Certification of Compliance

CFR 47 Part 15 Subpart B

Test Report File No. : 06-IST-0151 **Date of Issue** : March 27, 2006

Model(s) : **TAVI020**
Kind of Product : PMP
FCC ID : T4OTAVI020
Applicant : New Media Life INC.
Address : Hea Ju B/D 5F, 837-7 Yeoksam-dong, Kangnam-gu
Seoul South Korea
Manufacturer : New Media Life INC.
Address : Hea Ju B/D 5F, 837-7 Yeoksam-dong, Kangnam-gu
Seoul South Korea

Test Result ■ **Positive** ☐ **Negative**

Reviewed By

S.J.CHO / EMC Group Manager

Approved By

J.H.LEE / 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 28 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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■ **Test Conditions and Data - Emissions**

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Note:

INFORMATIONS OF TEST LABORATORY

EMC LABORATORY of IST Co., Ltd. ***(FCC Filing Lab.)***
80, Jeil-Ri, Yangji-Myun, Yongin-City
Kyonggi-Do, 449-860, Korea
TEL : +82 31 333 9018 FAX : +82 31 333 9019

ENVIRONMENTAL CONDITIONS

Temperature	12 ℃
Humidity	41 %
Atmospheric pressure	1012 mbar

POWER SUPPLY SYSTEM USED

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

PRODUCT INFORMATION

The Equipment Under Test(EUT) is PMP of New Media Life
(FCC ID : T4OTAVI020)

VIDEO:	LCD Display: 3.5-inch TFT LCD, 320X240 pixels. 16.7Milion Colors File Formats: Divx3.11/4/5. XviD,MPEG1(VCD),MPEG2(DVD), MPEG4(WMV and ASF: transcoding software) up to 720x576 pixels, 30 f/s, 8Mbps Bit rate Bookmark/resume/Video Subtitles
AUDIO:	File Formats: MP3(8~320Kbps),WMA, Ogg Vorbis(Up to Q10), AC3, AAC ID3 Tag Support/Sound Spectrometer
RECORD:	Recording (Direct Encoding): MP3 Recording Source: Voice(Built-in Mic.), FM Radio(Direct)
FM RADIO:	FM Frequency Range: 76MHz-108MHz(Global/International FM Ready)
POWER:	Built-in Rechargeable Lithium Ion Battery Adaptor: Input-AC 100V to 240V, Output-DC 5V 2A
SYSTEM REQUIREMENT	Microsoft Windows XP/2000, Mac OS, Linux
SIZE & WEIGHT	Dimensions: 92.6mm X 81mm X 24.6mm Weight: approx. 259g(8.8 oz.)

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

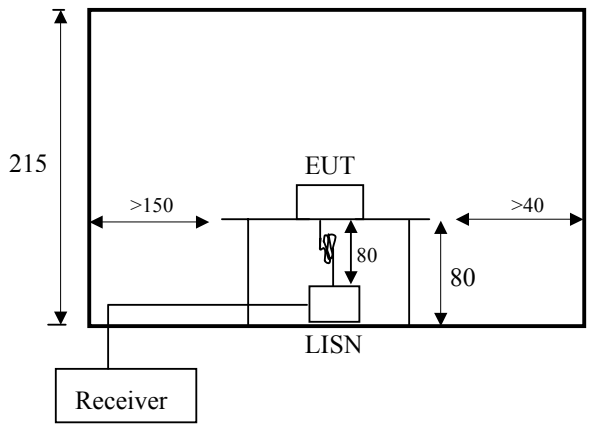
DESCRIPTIONS OF TEST

Conducted Emissions:

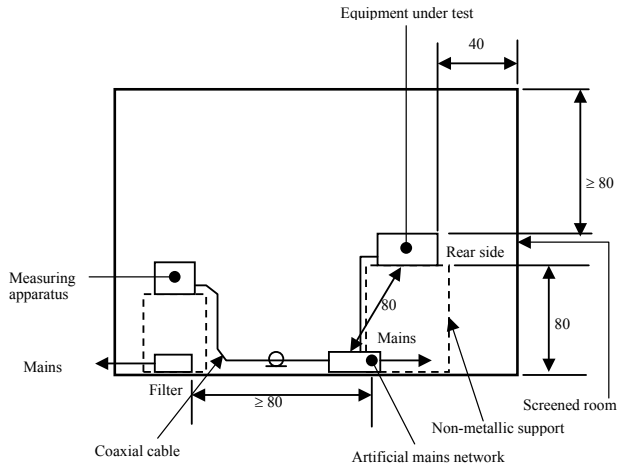
The measurement were performed over the frequency range of 0.15MHz to 30MHz using a ESH2-Z5 LISN as the input transducer to a Spectrum Analyzer or a Field Intensity Meter. The measurements were made with the detector set for "Peak" amplitude within a bandwidth of 10KHz or for "quasi-peak" & "Average" within a bandwidth of 9KHz.

-Procedure of Test

The line-conducted facility is located inside a shielded room No.1. A 1m X 1.5m wooden table 80cm height is placed 40cm away from the vertical wall and 1.5m away from the other wall of the shielded room. The ESCS30 and ESH2-Z5 LISN are bonded to bottom of the shielded room. The EUT is located on the wooden table with distance more than 80cm from the LISN and powered from the ESH2-Z5 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 1.2cm. 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 ESH2-Z5 LISN. All interconnecting cables more than 1m were shortened by non-inductive bundling to a 1m 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 ESCS30 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 30MHz. The bandwidth of the receiver was set to 10kHz. The EUT, peripheral equipment, and interconnecting cables were arranged and manipulated to maximize each EME emission.



< Side View >



< Concept Drawing >

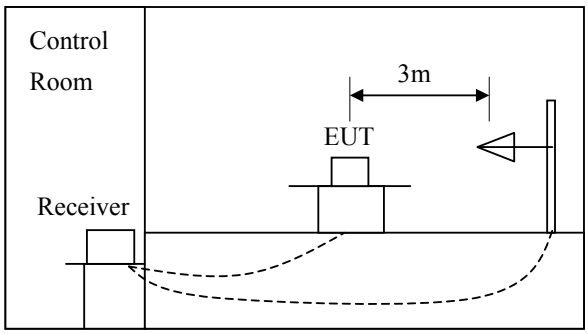
DESCRIPTION OF TEST

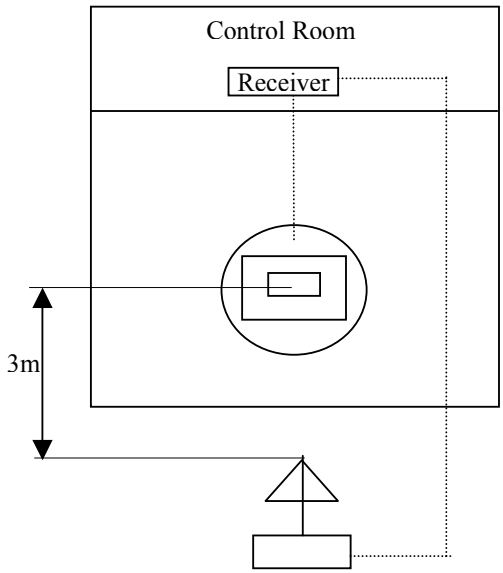
Radiated Emissions:

The measurement was performed over the frequency range of 30MHz to 1GHz 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 120KHz.

-Procedure of Test

Preliminary measurements were made at 3 meter using bi-log 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 30MHz to 1000MHz using bi-log antenna. Above 1GHz, linearly polarized double ridge horn antennas were used. Final measurements were made at open site with 3-meters test distance using 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 120kHz or 1MHz 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.





Measurement Uncertainty Calculations

The measurement uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 and NIS 81 (1994).

Contribution (Conducted Emissions)	Probability Distribution	Uncertainty (±dB) 0.15-30MHz
Receiver Specification	Rectangular	1.5
LISN Coupling Specification	Rectangular	1.5
Cable and Input Attenuator Calibration	Normal (k=2)	0.5
Mismatch to Reciver	U-Shaped	-0.8 / +0.7
System Repeatability	Normal (k=1)	0.2
Combined Standard Uncertainty	Normal (k=2)	-1.85 / +1.71
Expanded Uncertainty U	Normal (k=2)	-3.7 / +3.42

$U_{c,minus}$ = -1.85, $U_{c,plus}$ = 1.71

U = -3.70 / +3.42 (k=2, 95.45% confidence level)

Contribution (Radiated Emissions)	Probability Distribution	Uncertainties(±dB) 3 m
Antenna		
Factor	Normal (k=2)	0.9968
Frequency Interpolation	Rectangular	0.1039
Height Variation	Rectangular	-2.6 / +1.5
Directivity Difference	Rectangular	-1.0 / +0
Phase Center Location	Rectangular	1.0
Cable Loss	Normal (k=2)	0.5
Receiver		
Voltage Accuracy	Normal (k=2)	2.0
Pulse Response	Rectangular	1.5
Absolute Repetition Rate	Rectangular	1.5
Mismatch to Receiver $\lvert \Gamma_{antenna} \rvert = 0.33$ $\lvert \Gamma_{receiver} \rvert = 0.33$	U-Shaped	-1.0 / +0.9
System Repeatibility	Std Deviation	0.5
Combined Standard Uncertainty	Normal	-2.6048 / 2.2775
Expanded Uncertainty U	Normal (k=2)	-5.21 / +4.55

$U_{c,minus}$ = -2.6048, $U_{c,plus}$ = 2.2775

U = -5.21 / +4.55 (k=2, 95.45% confidence level)

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 : ■ File up/download mode
■ FM receiving mode
■ Playback mode
■ Voice recording mode

Configuration of the equipment under test :

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

Equipment	Type	Brand	Serial No.
dx6120MT	Desktop Computer	HP	CNG52000QL
SK-2880	Keyboard(PS/2)	HP	N/A
M-UV69a	Mouse(USB)	HP	N/A
1704FPTt	Monitor	DELL	N/A
M-M28	Mouse(Serial)	Logitech	N/A
A0302380	Printer	Northen Telecom	2633S60168

Connecting Interface Cables :

Shielded monitor's signal cable(with two ferrite core) : 1.5 m

Shielded Printer's signal cable(with one ferrite core) : 1.8 m

Unshielded Keyboard(PS/2) cable(without ferrite core) : 1.8 m

Unshielded Mouse(USB) cable(without ferrite core) : 1.8 m

Unshielded Mouse(Serial) cable(without ferrite core) : 1.8 m

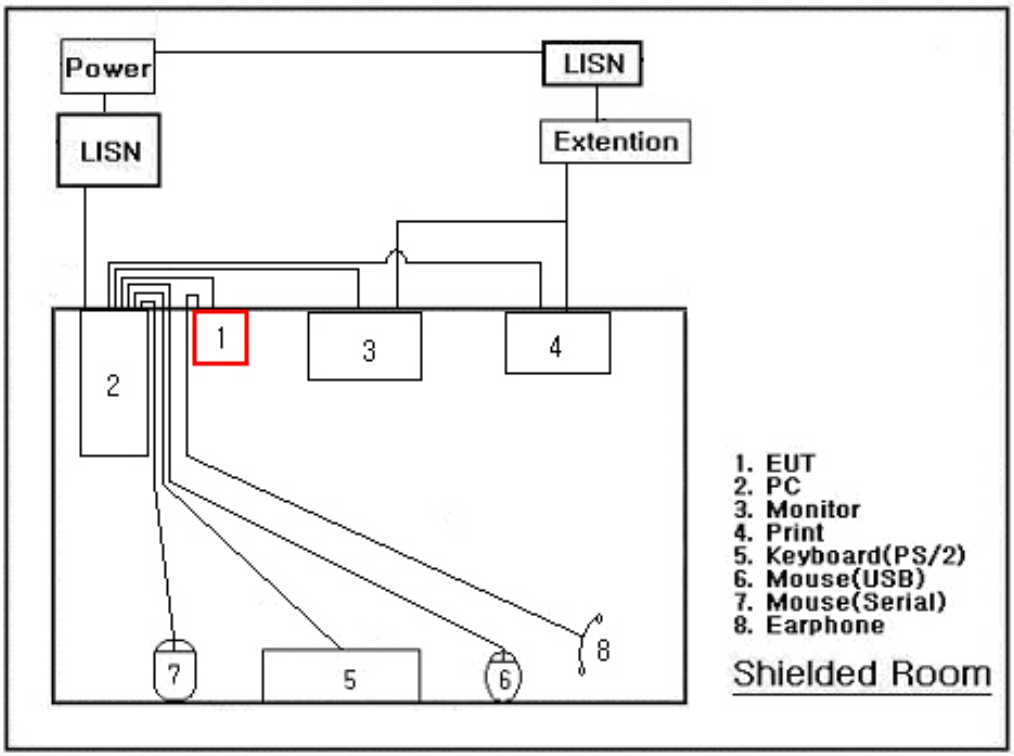
Unshielded USB cable(with two ferrite core) : 1.2 m

Unshielded Earphone cable(without ferrite core) : 1.5 m

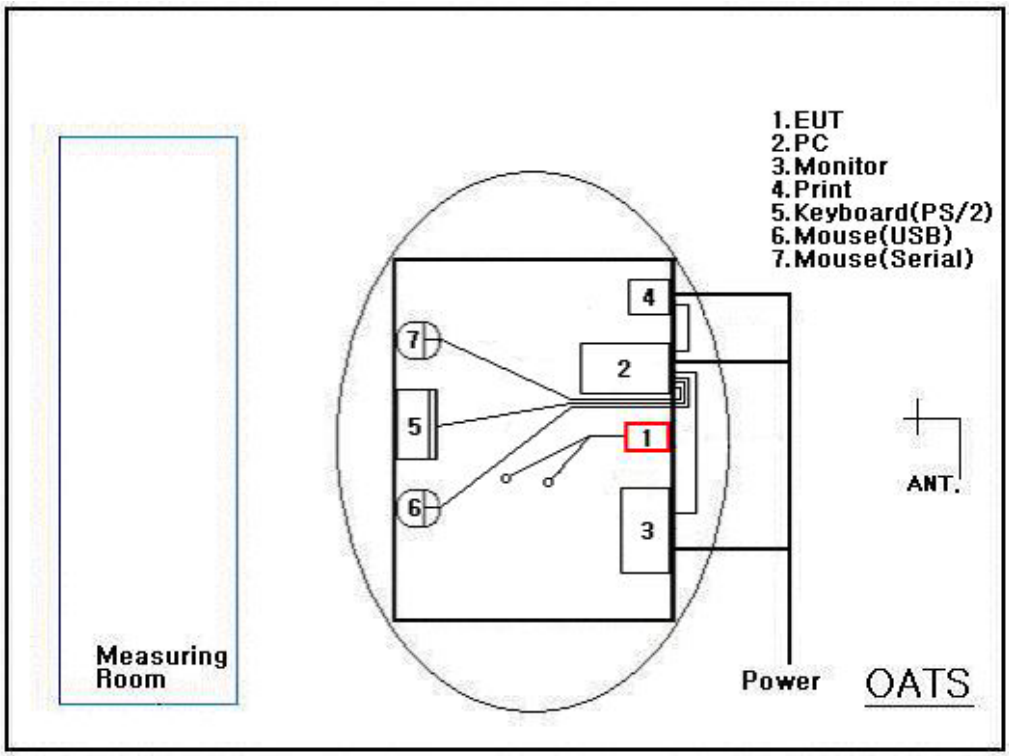
Unshielded Adaptor cable(with one ferrite core) : 1.8 m

Note :

Test Set-Up



Conducted Emissions



Radiated Emissions

SUMMARY

Emissions

■ Conducted Emission

The requirements are ● MET ○ Not MET

Minimum limit margin 3.31 dB at 1.138 MHz

Maximum limit exceeding

Remarks : With Neutral phase, for average detect mode.

(File up/download mode)

Find the test data in following pages 11 to 14.

■ Radiated Emission

The requirements are ● MET ○ Not MET

Minimum limit margin 4.2 dB at 594.2 MHz

Maximum limit exceeding

Remarks : File up/download mode.

Find the test data in following page 15 to 21.

Test Date

Begin of Testing : March 22, 2006

End of Testing : march 24, 2006

Prepared By

Note :

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

C.W.Kim / Project Engineer

TEST CONDITIONS AND DATA

Conducted Emissions

[Applicable]

◆ Test Equipment Used

Model Name	Description	Manufacture	Calibration Date	Serial Number
ESCS30	Test Receiver	Rohde & Schwarz	Jan. 12, 2006	828985/023
ESH2-Z5	LISN	Rohde & Schwarz	Aug. 12, 2005	861714/012
ESH3-Z2	Pulse Limiter	Rohde & Schwarz	Jul. 12, 2005	357.8810.52

◆ Test Accessories Used

Type	Manufacturer
Aneroid Barometer	Sato
Hygrometer	Sato

◆ Test Program File up/download mode

◆ Test Date March 22, 2006

◆ Test Area Conducted room

Note : The equipment used is calibrated in regular for every year.

Conducted Emissions

Live Phase

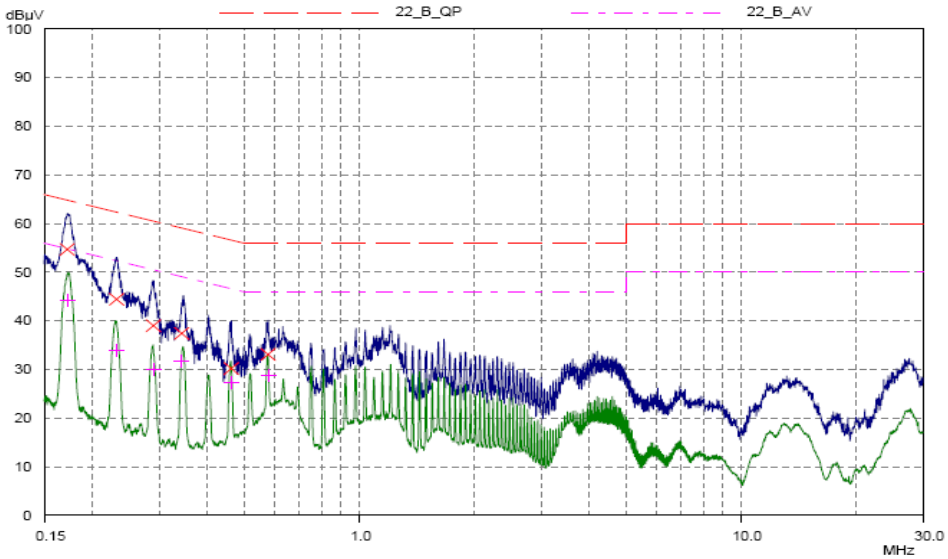
ISTCo.,Ltd.
Conducted Emission

EUT:	TAVI020
Manuf:	newmedialife
Op Cond:	120Vac 60Hz
Operator:	C.W. KIM
Test Spec:	Adaptor
Comment:	LIVE
	PK : BLUE AV : GREEN
Result File:	ada_live.dat :

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	0.2%	9kHz	PK+AV	20msec	Auto	OFF	60dB

Final Measurement:		
	Detectors:	X QP / + AV
	Meas Time:	2sec
	Peaks:	8
	Acc Margin:	25 dB



Freq. [MHz]	Measurement [dB μV]		Limit [dB μV]		Insertion Loss	Cable Loss	Result [dB μV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dB μV]	Q-peak	Average	Q-peak	Average
0.173	54.7	44.2	64.8	54.8	0.3	0.2	55.2	44.7	9.6	10.1
0.232	44.5	33.9	62.4	52.4	0.3	0.3	45.1	34.5	17.3	17.9
0.290	39.0	30.1	60.5	50.5	0.3	0.4	39.7	30.8	20.9	19.8
0.344	37.4	31.8	59.1	49.1	0.2	0.4	38.1	32.5	21.1	16.6
0.464	30.2	27.3	56.6	46.6	0.2	0.5	30.9	27.9	25.7	18.7
0.579	33.1	28.8	56.0	46.0	0.2	0.6	33.9	29.5	22.1	16.5

Note : EUT power line

Conducted Emissions

Neutral Phase

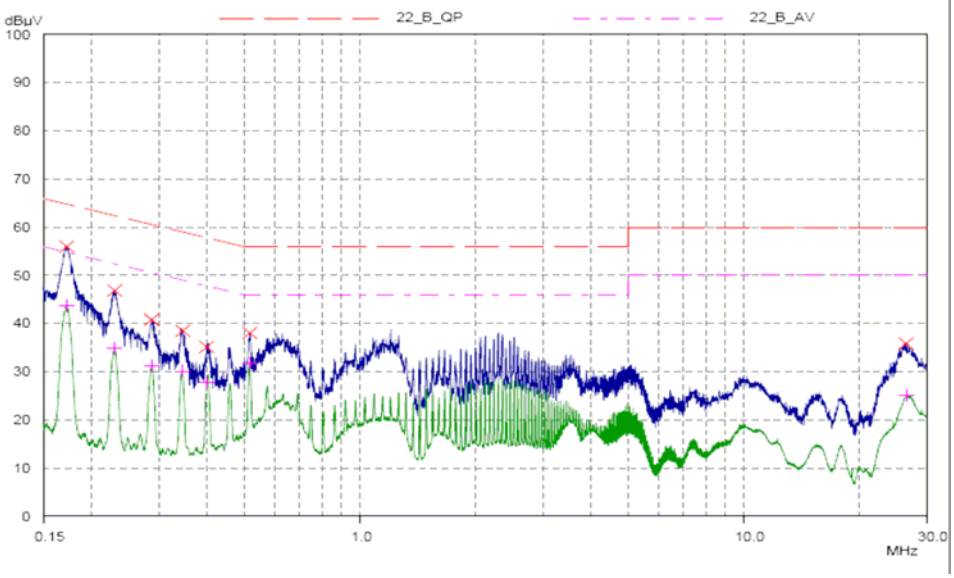
ISTCo.,Ltd.
Conducted Emission

EUT: TAVI020
Manuf: newmedialife
Op Cond: 120Vac 60Hz
Operator: C.W. KIM
Test Spec: Adaptor
Comment: NEUTRAL
PK : BLUE AV : GREEN
Result File: ada_N.dat :

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	0.2%	9kHz	PK+AV	20msec	Auto	OFF	60dB

Prescan Measurement:
Detectors: X PK / + AV
Meas Time: see scan settings
Peaks: 8
Acc Margin: 25 dB



Freq. [MHz]	Measurement [dB μV]		Limit [dB μV]		Insertion Loss	Cable Loss	Result [dB μV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dB μV]	Q-peak	Average	Q-peak	Average
0.173	56.0	43.6	64.8	54.8	0.3	0.2	56.5	44.2	8.3	10.7
0.232	46.9	35.0	62.4	52.4	0.3	0.3	47.5	35.6	14.9	16.8
0.290	40.8	31.3	60.5	50.5	0.3	0.4	41.5	32.0	19.1	18.5
0.344	38.5	30.1	59.1	49.1	0.2	0.4	39.2	30.8	19.9	18.3
0.464	38.1	27.9	56.6	46.6	0.2	0.5	38.7	28.6	17.9	18.1
0.579	35.9	31.7	56.0	46.0	0.2	0.6	36.6	32.5	19.4	13.5

Note : EUT power line

Conducted Emissions

Live Phase

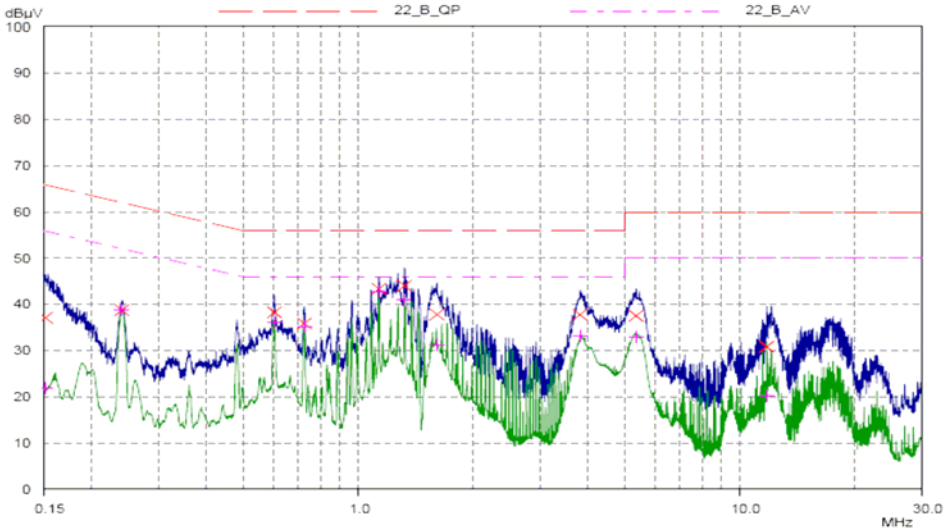
ISTCo.,Ltd.
Conducted Emission

EUT:	TAVI020
Manuf:	newmedialife
Op Cond:	120Vac 60Hz
Operator:	C.W. KIM
Test Spec:	File Up/Download Mode
Comment:	LIVE PK : BLUE AV : GREEN
Result File:	usb_live.dat :

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	0.2%	9kHz	PK+AV	20msec	Auto	OFF	60dB

Final Measurement:		
	Detectors:	X QP / + AV
	Meas Time:	2sec
	Peaks:	8
	Acc Margin:	25 dB



Freq. [MHz]	Measurement [dB μV]		Limit [dB μV]		Insertion Loss	Cable Loss	Result [dB μV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dB μV]	Q-peak	Average	Q-peak	Average
0.152	37.13	21.92	65.9	55.9	0.33	0.20	37.66	22.45	28.22	33.43
1.138	43.41	38.83	56.0	46.0	0.22	0.61	44.24	39.66	11.76	6.34
1.275	39.87	36.17	56.0	46.0	0.23	0.63	40.73	37.03	15.27	8.97
1.329	44.07	40.97	56.0	46.0	0.23	0.64	44.94	41.84	11.06	4.16
1.610	37.85	31.24	56.0	46.0	0.24	0.66	38.75	32.14	17.25	13.86
5.437	37.55	33.07	60.0	50.0	0.33	0.80	38.68	34.20	21.32	15.80

Note : PC power line

Conducted Emissions

Neutral Phase

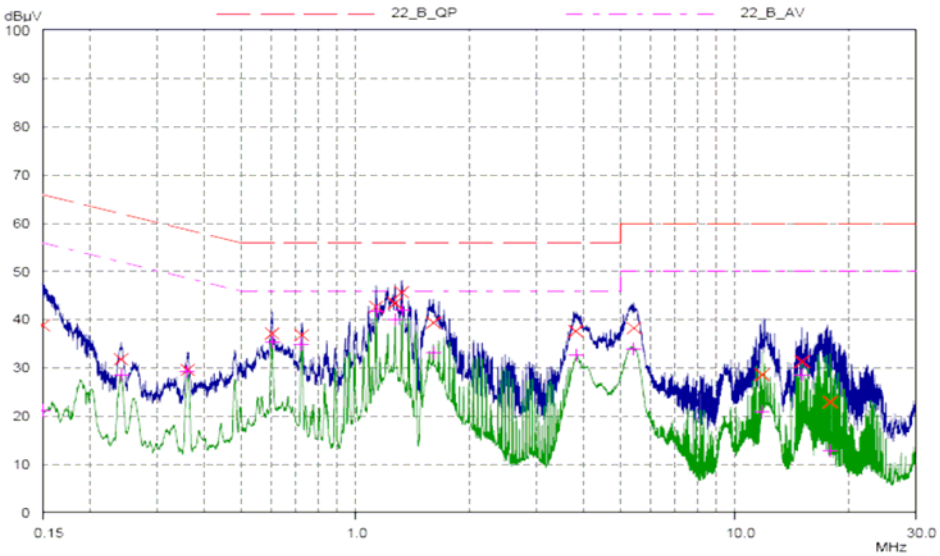
ISTCo.,Ltd.
Conducted Emission

EUT: TAVI020
Manuf: newmedialife
Op Cond: 120Vac 60Hz
Operator: C.W. KIM
Test Spec: File Up/Download Mode
Comment: NEUTRAL
PK : BLUE AV : GREEN
Result File: usb_N.dat :

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	0.2%	9kHz	PK+AV	20msec	Auto	OFF	60dB

Final Measurement: Detectors: X QP / + AV
Meas Time: 2sec
Peaks: 8
Acc Margin: 25 dB



Freq. [MHz]	Measurement [dB μV]		Limit [dB μV]		Insertion Loss	Cable Loss	Result [dB μV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dB μV]	Q-peak	Average	Q-peak	Average
0.152	38.87	21.25	65.9	55.9	0.33	0.20	39.40	21.78	26.48	34.10
1.138	42.75	41.84	56.0	46.0	0.24	0.61	43.60	42.69	12.40	3.31
1.275	43.44	40.03	56.0	46.0	0.25	0.63	44.32	40.91	11.68	5.09
1.329	45.72	41.20	56.0	46.0	0.25	0.64	46.61	42.09	9.39	3.91
1.610	39.41	33.27	56.0	46.0	0.26	0.66	40.33	34.19	15.67	11.81
5.437	38.30	33.93	60.0	50.0	0.34	0.80	39.44	35.07	20.56	14.93

Note : PC power line

TEST CONDITIONS AND DATA

Radiated Emission

[Applicable]

◆ Test Equipment Used

Name	Type	Manufacturer	Calibration. Date	Serial Number
ESCS30	Test Receiver	Rohde & Schwarz	Jan. 12, 2006	828985/023
VULB 9160	Antenna	Schwarzbeck	Sep. 28, 2005	3071

◆ Test Accessories Used

Type	Manufacturer
Aneroid Barometer	Sato
Hygrometer	Sato

◆ Test Program File up/download mode
FM receiving mode
Playback mode
Voice recording mode

◆ Test Date March 23~24, 2006

◆ Test Area Open site

Note : The equipment used is calibrated in regular for every year.

Radiated Emissions

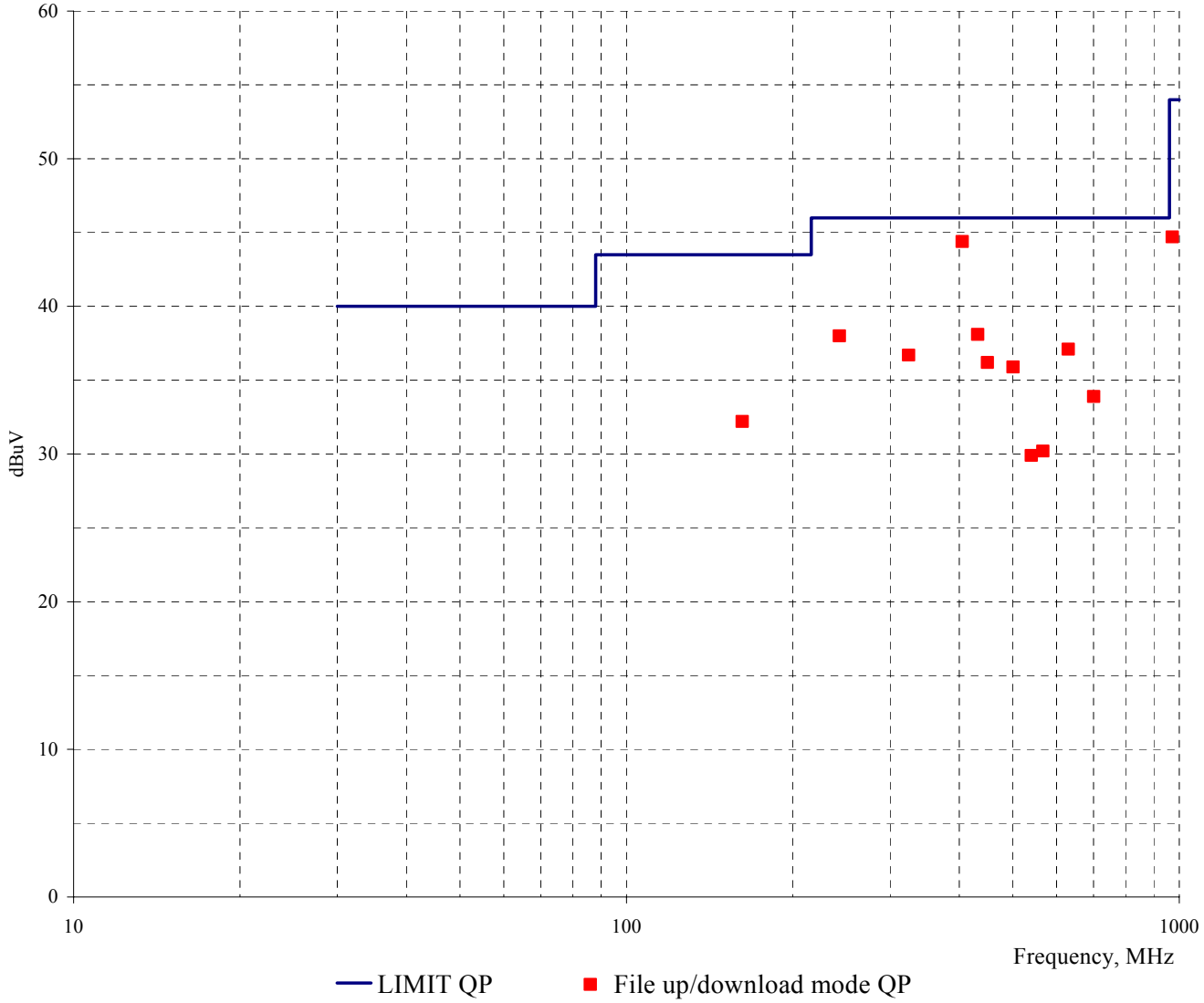
(Disturbance Radiation)

[Applicable]

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB/m]	Cable Loss [dB]	Polar. [H/V]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
162.0	13.4	13.3	2.9	H	29.6	43.5	13.9
240.0	13.2	10.2	3.8	V	27.2	46.0	18.8
324.0	19.1	12.8	4.5	H	36.4	46.0	9.6
405.0	17.6	14.8	5.3	V	37.7	46.0	8.3
432.0	16.9	15.9	5.3	H	38.1	46.0	7.9
450.0	13.8	16.8	5.6	V	36.2	46.0	9.8
450.5	13.4	16.8	5.6	V	35.8	46.0	10.2
420.0	12.3	15.3	5.3	V	32.9	46.0	13.1
480.0	13.4	14.5	5.8	H	33.7	46.0	12.3
594.2	16.6	18.6	6.6	H	41.8	46.0	4.2
630.1	12.4	19.1	6.9	V	38.4	46.0	7.6
972.0	11.0	23.1	10.1	H	44.2	54.0	9.8

Note: ***File up/download mode***

MEASUREMENT OF DISTURBANCE RADIATION

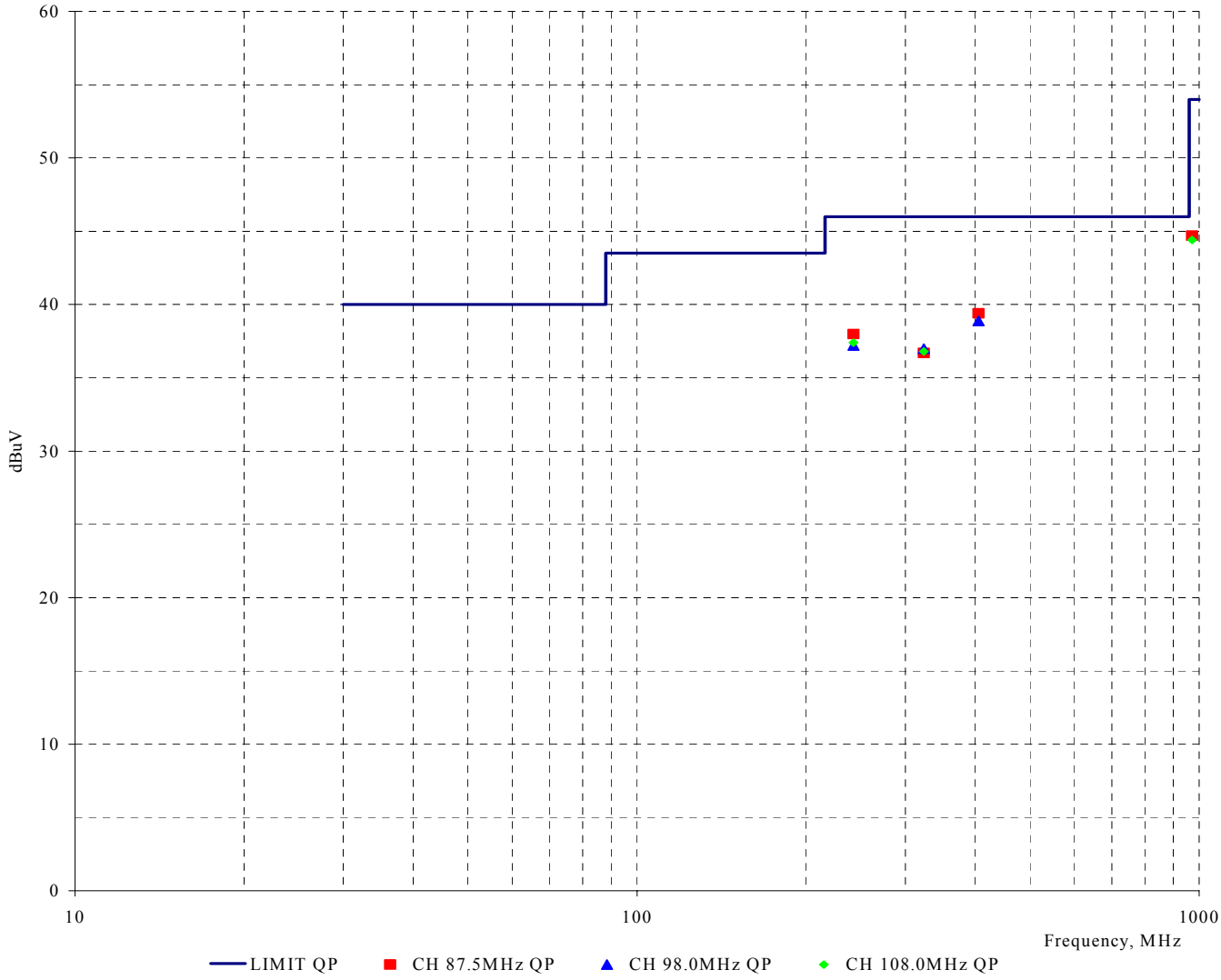


[Applicable]

CH Freq. [MHz]	Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB/m]	Cable Loss [dB]	Polar. [H/V]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
87.5	242.9	23.8	10.4	3.8	H	38.0	46.0	8.0
	324.0	19.4	12.8	4.5	H	36.7	46.0	9.3
	405.0	19.3	14.8	5.3	V	39.4	46.0	6.6
	972.0	11.5	23.1	10.1	H	44.7	54.0	9.3
98.0	242.9	23.0	10.4	3.8	H	37.2	46.0	8.8
	324.0	19.7	12.8	4.5	H	37.0	46.0	9.0
	405.0	18.8	14.8	5.3	V	38.9	46.0	7.1
108.0	242.9	23.2	10.4	3.8	H	37.4	46.0	8.6
	324.0	19.5	12.8	4.5	H	36.8	46.0	9.2
	972.0	11.2	23.1	10.1	H	44.4	54.0	9.6

Note ***:FM receiving mode***

MEASUREMENT OF DISTURBANCE RADIATION

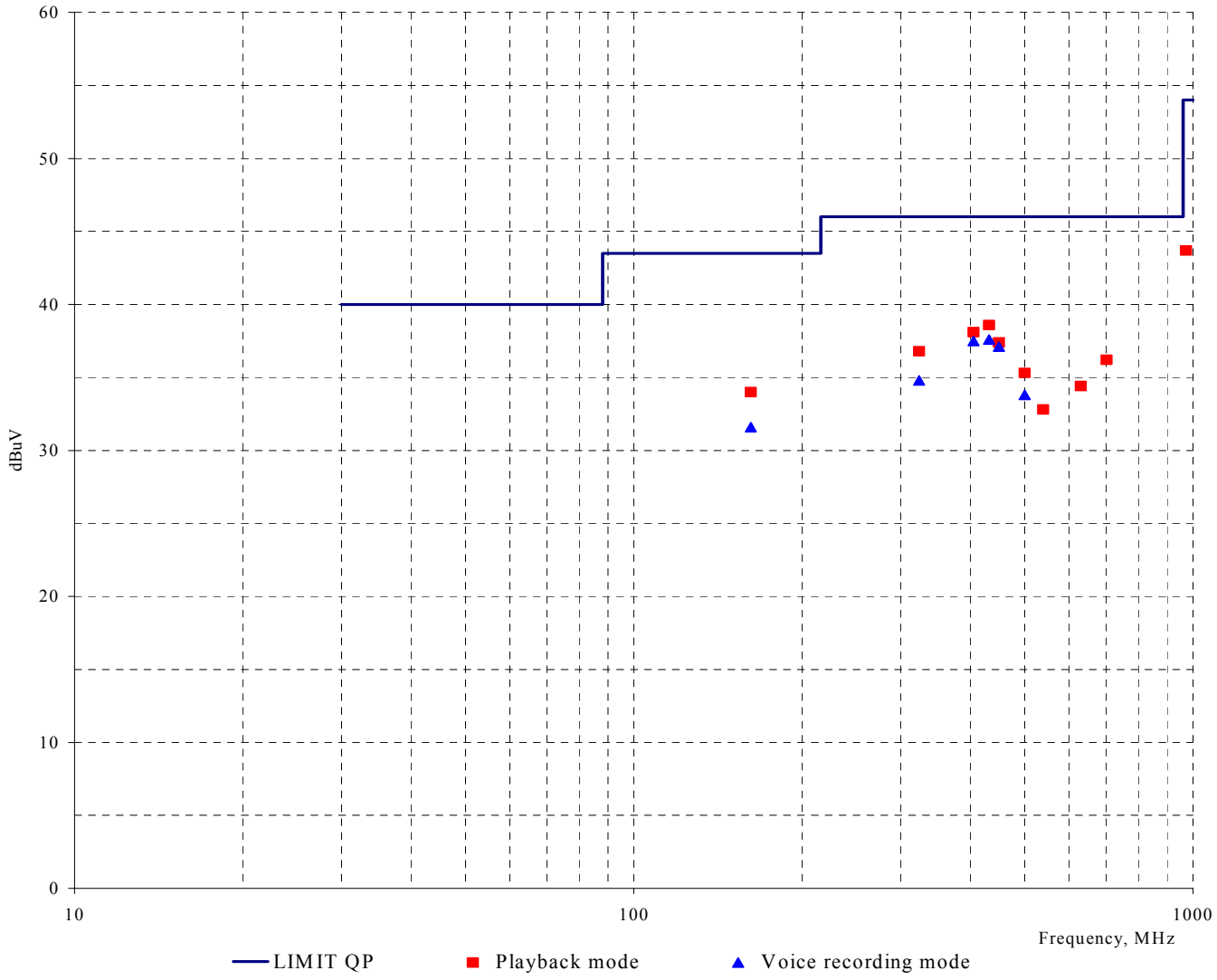


[Applicable]

Mode	Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB/m]	Cable Loss [dB]	Polar. [H/V]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
Playback	162.0	17.8	13.3	2.9	H	34.0	43.5	9.5
	324.0	19.5	12.8	4.5	H	36.8	46.0	9.2
	405.0	18.0	14.8	5.3	V	38.1	46.0	7.9
	432.0	17.4	15.9	5.3	V	38.6	46.0	7.4
	450.1	15.0	16.8	5.6	H	37.4	46.0	8.6
	500.2	11.9	17.3	6.1	H	35.3	46.0	10.7
	540.0	9.8	16.7	6.3	V	32.8	46.0	13.2
	630.2	8.4	19.1	6.9	H	34.4	46.0	11.6
	700.3	8.4	20.1	7.7	H	36.2	46.0	9.8
	972.0	10.5	23.1	10.1	H	43.7	54.0	10.3
Voice recording	162.0	15.4	13.3	2.9	H	31.6	43.5	11.9
	324.0	17.5	12.8	4.5	H	34.8	46.0	11.2
	405.0	17.4	14.8	5.3	V	37.5	46.0	8.5
	432.0	16.4	15.9	5.3	V	37.6	46.0	8.4
	450.1	14.7	16.8	5.6	H	37.1	46.0	8.9
	500.2	10.4	17.3	6.1	H	33.8	46.0	12.2

Note ***:Playback, Voice recording mode***

MEASUREMENT OF DISTURBANCE RADIATION



Appendix A. The Photos of Test Setup

Conducted Emissions(PC power line) - Front View

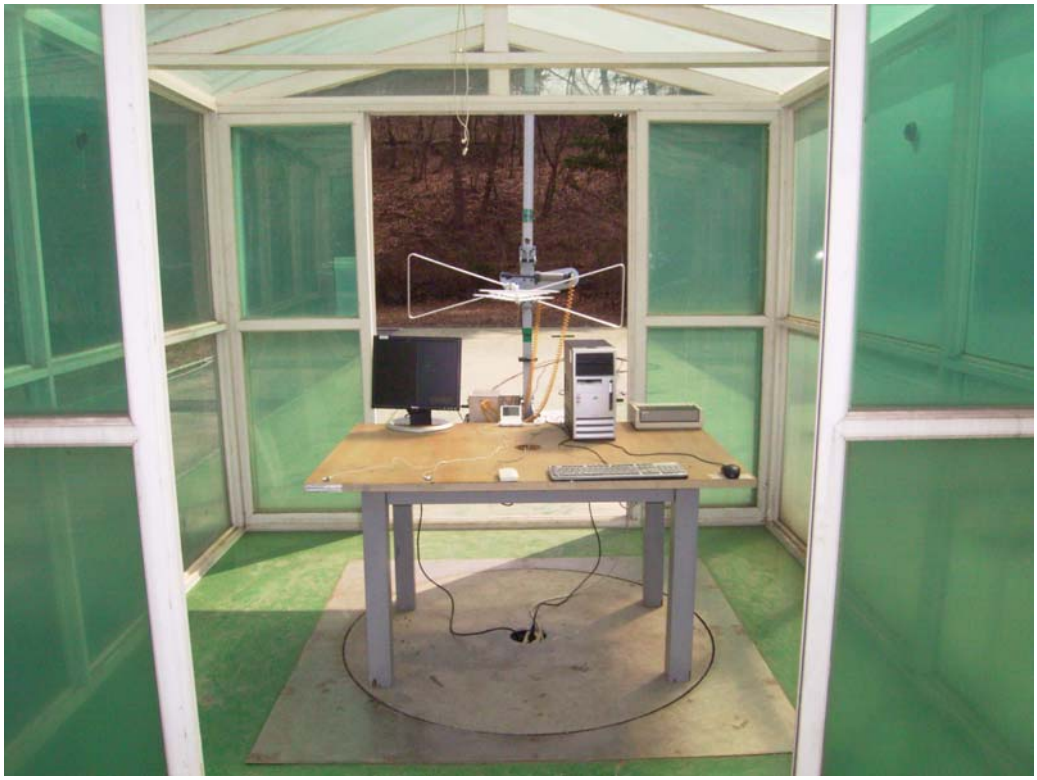
Conducted Emissions(PC power line) - Rear View

Appendix A. The Photos of Test Setup

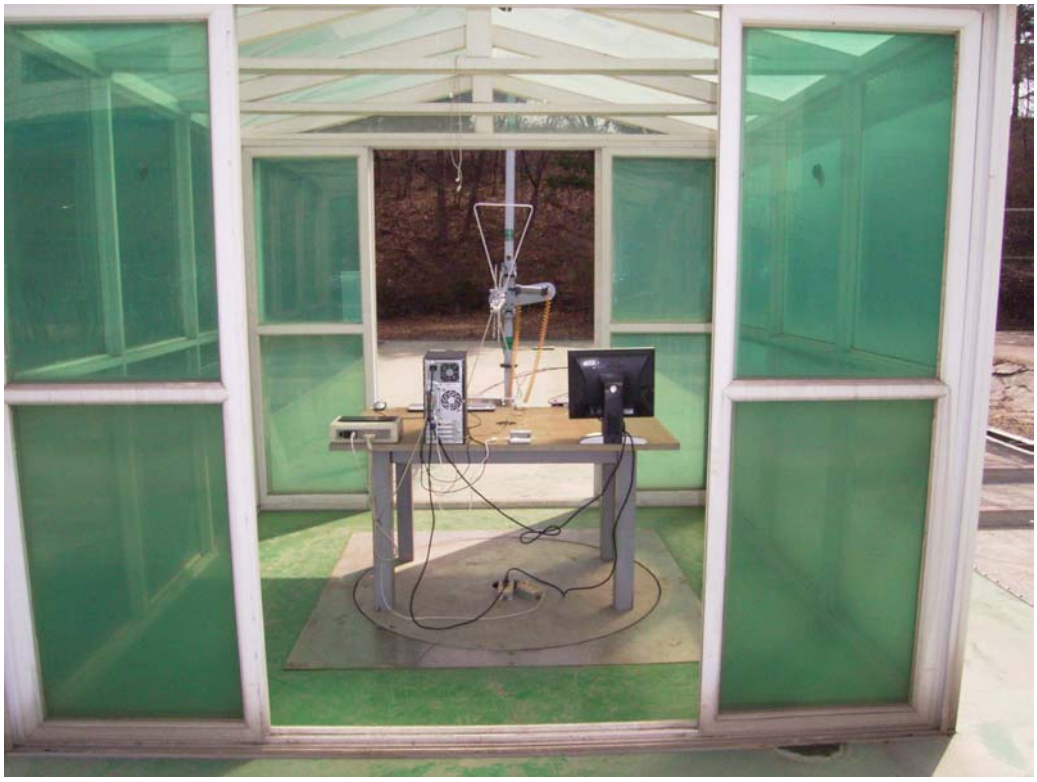
Conducted Emissions(EUT power line) – Front View

Conducted Emissions(EUT power line) – Rear View

Appendix A. The Photos of Test Setup



Radiated Emissions(File up/download mode)-Front View



Radiated Emissions(File up/download mode)-Front View

Appendix A. The Photos of Test Setup

Radiated Emissions(FM receiving/Voice record/Playback mode)-Front View

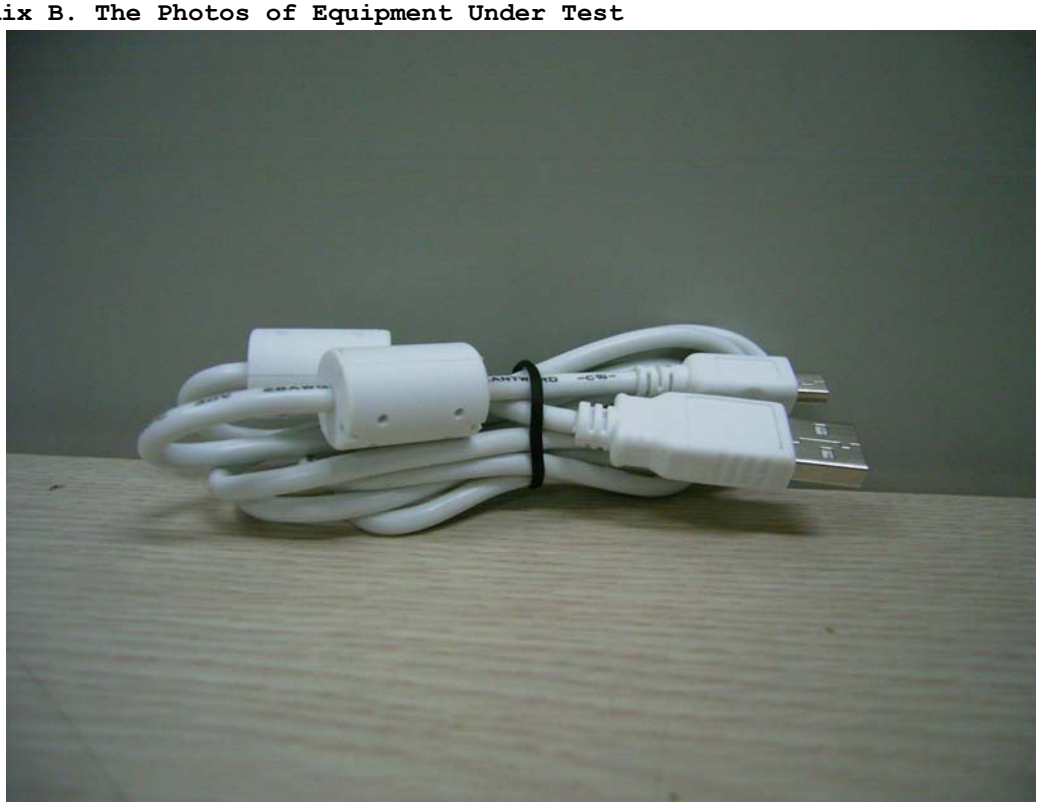
Radiated Emissions(FM receiving/Voice record/Playback mode)-Rear View

Appendix B. The Photos of Equipment Under Test

Front View

Rear View

Appendix B. The Photos of Equipment Under Test



USB cable

Earphone

Appendix B. The Photos of Equipment Under Test

Adaptor