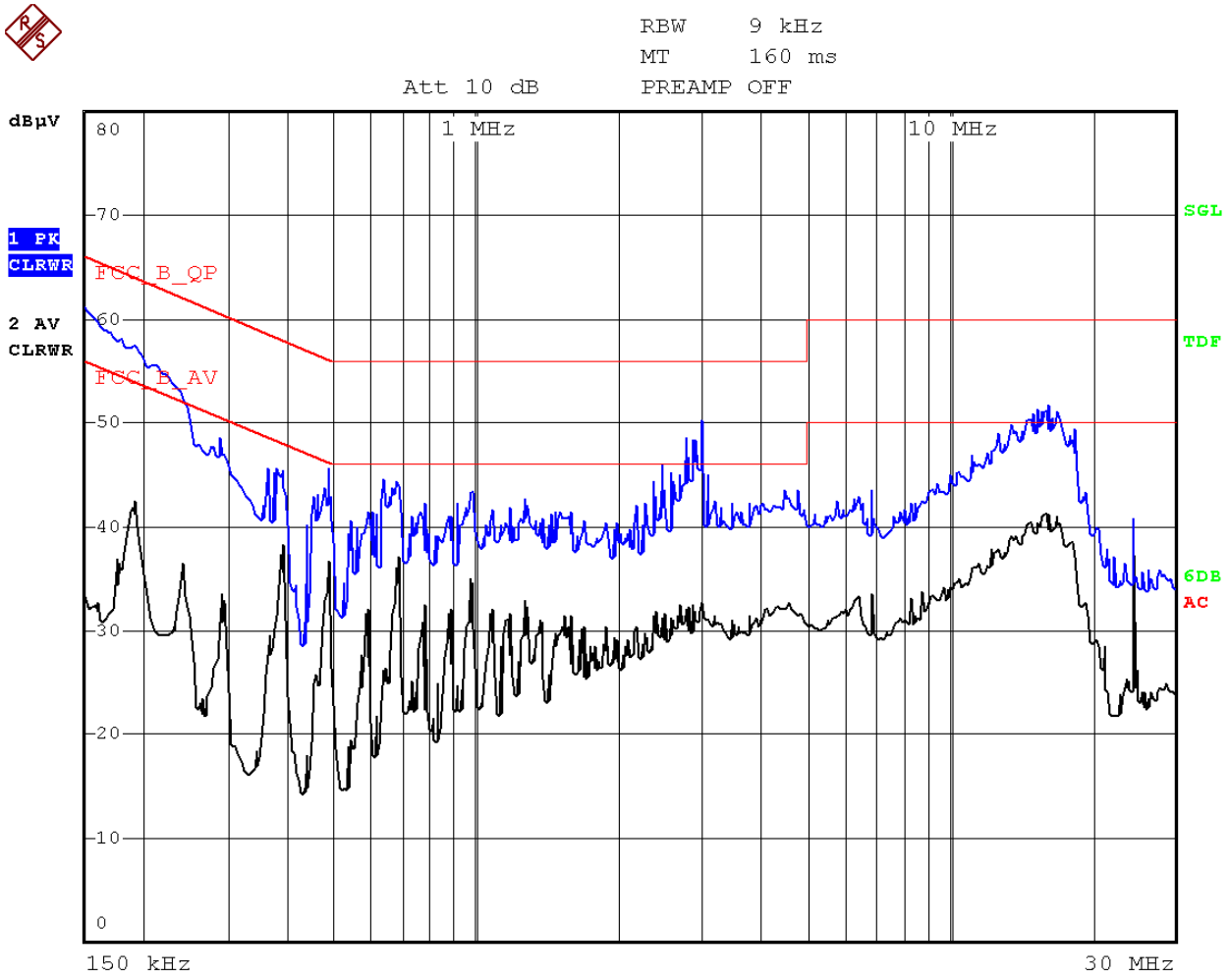
◆ Test Date August 28, 2009

◆ Test Area Conducted room No.1

Note :

Conducted Emissions

Live Phase



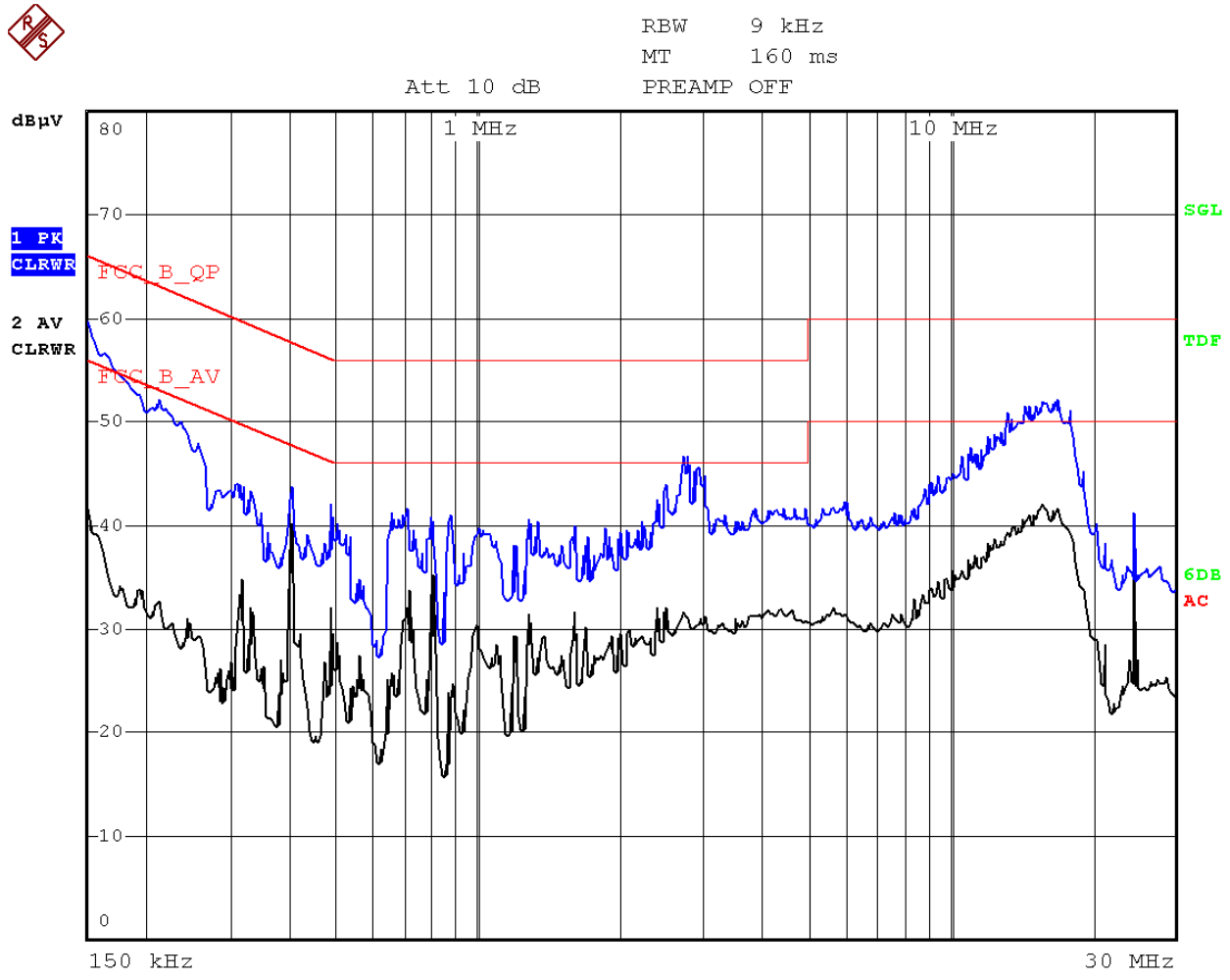
Model Name : UPT-200 120 Vac, 60 Hz Phase : Live

Freq. [MHz]	Measurement [dB µV]		Limit [dB µV]		Insertion Loss	Cable Loss	Result [dB µV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dBuV]	Q-peak	Average	Q-peak	Average
0.150	57.93	38.17	66.00	56.00	0.38	0.60	58.91	39.15	7.09	16.85
0.290	44.61	31.32	60.52	50.52	0.19	0.23	45.03	31.74	15.49	18.78
0.495	39.22	34.07	56.08	46.08	0.15	0.84	40.21	35.06	15.88	11.03
0.694	38.59	34.46	56.00	46.00	0.16	0.20	38.95	34.82	17.05	11.18
2.814	39.15	31.64	56.00	46.00	0.19	0.32	39.65	32.14	16.35	13.86
16.153	45.76	40.24	60.00	50.00	0.37	0.62	46.75	41.23	13.25	8.77

Note :

Conducted Emissions

Neutral Phase



Model Name : UPT-200 120 Vac, 60 Hz Phase : Neutral

Freq. [MHz]	Measurement [dB µV]		Limit [dB µV]		Insertion Loss	Cable Loss	Result [dB µV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dBuV]	Q-peak	Average	Q-peak	Average
0.150	57.25	43.85	66.00	56.00	0.49	0.60	58.34	44.94	7.66	11.06
0.320	40.94	34.91	59.71	49.71	0.26	0.20	41.40	35.37	18.31	14.34
0.402	42.72	41.51	57.81	47.81	0.24	0.20	43.16	41.95	14.65	5.86
0.484	35.39	31.32	56.27	46.27	0.22	0.77	36.38	32.31	19.89	13.96
0.720	38.65	34.36	56.00	46.00	0.21	0.22	39.08	34.79	16.92	11.21
2.808	40.04	31.76	56.00	46.00	0.24	0.32	40.59	32.31	15.41	13.69

Note :

TEST CONDITIONS AND DATA

Radiated Emission

[Applicable]

◆ Test Equipment Used

Name	Type	Manufacturer	Calibration Date	Serial Number
ESCS 30	Test Receiver	Rohde & Schwarz	Sep. 10, 2008	100171
VULB 9161	Antenna	Schwarzbeck	Nov. 20, 2007	4088

◆ Test Accessories Used

Type	Manufacturer
Aneroid Barometer	Sato
Hygrometer	Sato

◆ Test Program

◆ Test Date August 27, 2009

◆ Test Area Open Area Test site No.2 (3 m)

Note :

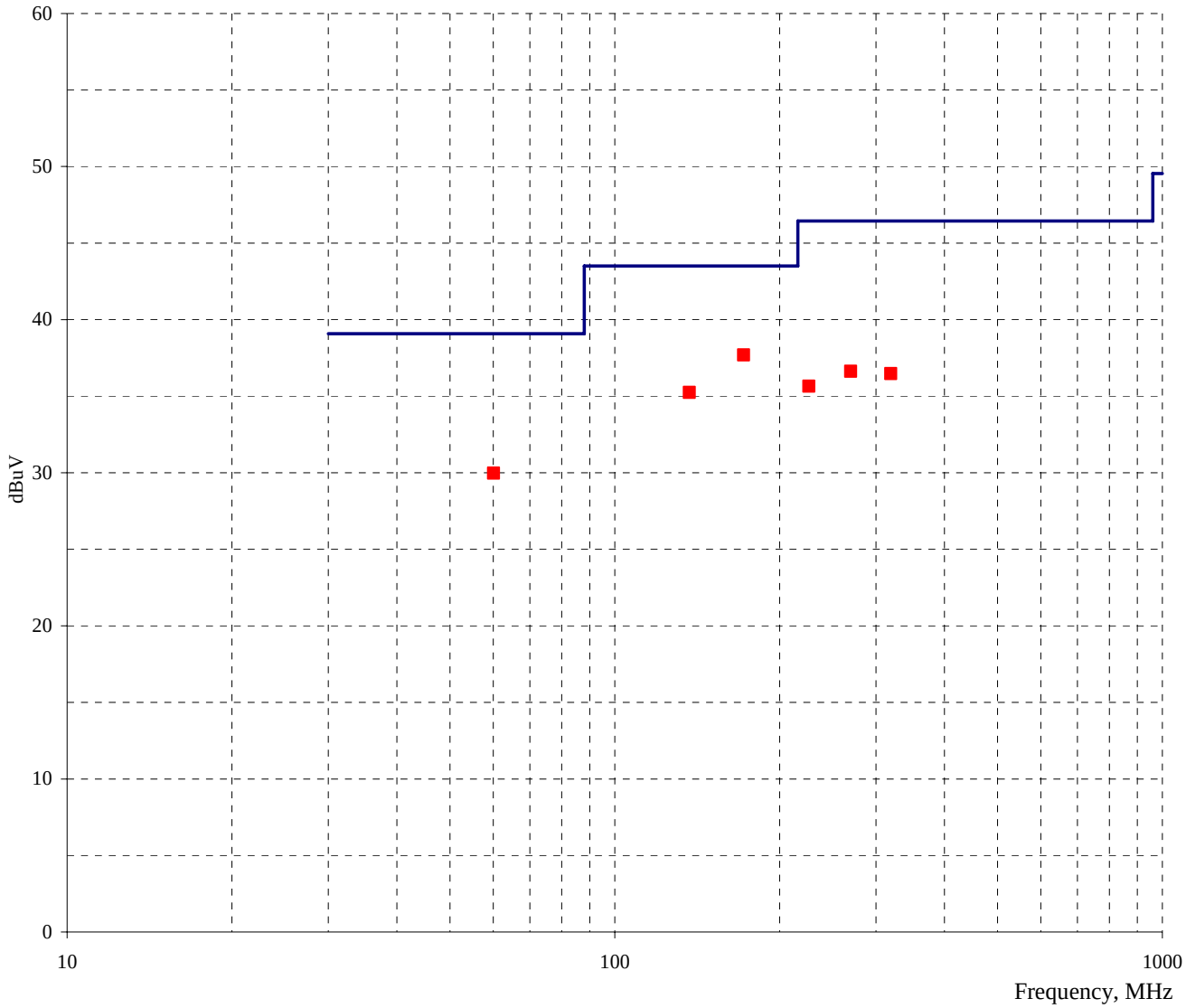
Radiated Emissions

[Applicable]

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB/m]	Cable Loss [dB]	Polar. [H/V]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
60.081	17.30	11.98	0.70	V	29.98	40.00	10.02
136.839	21.40	12.19	1.66	V	35.25	43.50	8.25
171.795	23.90	11.79	2.01	H	37.70	43.50	5.80
226.127	23.20	10.31	2.15	V	35.66	46.00	10.34
269.615	22.40	11.76	2.47	V	36.63	46.00	9.37
319.201	20.40	13.17	2.90	V	36.47	46.00	9.53

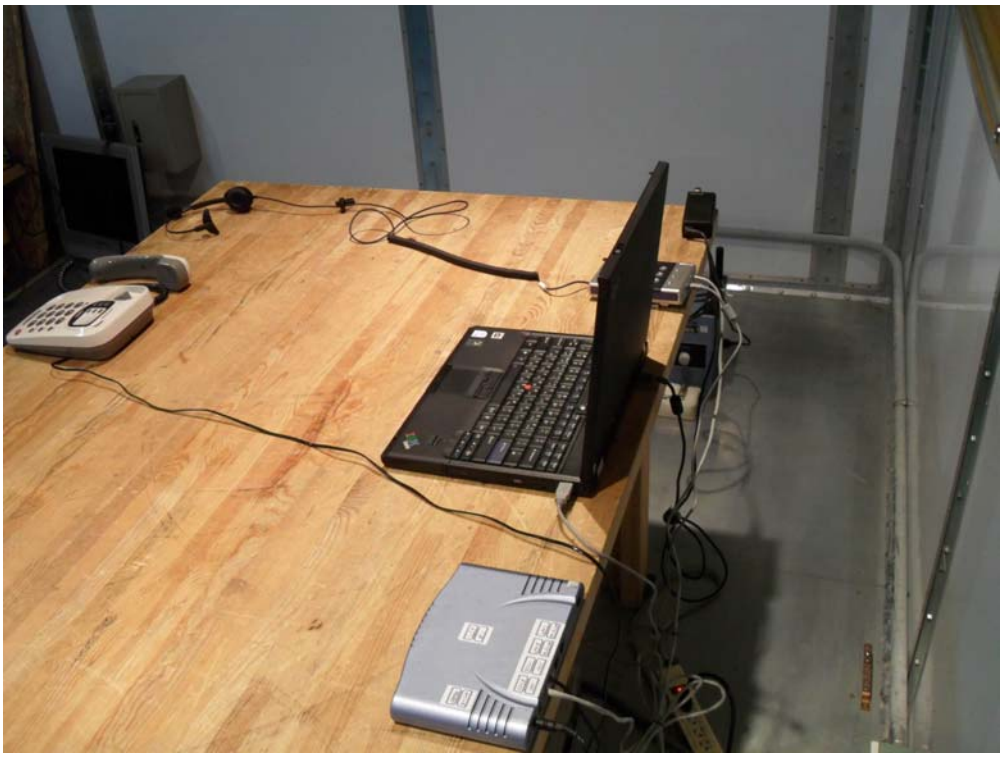
Note :

MEASUREMENT OF DISTURBANCE RADIATION



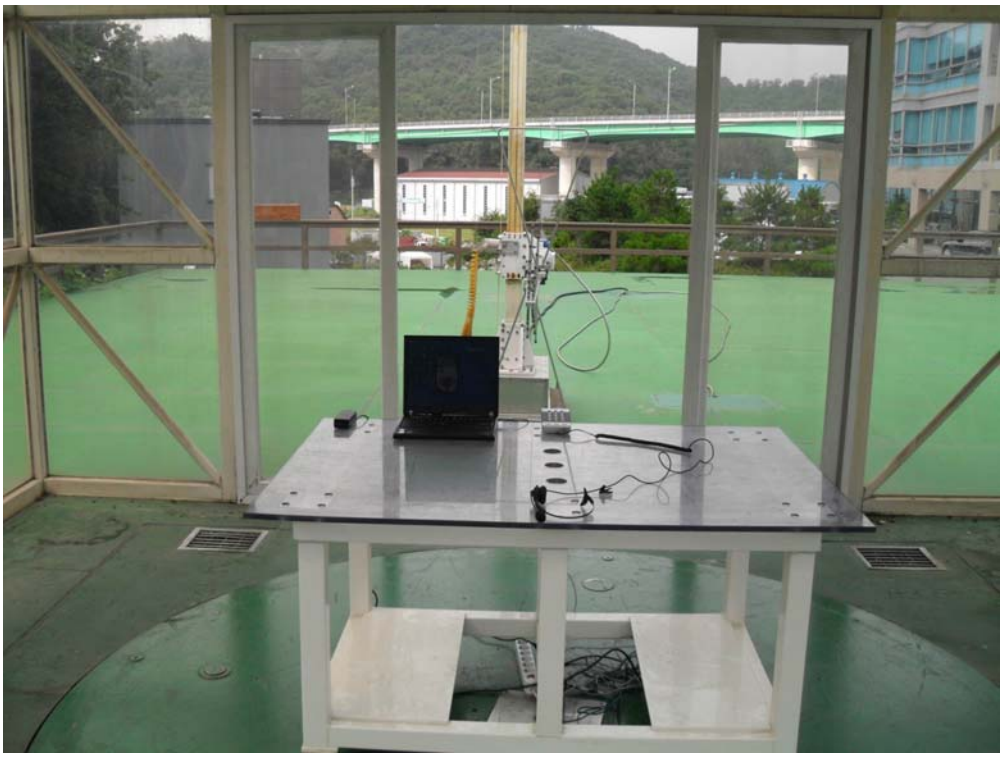
Appendix A. The Photos of Test Setup

Conducted Emissions – Front View

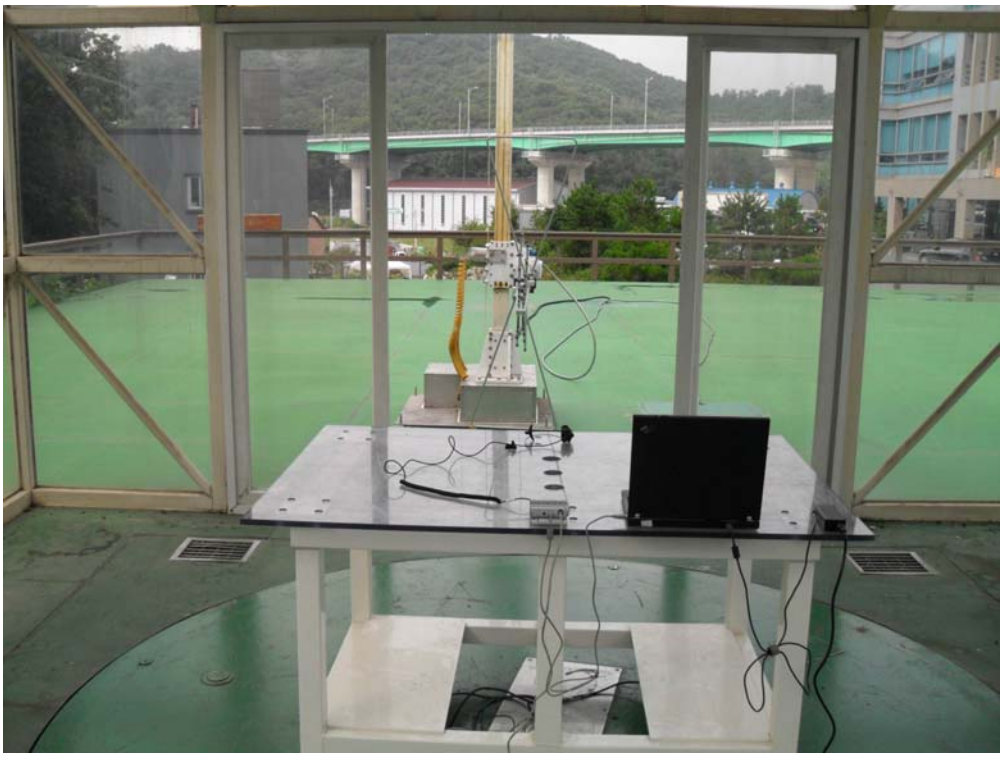


Conducted Emissions – Rear View

Appendix A. The Photos of Test Setup



Radiated Emissions –Front View



Radiated Emissions –Rear View

Appendix B. The Photos of Equipment Under Test

Front View

Rear View