ELECTROMAGNETIC RESEARCH INSTITUTE

EMI TEST REPORT

Emission of electromagnetic disturbance

Test Report No. : ERI-FCC03-0061

Equipment : All-in-one PC

Name of basic model : My-Pos Win

Family model : None

Manufacturer : Idnet Co., Ltd.

Applicant : Idnet Co., Ltd.

Tested date : 2003. 9. 22 – 9. 29

Issued date : 2003. 10. 7

Test results : PASS

Test Standards : FCC Part 15 Subpart B (Class B)

/digital devices & peripherals

Test Procedure and Items:

- AC Power line Conducted emissions measurement : ANSI C63.4-1992
- Radiated emissions measurement : ANSI C63.4-1992

Tested by: GWEON, HUR **Approved by: UK-CHO, RIM**

The results in this report apply only to the sample tested.
This test report shall not be reproduced except in full, without the written approval of **ERI Laboratory**.

CONTENTS

1. CLIENT INFORMATION

The EUT has been tested by request of :

Company	: Idnet Co., Ltd.
Address	: Hongpa Bldg. 712 Jegi-dong, Dongdaemun-gu, Seoul, Korea.
Name of contact	: Chang Sik You
Telephone	: +82-2-3292-1155
Facsimile	: +82-2-3295-1152

2. LABORATORY INFORMATION

The 10m full-anechoic chamber and/or EMC facilities are used for these testing. These facilities were accredited by KOLAS, EK, MIC of Korea and FCC of USA.

Address

ELECTROMAGNETIC RESEARCH INSTITUTE.

66-6, JEIL-RI, YANGJI-MYUN, YOUNGIN-CITY, KYUNGGI-DO, KOREA

Telephone No.	: +82-31-336-1186~7
Facsimile No.	: +82-31-336-1184

Registered No.

KOLAS	: 111
EK	: J
MIC	: KR0030
FCC Filing No.	: 302567

3. EQUIPMENT UNDER TEST INFORMATION(EUT)

3.1 Identification of the EUT

Type of equipment	: All-in-one PC
Model name	: My-Pos Win
Manufacturer	: Idnet Co., Ltd.
Address	: Hongpa Bldg. 712 Jegi-dong, Dongdaemun-gu, Seoul, Korea.
Telephone	: +82-2-3292-1155
Facsimile	: +82-2-3295-1152
Country of origin	: KOREA
Rating	: 120V, 60Hz
Clock rate	: CPU clock : 1GHz (Pentium III : 1GHz)

3.2 Additional information about the EUT

Class B, Family Models List: None

3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT.

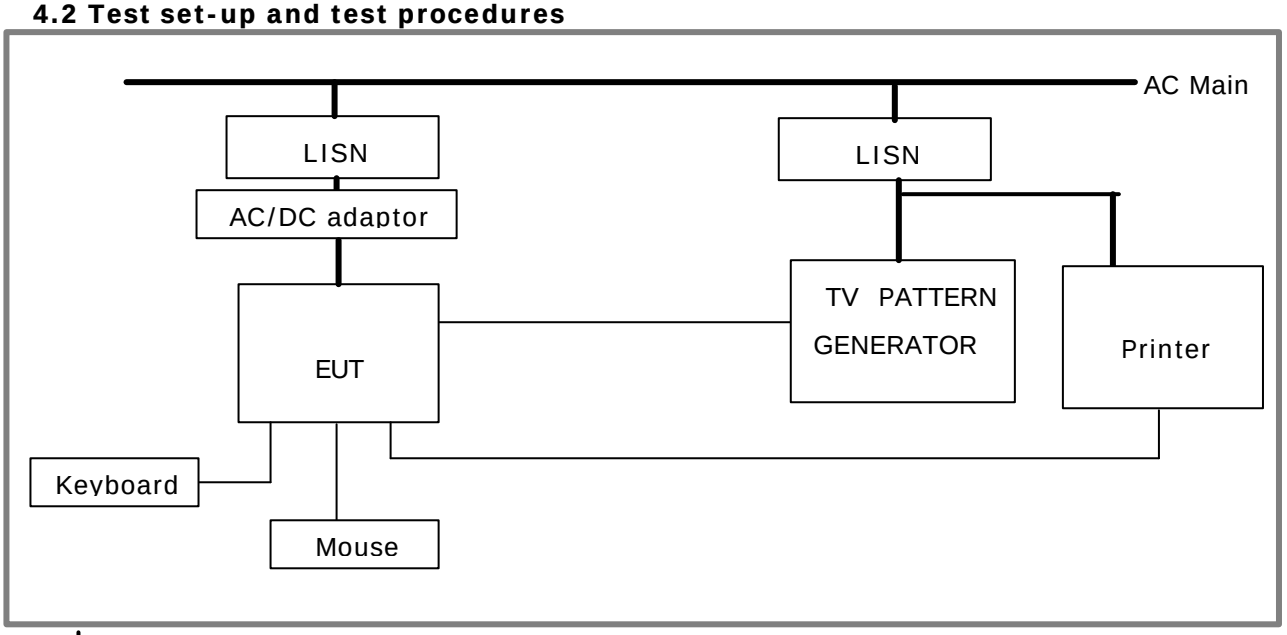
Description	Model No.	Serial No.	Manufacture
AC/DC adaptor	PW116	02143A	Ault Inc
Mouse	AGM6524	007718	SHANGHAI SYSGRATION
Keyboard	E03633QLUSQ	MX03432804	HP
Printer	Deskjet930c	CN13V1B1RY	HP
TV pattern generator	PM5418TDSI	LD642864	Philips

4. CONTINUOUS DISTURBANCE VOLTAGE, MAIN TERMINAL
: Frequency range 0.15 MHz to 30 MHz

4.1 Operating environment

Temperature : 22.0 ℃
Relative Humidity : 52.0 %

4.2 Test set-up and test procedures



The mains terminal disturbance voltage was measured with the equipment under test(EUT) in a shield room. The EUT was connected to an artificial mains network(LISN) placed on the floor. The EUT was placed on non-metallic table 0.4m above the metallic, grounded floor. The distance to other metallic surface was at least 0.8m.
Amplitude measurements were performed with a quasi-peak detector and an average detector.

4.3 Operation Conditions

During the test, we kept receiving data from TV pattern generator, and then we have the data came out on the monitor.

4.4 Test instrument

Instrument	Model No	Serial No.	Makers	Next cal.date	Used
Test receiver	ESCS30	100021	R&S	2004. 1. 24	x
L.I.S.N.	ESH3-Z5	827246/008	R&S	2004. 3. 19	x
	ESH3-Z5	831887/018	R&S	2004. 3. 19	x
Shield room	8 × 6 × 3.3m/H	-	-	-	x

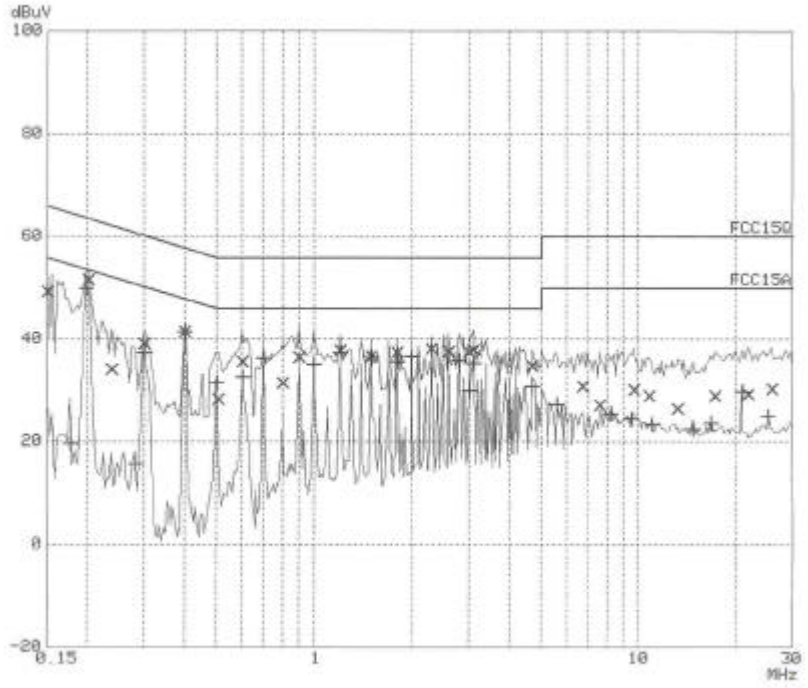
4.5 Test results(Test mode: Ground)

Date of test: Sep 29, 2003.
An overview sweep performed with peak detector & average detector are included in the report **as test reports.**

Frequency Range	Tested Freq.	LISN	Meter Reading		Limits		Margin	
			QP	AV	QP	AV	QP	AV
[MHz]	[MHz]		[dBuV]		[dBuV]		[dBuV]	
0.15-30	0.150	N	50.0	22.8	66.0	56.0	16.0	33.2
	0.201	H	51.6	49.9	63.5	53.5	11.9	3.6
	0.399	N	43.7	43.0	57.9	47.9	14.2	4.9
	0.600	N	39.4	37.9	56.0	46.0	16.6	8.1
	0.699	N	39.9	39.0	56.0	46.0	16.1	7.0
	0.897	N	39.1	38.8	56.0	46.0	16.9	7.2
	1.497	N	39.6	38.4	56.0	46.0	16.4	7.6
	1.698	N	39.0	36.9	56.0	46.0	17.0	9.1
	2.298	N	38.4	36.6	56.0	46.0	17.6	9.4
	3.100	N	38.9	34.0	56.0	46.0	17.1	12.0

* <5 : mean less than 5dB

* Other frequency keep over 20dB margin.



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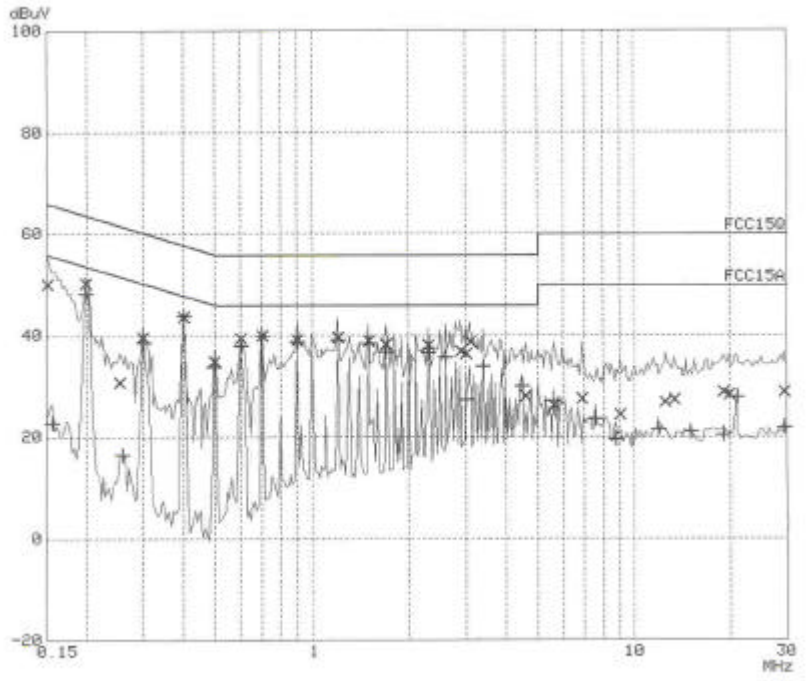
[Hot line]



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[Neutral line]

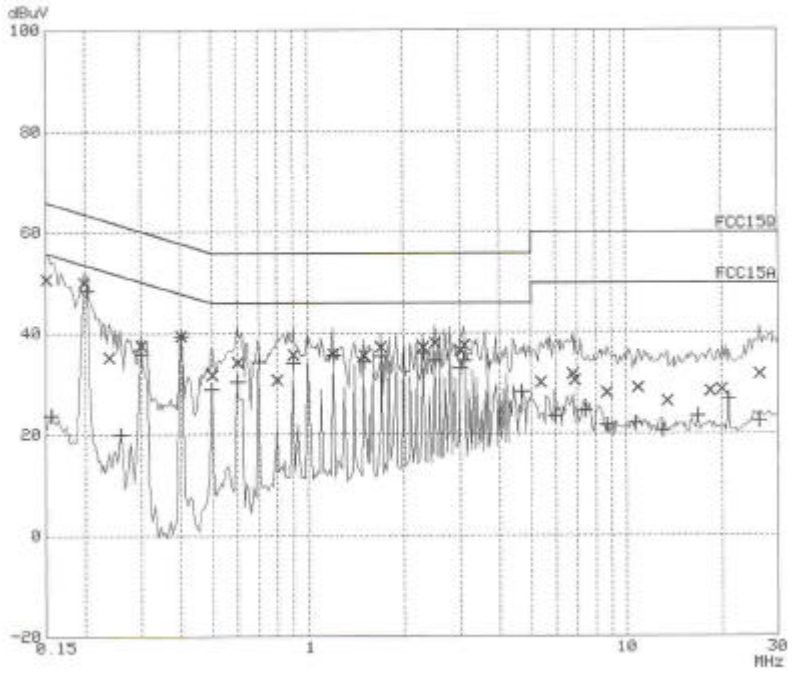
4.6 Test results(Test mode: Non-Ground)

Date of test: Sep 29, 2003.
An overview sweep performed with peak detector & average detector are included in the report **as test reports.**

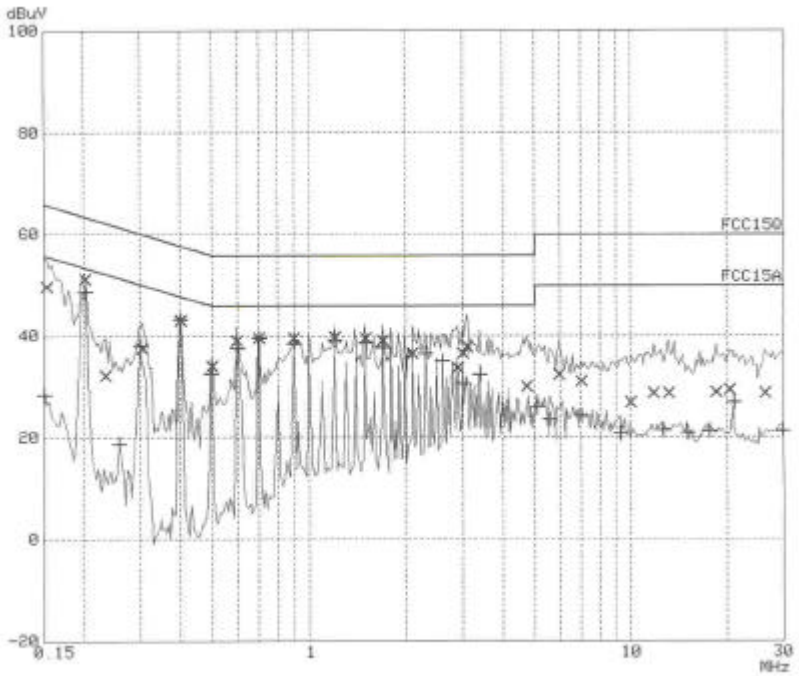
Frequency Range	Tested Freq.	LISN	Meter Reading		Limits		Margin	
			QP	AV	QP	AV	QP	AV
[MHz]	[MHz]		[dBuV]		[dBuV]		[dBuV]	
0.15-30	0.150	H	50.8	23.9	66.0	56.0	15.2	32.1
	0.198	H	50.1	48.5	63.7	53.7	13.6	5.2
	0.399	N	43.1	43.0	57.9	47.9	14.8	4.9
	0.597	N	39.2	37.7	56.0	46.0	16.8	8.3
	0.699	N	39.6	39.2	56.0	46.0	16.4	6.8
	0.897	N	39.6	38.4	56.0	46.0	16.4	7.6
	1.200	N	39.7	39.3	56.0	46.0	16.3	6.7
	1.500	N	39.7	38.6	56.0	46.0	16.3	7.4
	1.698	N	39.0	37.7	56.0	46.0	17.0	8.3
	3.100	N	38.0	32.4	56.0	46.0	18.0	13.6

* <5 : mean less than 5dB

* Other frequency keep over 20dB margin.



[Hot line]



[Neutral line]

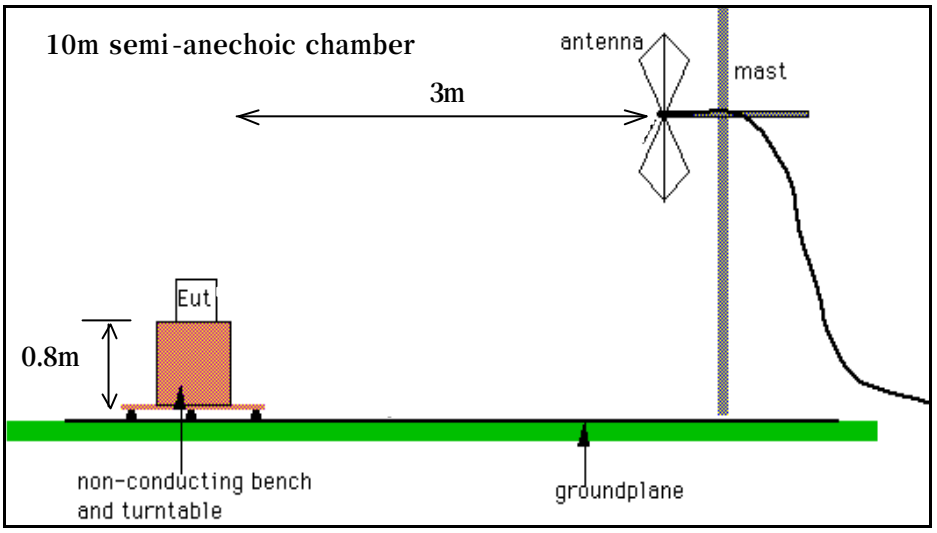
5. RADIATED DISTURBANCE & VOLTAGE AT THE ANTENNA TERMINALS: 30MHz – 5000MHz, 30MHz – 1000MHz

5.1 Operating environment

Temperature : 21.0 ℃
Relative Humidity : 73.0 %

5.2 Test set-up

The frequency range investigated was 30 MHz to 1000 MHz.
All readings are quasi-peak unless stated otherwise.
The half-wave dipole antenna was tuned to the frequency found during Preliminary radiated measurements. The EUT, support equipment and Interconnecting cables were re-configured to the set-up to the producing the Maximum emission for the frequency and were placed on top of a 0.8 meter High non-metallic 1 X 1.5 meter table. The EUT, support equipment, and interconnecting cables were re-arranged and manipulated to maximize each EME 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.
And this device(EUT) was tested in 3 orthogonal planes.
The antenna measured both horizontal and vertical polarization.



<General test set-up for radiated emissions>

5.3 Operation Conditions

During the test, we kept receiving data from TV pattern generator, and then we have the data came out on the monitor.

5.4 Test instrument

Instrument	Model No.	Serial No.	Makers	Next cal.date	Used
Biconical ANT	VHA9103	910319530	Schwarzbeck	2004.1.24	X
Log-periodic ANT	UHLP9108A	0392	Schwarzbeck	2004.1.24	X
Double-Ridged wave Horn ANT	3115	9811-5607	EMCO	2004.2.29	X
Pre-Amp	8449B	3008A01535	Agilent	2004.3.29	X
Matching Pad	RAM	100,096	R&S	-	X
Test receiver	ESCS30	100021	R&S	2004. 1. 24	X

5.5 Test results (PC mode)

Date of test: Sep 26, 2003.

Tested Frequency [MHz]	ANT Pol.	Meter Reading [A] [dBuV/m]	Antenna Factor [B] [dB]	Cable Loss [C] [dB]	Results [A+B+C] [dBuV/m]	Limits [dBuV/m]
99.48	V	28.78	9.22	2.30	40.30	**43.50**
133.18	H	23.74	13.86	2.60	40.20	**43.50**
159.75	H	20.30	15.30	2.90	38.50	**43.50**
397.68	H	24.09	14.31	3.80	42.20	**46.00**
472.50	V	20.26	16.64	4.40	41.30	**46.00**
551.25	V	19.54	18.16	5.00	42.70	**46.00**
643.90	H	17.70	18.80	5.20	41.70	**46.00**
720.05	V	16.74	20.06	5.20	42.00	**46.00**
895.00	H	14.79	21.51	6.20	42.50	**46.00**
912.05	H	13.74	21.86	6.40	42.00	**46.00**

✍✍ Receiving Antenna Mode : ***Horizontal, Vertical***
✍✍ *Test site :* ***10m anechoic chamber***
* <5 : mean less than 5dB
Note : Reading = Test Receiver meter, P= Polarization ✍ POL H = Horizontal POL V = Vertical A = Angle, AF = Antenna Factor CL = Cable Loss Result = Field Strength(AF + CL+ Reading)

Date of test: Sep 26, 2003.

Tested Frequency	ANT Pol.	Meter Reading	Antenna Factor	Cable Loss	Results	Limits
		[A]	[B]	[C]	[A+B+C]	
[GHz]		[dBuV/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]
1.045	H	15.80	24.50	2.75	43.05	**54.00**
1.095	H	17.90	24.50	2.75	45.15	**54.00**
1.195	H	19.80	25.40	2.75	47.95	**54.00**
1.240	H	20.80	25.40	2.30	48.50	**54.00**
1.345	H	20.40	25.40	4.60	50.40	**54.00**
1.450	H	20.33	25.60	4.70	50.63	**54.00**
1.645	H	15.70	26.00	5.81	47.51	**54.00**
1.990	H	16.40	27.50	7.08	50.98	**54.00**

✍✍ Receiving Antenna Mode : ***Horizontal, Vertical***

✍✍ *Test site :* ***10m anechoic chamber***

* <5 : mean less than 5dB

Note : Reading = Test Receiver meter, P= Polarization ✍ POL H = Horizontal POL V = Vertical A = Angle, AF = Antenna Factor CL = Cable Loss Result = Field Strength(AF + CL+ Reading)

5.6 Test results(FM Tuner mode)

Date of test: Sep 26, 2003.

Band	CH. [NO]	Pic. Freq. [MHz]	Local OSC (MHz)	Freq. [MHz]	Meter reading(a) [dBuV/m]	Total loss(b) [dB]	Results (a)+(b) [dBuV/m]	Limits [dBuV/m]
VLF	2	55.25	Fundamental	101.00	-	12.8	-	43.5
			Harmonics	202.00	-	12.3	-	43.5
				303.00	-	17.6	-	46.0
				404.00	-	21.0	-	46.0
				505.00	-	23.4	-	46.0
				606.00	6.8	26.4	33.2	46.0
				707.00	0.9	28.5	29.4	46.0
				808.00	-	30.5	-	46.0
				909.00	-	32.7	-	46.0
	4	67.25	Fundamental	108.5	12.1	13.0	25.1	43.5
			Harmonics	217.0	17.0	13.2	30.2	46.0
				325.5	-	18.5	-	46.0
				434.0	-	22.0	-	46.0
				542.5	7.1	25.0	32.1	46.0
				651.0	0.6	27.5	28.1	46.0
				759.5	-	29.8	-	46.0
				868.0	-	31.5	-	46.0
				976.5	-	33.7	-	46.0
	6	83.25	Fundamental	129.00	-	12.9	-	43.5
			Harmonics	258.00	17.4	15.7	33.1	46.0
				387.00	19.3	20.5	39.8	46.0
				516.00	11.2	24.0	35.2	46.0
				645.00	5.9	27.2	33.1	46.0
				774.00	3.9	30.0	33.9	46.0
				903.00	-	32.6	-	46.0
VHF	7	175.25	Fundamental	221.00	-	13.1	-	46.0
			Harmonics	442.00	11.6	22.3	33.9	46.0
				663.00	9.0	27.9	36.9	46.0
				884.00	-	32.0	-	46.0
	10	193.25	Fundamental	239.00	20.1	14.3	34.4	46.0
			Harmonics	478.00	10.1	22.9	33	46.0
				717.00	11.3	28.9	40.2	46.0
				956.00	6.8	33.4	40.2	46.0
	13	211.25	Fundamental	257.00	-	15.7	-	46.0
			Harmonics	514.00	-	23.9	-	46.0
				771.00	-	29.9	-	46.0
UHF	14	471.25	Fundamental	517.00	-	24.1	-	46.0
	19	501.25	Fundamental	547.00	-	25.2	-	46.0
	28	555.25	Fundamental	601.00	-	26.3	-	46.0
	36	603.25	Fundamental	649.00	-	27.4	-	46.0
	44	-	Fundamental	697.00	-	28.3	-	46.0
	53	-	Fundamental	751.00	-	29.8	-	46.0
	61	-	Fundamental	799.00	0.6	30.4	31.0	46.0
	69	801.25	Fundamental	847.00	1.3	31.1	32.4	46.0

' < '' Means equal or less than

Total loss[dB] : Antenna factor [dB] + Cable loss[dB]

Others

Date of test: Sep 26, 2003.

Tested Frequency [MHz]	ANT Pol.	Meter Reading [A] [dBuV/m]	Antenna Factor [B] [dB]	Cable Loss [C] [dB]	Results [A+B+C] [dBuV/m]	Limits [dBuV/m]
184.6	H	15.88	16.22	3.00	35.10	43.50
208.6	H	11.19	16.29	3.20	30.68	43.50
239.9	H	10.72	16.90	3.50	31.12	46.00
337.0	H	22.05	13.85	3.90	39.80	46.00
395.0	V	19.43	15.17	4.00	38.60	46.00
473.0	H	17.86	16.64	4.40	38.90	46.00

* Receiving Antenna Mode : ***Horizontal, Vertical***
* Test distance: **3m** (10m Anechoic Chamber)
* <5 : mean less than 5dB

Note : Reading = Test Receiver meter, P= Polarization ✍ POL H = Horizontal POL V = Vertical A = Angle, AF = Antenna Factor CL = Cable Loss Result = Field Strength(AF + CL+ Reading)

5.7 Test results<Test mode: TV- Voltage at the Antenna terminals >

Date of test: Sep 26, 2003.

Band	CH. [NO]	Pic. Freq. [MHz]	Local OSC (MHz)	Freq. [MHz]	Meter reading(a) [dBuV/m]	MPL loss(b) [dB]	Results (a)+(b) [dBuV/m]	Limits [dBuV/m]
VLF	2	55.25	Fundamental	101.00	10.2	6.3	16.5	51.8
			Harmonics	202.00	5.7	6.1	11.8	51.8
				303.00	6.7	7.0	13.7	51.8
				404.00	6.5	6.4	12.9	51.8
				505.00	9.2	6.9	16.1	51.8
				606.00	8.3	7.2	15.5	51.8
				707.00	8.6	7.0	15.6	51.8
				808.00	8.7	7.5	16.2	51.8
				909.00	10.7	7.2	17.9	51.8
	4	67.25	Fundamental	108.5	11.0	6.3	17.3	51.8
			Harmonics	217.0	13.0	6.1	19.1	51.8
				325.5	15.9	7.3	23.2	51.8
				434.0	16.0	6.4	22.4	51.8
				542.5	11.4	6.9	18.3	51.8
				651.0	14.6	7.2	21.8	51.8
				759.5	21.4	7.0	28.4	51.8
				868.0	27.6	7.5	35.1	51.8
				976.5	26.4	7.5	33.9	51.8
	6	83.25	Fundamental	129.00	16.9	6.3	23.2	51.8
			Harmonics	258.00	6.2	7.0	13.2	51.8
				387.00	6.7	6.4	13.1	51.8
				516.00	6.5	6.9	13.4	51.8
				645.00	9.3	7.1	16.4	51.8
				774.00	19.0	7.0	26.0	51.8
				903.00	12.3	7.2	19.5	51.8
VHF	7	175.25	Fundamental	221.00	10.0	6.1	16.1	51.8
			Harmonics	442.00	6.7	6.4	13.1	51.8
				663.00	10.8	7.2	18.0	51.8
				884.00	10.5	7.5	18.0	51.8
	10	193.25	Fundamental	239.00	10.5	6.1	16.6	51.8
			Harmonics	478.00	10.6	6.9	17.5	51.8
				717.00	8.8	7.0	15.8	51.8
				956.00	11.2	7.5	18.7	51.8
	13	211.25	Fundamental	257.00	11.3	6.8	18.1	51.8
			Harmonics	514.00	12.6	6.9	19.5	51.8
				771.00	8.5	7.0	15.5	51.8
UHF	14	471.25	Fundamental	517.00	11.5	6.9	18.4	51.8
	19	501.25	Fundamental	547.00	11.9	6.9	18.8	51.8
	28	555.25	Fundamental	601.00	13.5	7.2	20.7	51.8
	36	603.25	Fundamental	649.00	13.5	7.2	20.7	51.8
	44	-	Fundamental	697.00	16.7	7.0	23.7	51.8
	53	-	Fundamental	751.00	11.9	7.0	18.9	51.8
	61	-	Fundamental	799.00	20.2	7.5	27.7	51.8
	69	801.25	Fundamental	846.90	34.8	7.5	42.3	51.8

' < '' Means equal or less than

MPL loss[dB] : Matching pad Loss + Cable Loss