

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 : T40TAVI020

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

◆ Conducted Emissions	0.15MHz - 30MHz	Applicable
Test Conditions / Data and Plots		10-14
◆ Radiated Emissions	30MHz - 2GHz	Applicable
Test Conditions / Data and Plots		15-21

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Note:

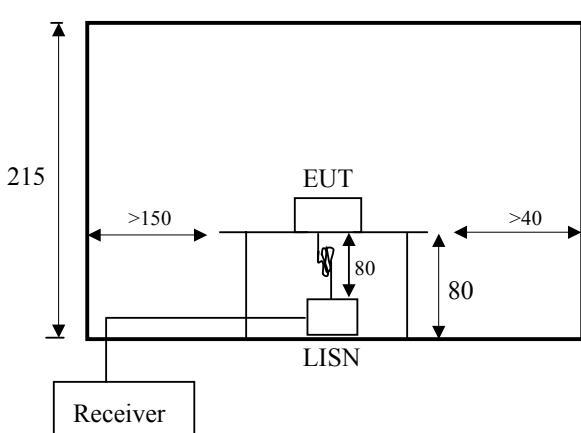
DESCRIPTIONS OF TEST

Conducted Emissions:

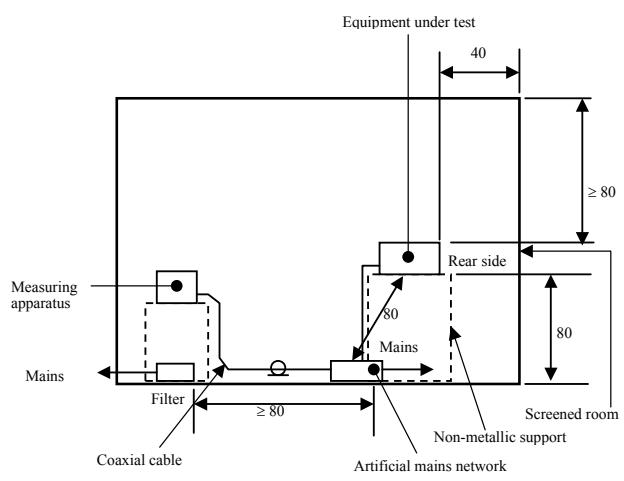
The measurement were performed over the frequency range of 0.15MHz to 30MHz using a ESH2-Z5 LISN as the input transducer to a Spectrum Analyzer or a Field Intensity Meter. The measurements were made with the detector set for "Peak" amplitude within a bandwidth of 10KHz or for "quasi-peak" & "Average"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

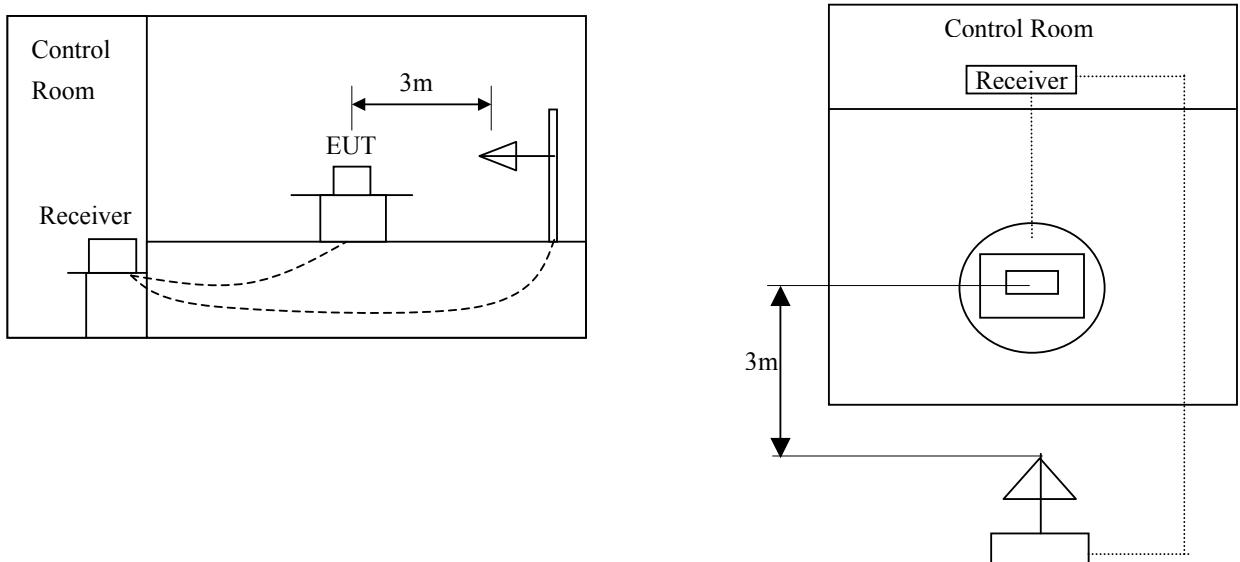
DESCRIPTION OF TEST

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 (\pm 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 Receiver	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

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

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

Contribution (Radiated Emissions)	Probability Distribution	Uncertainties(\pm 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		
$ \Gamma_{\text{antenna}} = 0.33$	U-Shaped	-1.0 / +0.9
$ \Gamma_{\text{receiver}} = 0.33$		
System Repeatability	Std Deviation	0.5
Combined Standard Uncertainty	Normal	-2.6048 / 2.2775
Expanded Uncertainty U	Normal (k=2)	-5.21 / +4.55

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

$U = -5.21 / +4.55$ (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 :

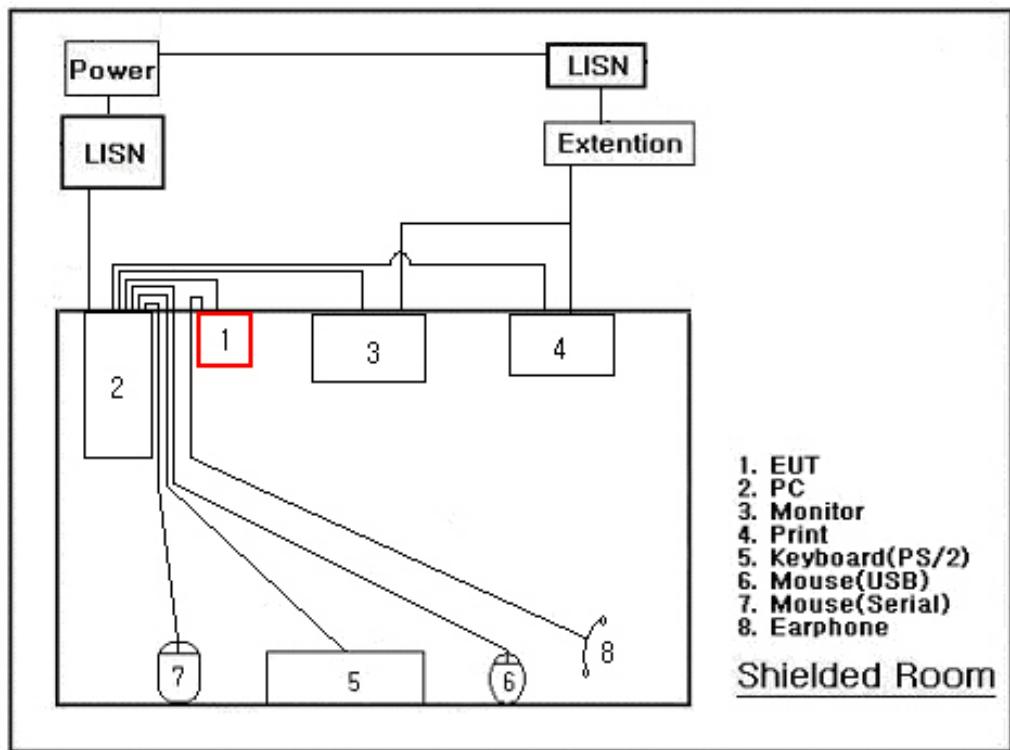
Equipment	Type	Brand	Serial No.
dx6120MT	Desktop Computer	HP	CNG52000QL
SK-2880	Keyboard(PS/2)	HP	N/A
M-UV69a	Mouse(USB)	HP	N/A
1704FPTt	Monitor	DELL	N/A
M-M28	Mouse(Serial)	Logitech	N/A
A0302380	Printer	Northen Telecom	2633S60168

Connecting Interface Cables :

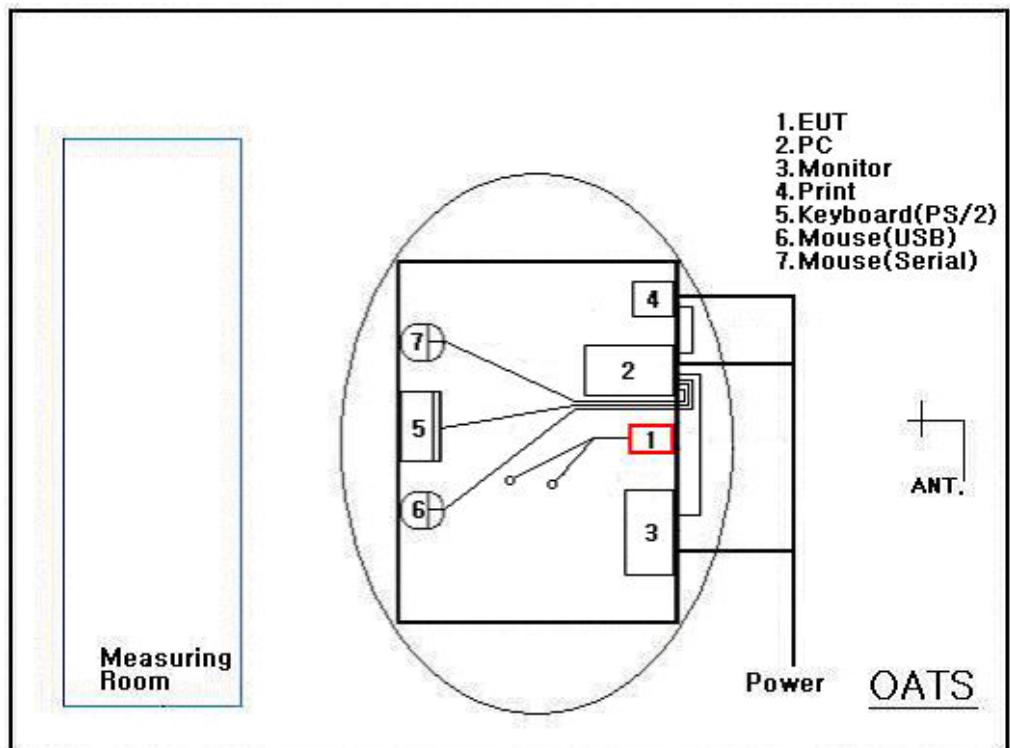
- Shielded monitor's signal cable(with two ferrite core) : 1.5 m
- Shielded Printer's signal cable(with one ferrite core) : 1.8 m
- Unshielded Keyboard(PS/2) cable(without ferrite core) : 1.8 m
- Unshielded Mouse(USB) cable(without ferrite core) : 1.8 m
- Unshielded Mouse(Serial) cable(without ferrite 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.

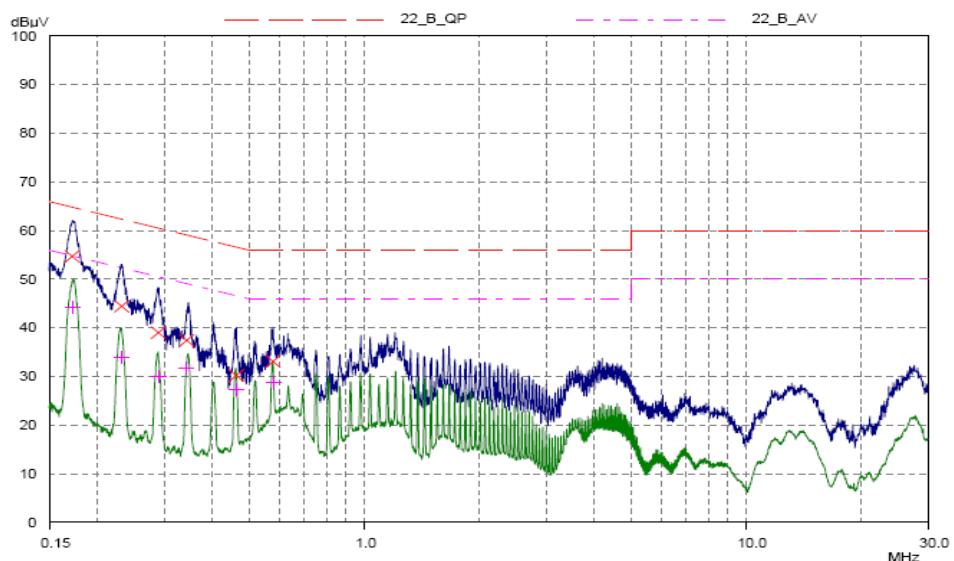
Conducted Emission

EUT: TAV1020
 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)

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

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



Freq. [MHz]	Measurement [dB μ V]		Limit [dB μ V]		Insertion Loss	Cable Loss	Result [dB μ V]		Margin [dB]	
	Q-peak	Average	Q-peak	Average			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.

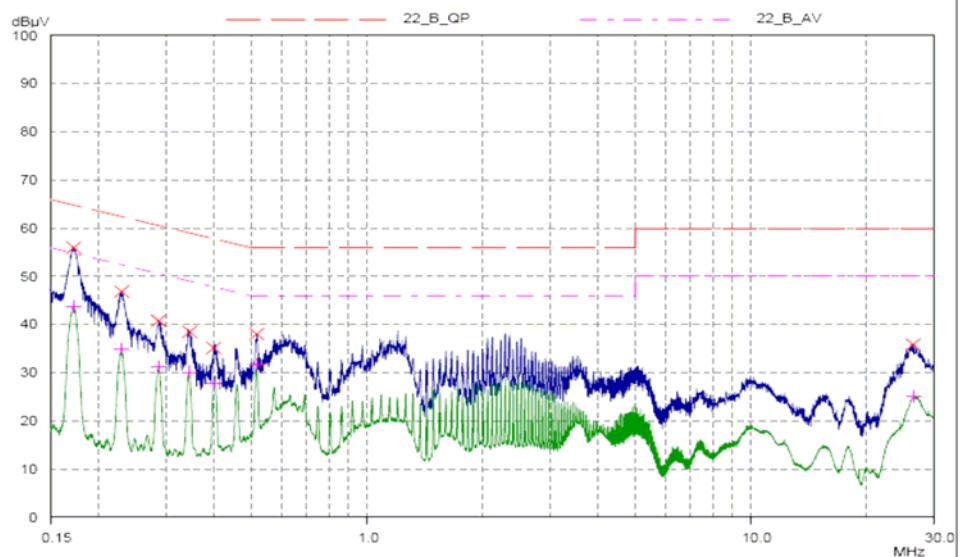
Conducted Emission

EUT: TAVI020
Manuf: newmediatile
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)

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

Prescan Measurement: Detectors: X PK I + 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			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

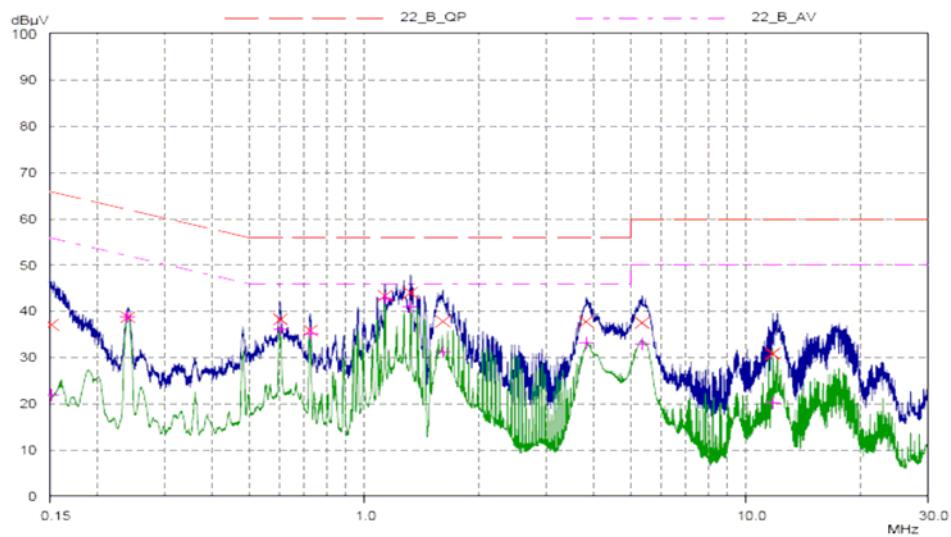
Conducted Emissions

Live Phase

ISTCo.,Ltd.
Conducted Emission

EUT: TAV1020
Manuf: newmediatile
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
Start 150kHz Stop 30MHz Step 0.2% IF BW 9kHz Detector PK+AV
Receiver Settings M-Time 20msec Atten Auto Preamp OFF OpRge 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			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

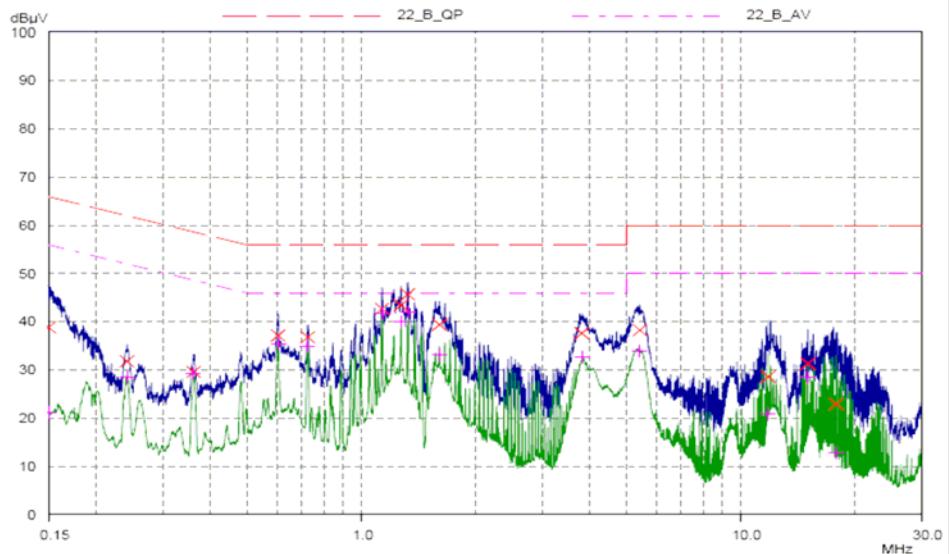
EUT: TAVI020
Manuf: newmedialive
Op Cond: 120Vac 60Hz
Operator: C.W. KIM
Test Spec: File Up/Download Mode
Comment: NEUTRAL
PK : BLUE AV : GREEN
Result File: usb_N.dat :

Scan Settings

(1 Range) Frequencies
Start 150kHz Stop 30MHz Step 0.2% IF BW 9kHz Detector PK+AV

Receiver Settings
M-Time 20msec Atten Auto Preamp OFF OpRge 60dB

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



Freq. [MHz]	Measurement [dB μ V]		Limit [dB μ V]		Insertion Loss	Cable Loss	Result [dB μ V]		Margin [dB]	
	Q-peak	Average	Q-peak	Average			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

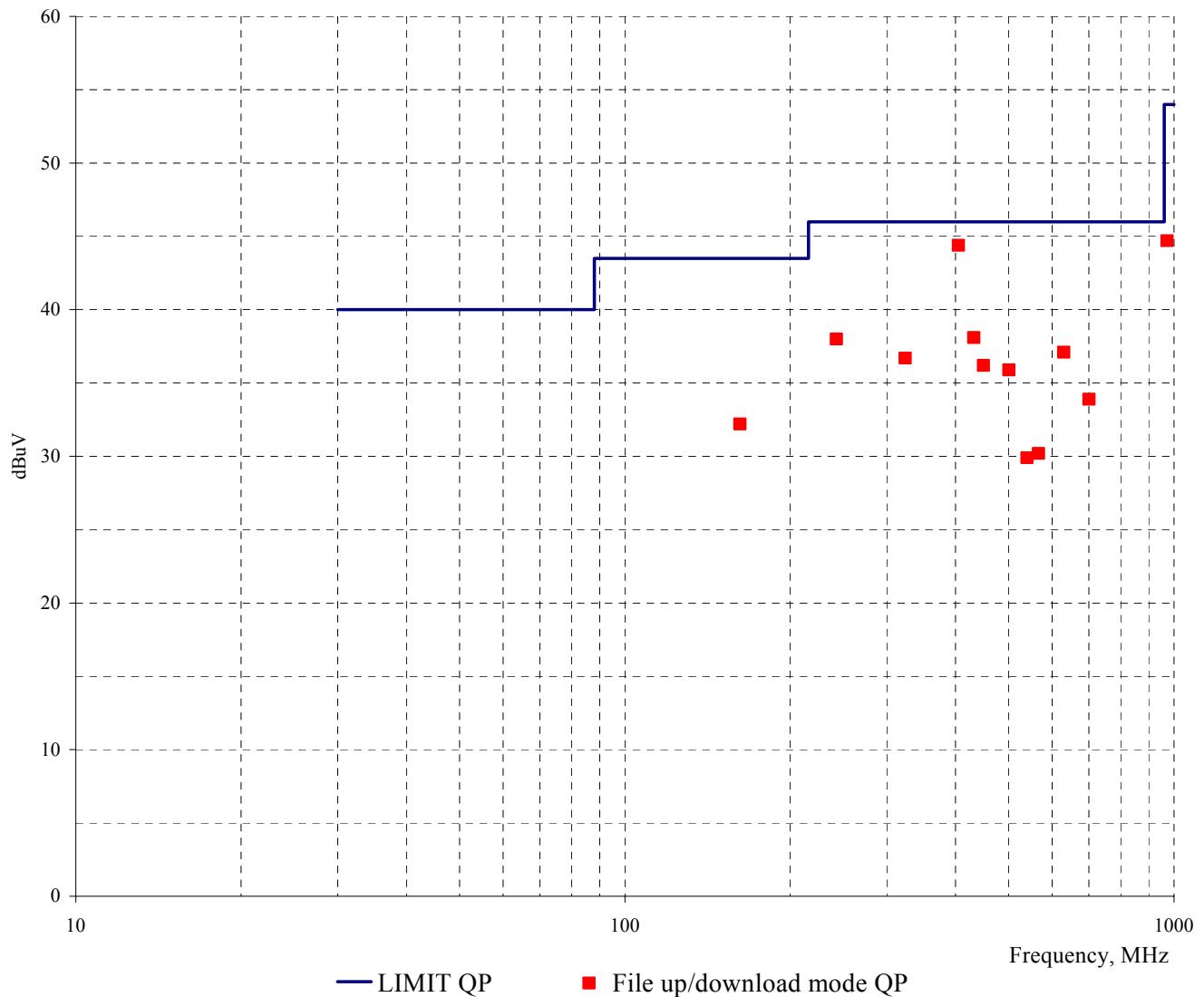
(Disturbance Radiation)

[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

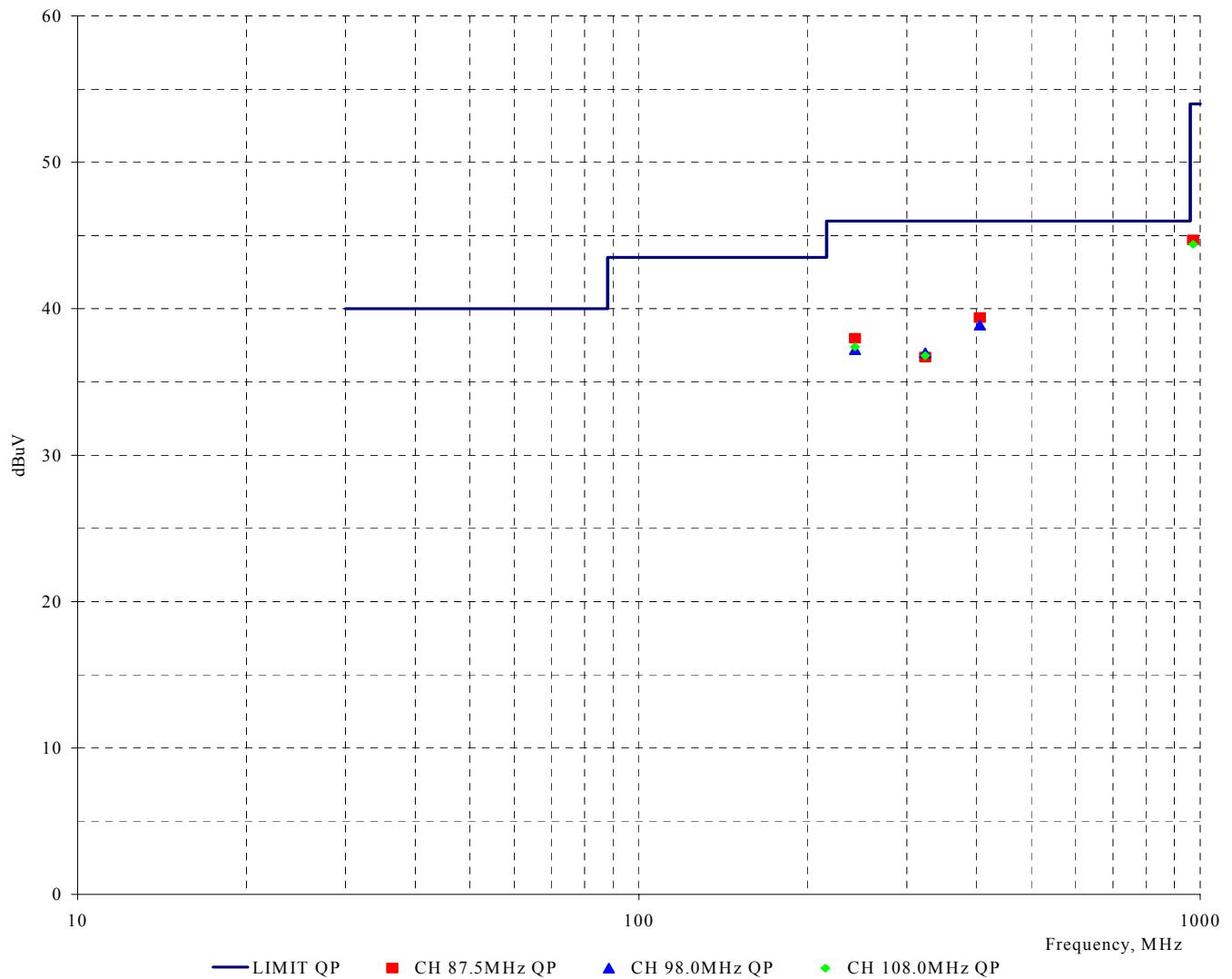


[Applicable]

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

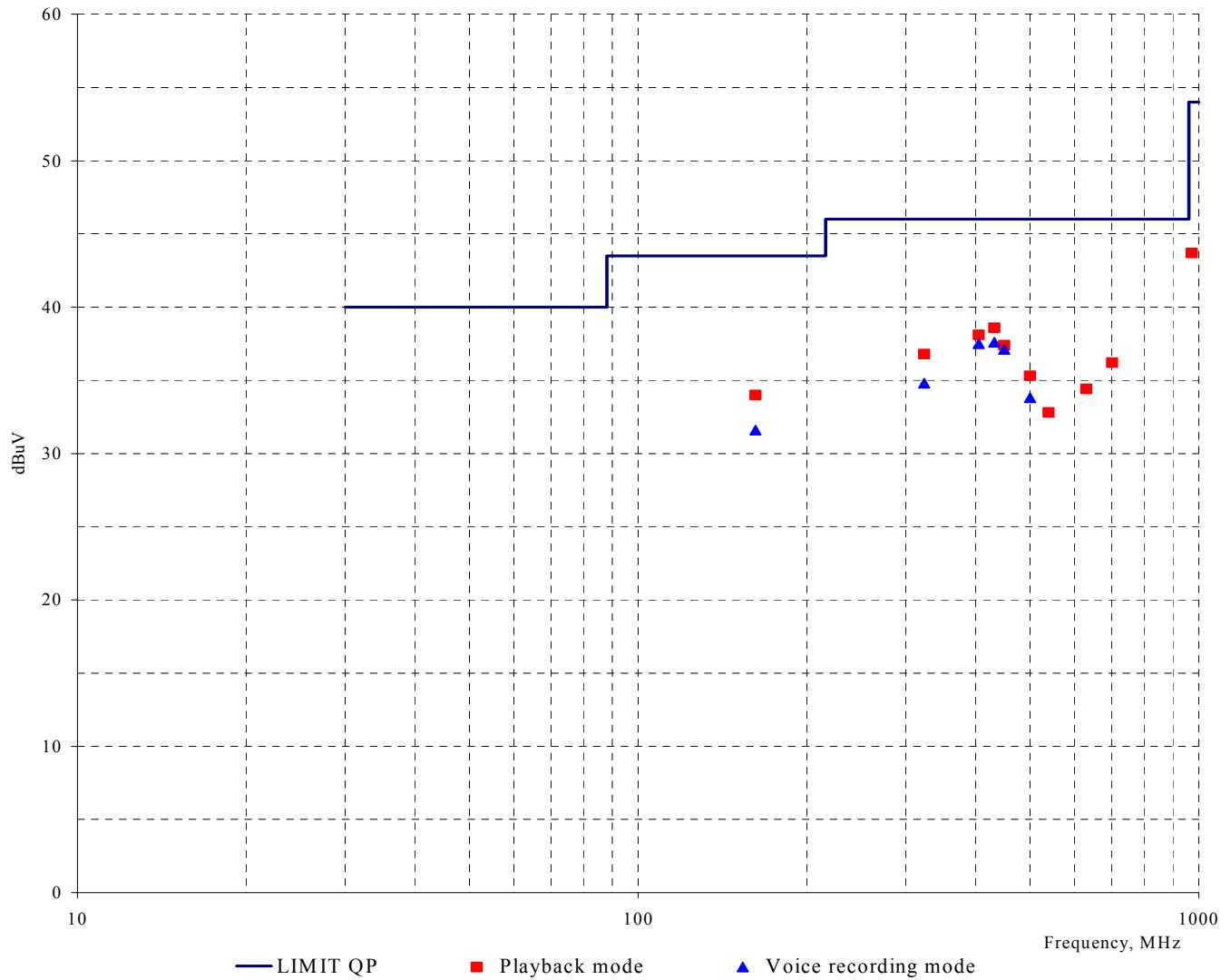


[Applicable]

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

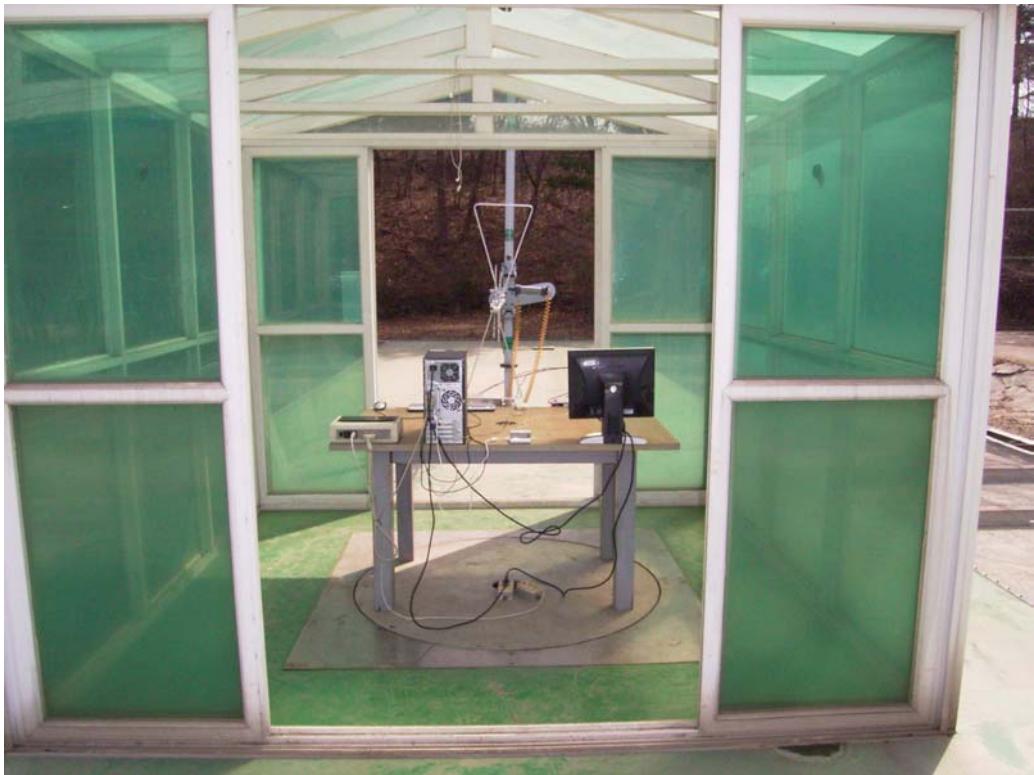


Conducted Emissions (EUT power line) - Rear View

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

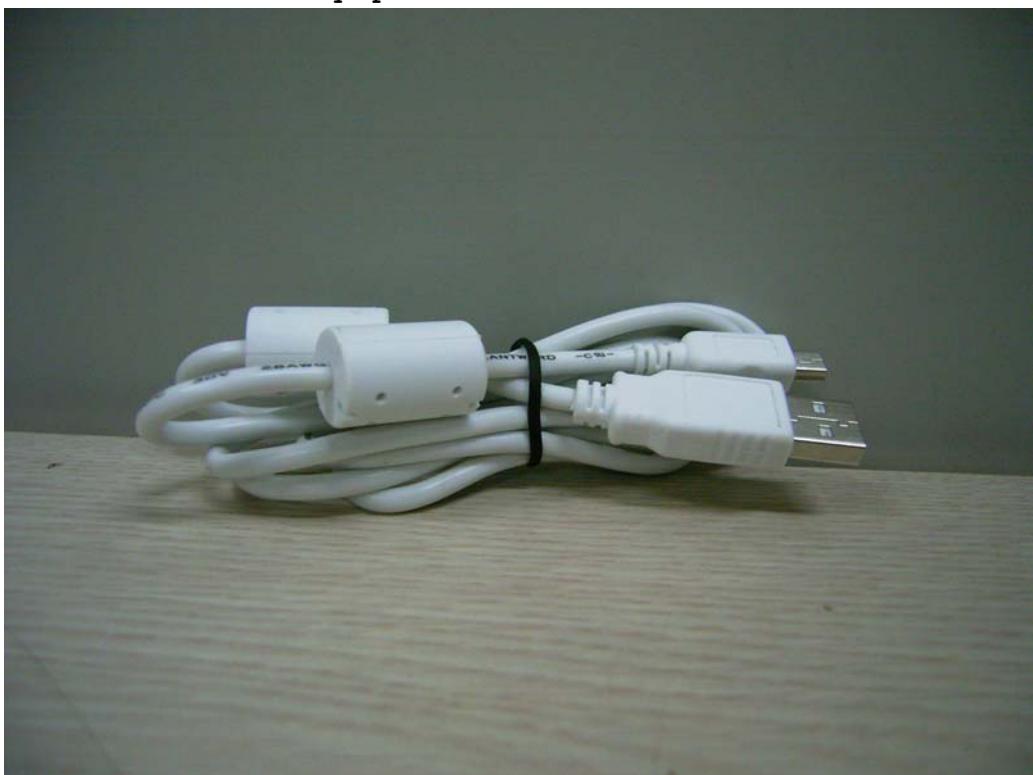


Front View



Rear View

Appendix B. The Photos of Equipment Under Test



USB cable



Earphone

Appendix B. The Photos of Equipment Under Test



Adaptor