



ELECTROMAGNETIC RESEARCH INSTITUTE

# EMI TEST REPORT

## Emission of electromagnetic disturbance

**Test Report No.** : ERI-FCC03-0020  
**Equipment** : MP3 Player  
**Name of basic model** : iHP-100  
**Family model** : iHP-150, iHP-200, iHP-250  
**Manufacturer** : iRiver CO., LTD.  
**Applicant** : H.J. Mun  
**Tested date** : 2003. 4. 8 - 4. 16  
**Issued date** : 2003. 4. 16  
**Test results** : PASS  
**Test Standards** : FCC Part 15 Subpart B (Class B)

### 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.....	3
2. LABORATORY INFORMATION.....	3
3. EQUIPMENT UNDER TEST INFORMATION(EUT) .....	3
3.1 Identification of the EUT.....	3
3.2 Additional information about the EUT.....	4
3.3 Peripheral equipment .....	4
4. CONTINUOUS DISTURBANCE VOLTAGE, MAIN TERMINAL.....	5
4.1 Operating environment .....	5
4.2 Test set-up and test procedures.....	5
4.3 Test instrument .....	5
4.4 Test results<Play mode>.....	6
4.5 Test results(FM tuner)>.....	8
5. RADIATED DISTURBANCE : 30MHz - 1000MHz .....	10
5.1 Operating environment .....	10
5.2 Test set-up .....	10
5.3 Test conditions.....	10
5.4 Test instrument .....	10
5.5 Test results(Download mode).....	11
5.6 Test results(Play mode).....	11
5.7 Test results(FM tuner) .....	12



## 1. CLIENT INFORMATION

The EUT has been tested by request of :

Company : iRiver CO., LTD.  
Address : 8F Posgen VentureTower, 1586-7 Seocho-dong, Seocho-gu,  
Seoul, Korea  
Name of contact : Gi-Yeon, Lee  
Telephone : +82-2-3019-1723  
Facsimile : +82-2-3019-1746

## 2. LABORATORY INFORMATION

The 10m semi-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 : MP3 Player  
Model name : iHP-100  
Brand name : N/A  
Manufacturer : AV CHASEWAY MFG.FTY.  
Address : Langang Village, Chongguang Town, Baoan District,  
Shenzhen City, Guangdong, China  
Telephone : +86-755-708-4671  
Facsimile : +86-755-708-5490  
Country of origin : CHINA  
Rating : DC 5V



**3.2 Additional information about the EUT**

Class B, Family Models List:

Basic Model	Variant Model	Differential point	Remark
iHP-100	iHP-150	Model name	-
	iHP-200	Model name	-
	iHP-250	Model name	-

**3.3 Peripheral equipment**

Defined as equipment needed for correct operation of the EUT.

Description	Model No.	Serial No.	Manufacture
NOTE PC	CP149702-01	R3100684	Fujitsu limited.
AC/DC adaptor	SEB80N2-16	03211289B	Sanken electronic Co., Ltd.
FDD	FPCFDD12	B1131NI0106	-
AC/DC adaptor	RHC-050200-L	-	-
Monitor	S7E	P181H80R907989	-
Printer	HP930C	CN17D1BOS9	-

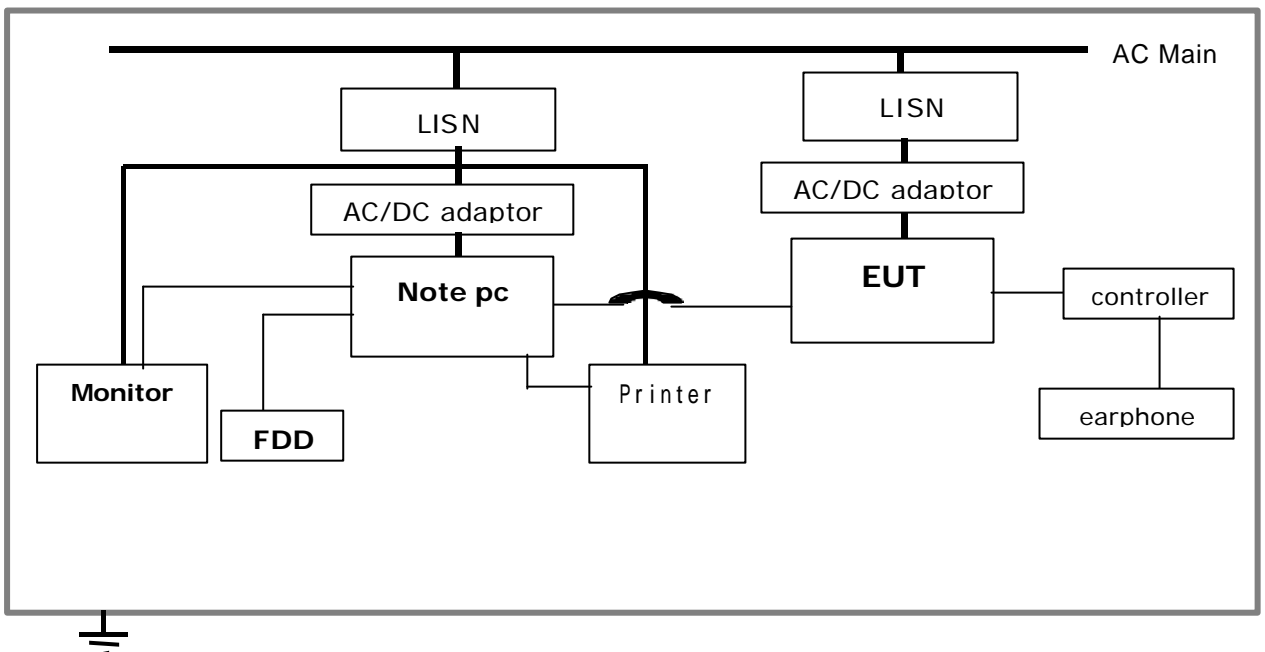
**4. CONTINUOUS DISTURBANCE VOLTAGE, MAIN TERMINAL**

: Frequency range 0.15 MHz to 30 MHz

**4.1 Operating environment**

Temperature : 22.0  
 Relative Humidity : 30.0 %

**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.

Operation condition : Play and download mode

**4.3 Test instrument**

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

**4.4 Test results<Play mode>**

Date of test : Apr 8, 2003.

An overview sweep performed with peak detector & average detector are included in the report **as test reports.**

Frequency Range [MHz]	Tested Freq. [MHz]	LISN	Meter Reading		Limits		Margin	
			QP	AV	QP	AV	QP	AV
			[dBuV]		[dBuV]		[dBuV]	
<b>0.15-30</b>	0.150	N	35.9	4.6	66.0	56.0	30.1	51.4
	0.275	H	28.0	27.9	61.0	51.0	33.0	23.1
	0.280	H	37.3	26.8	60.8	50.8	23.5	24.0
	0.482	H	27.1	5.2	56.4	46.4	29.3	41.2
	0.530	N	35.8	2.7	56.0	46.0	20.2	43.3
	0.540	N	26.3	18.3	56.0	46.0	29.7	27.7
	0.610	N	37.7	10.5	56.0	46.0	18.3	35.5
	1.105	H	31.8	17.5	56.0	46.0	24.2	28.5
	6.080	H	26.6	12.7	60.0	50.0	33.4	37.3
	6.390	H	27.0	14.9	60.0	50.0	33.0	35.1

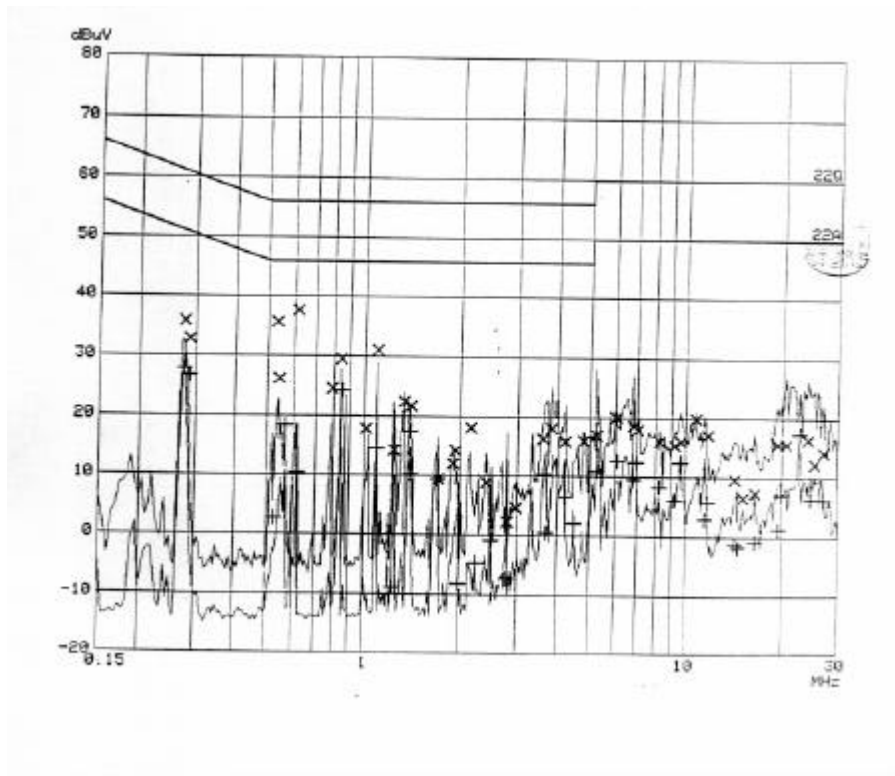
\* <5 : mean less than 5dB

\* other frequency keep over 20dB margin.

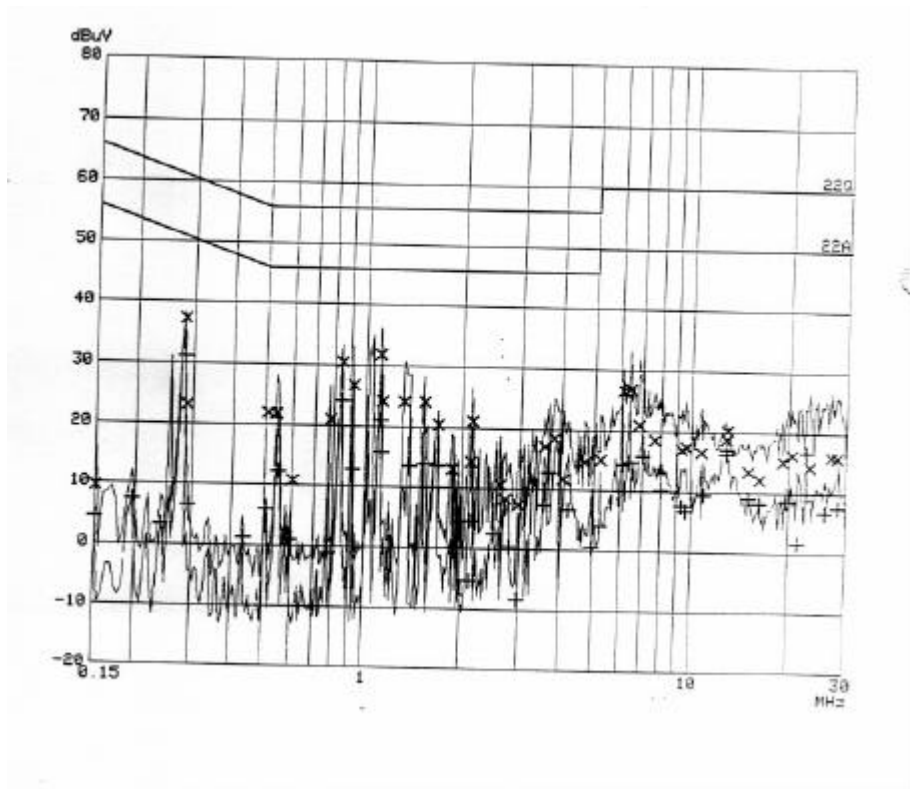
**Result: Pass**

The measured emissions level of the EUT have found the below of the specified limit.





[Neutral line]



[Hot line]

**4.5 Test results<Download mode>**

Date of test : Apr 8, 2003.

An overview sweep performed with peak detector & average detector are included in the report **as test reports.**

Frequency Range [MHz]	Tested Freq. [MHz]	LISN	Meter Reading		Limits		Margin	
			QP	AV	QP	AV	QP	AV
			[dBuV]		[dBuV]		[dBuV]	
<b>0.15-30</b>	0.270	N	47.9	47.9	61.1	51.1	13.2	3.2
	0.540	N	37.2	37.3	56.0	46.0	18.8	8.7
	0.807	N	35.2	34.8	56.0	46.0	20.8	11.2
	1.083	N	35.7	34.5	56.0	46.0	20.3	11.5
	1.617	N	34.3	32.4	56.0	46.0	21.7	13.6

\* <5 : mean less than 5dB

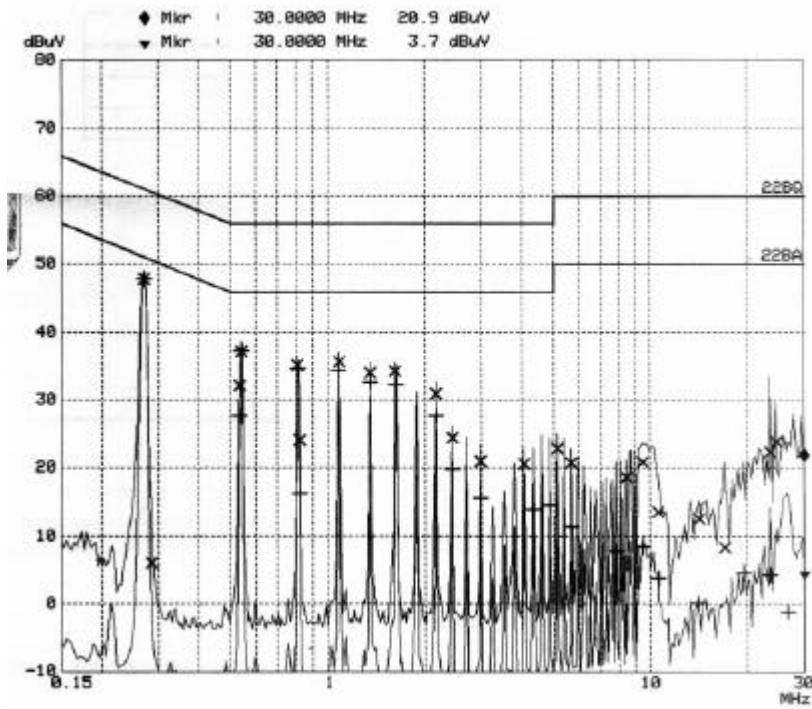
\* other frequency keep over 20dB margin.

**Result: Pass**

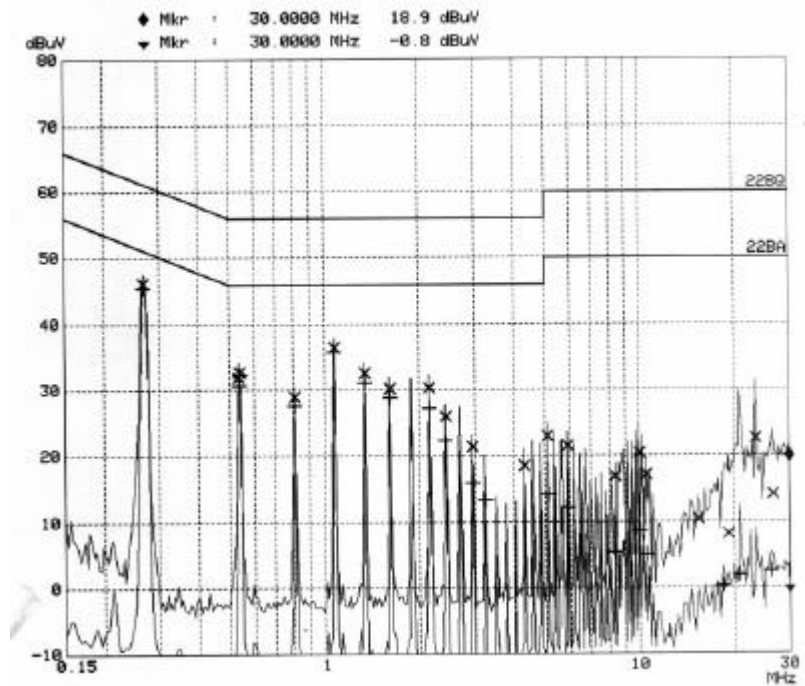
The measured emissions level of the EUT have found the below of the specified limit.







[Neutral line]



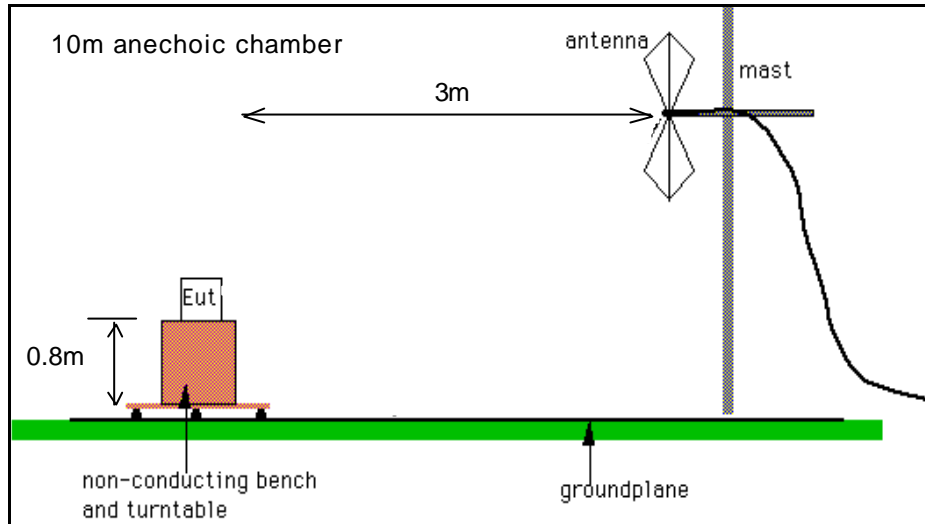
[Hot line]

**5. RADIATED DISTURBANCE  
: 30MHz - 1000MHz**

**5.1 Operating environment**

Temperature : 20.0  
Relative Humidity : 39.0 %

**5.2 Test set-up**



<General test set-up for radiated emissions>

**5.3 Operation Conditions**

Download and play mode

**5.4 Test instrument**

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

**5.5 Test results(Download mode)**

Date of test: Apr 8, 2003.

Freq (MHz)	Reading <Quasi-Peak> (dBuV)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
129.90	15.47	V	13.10	2.60	31.17	43.50	12.33
195.40	14.43	H	16.35	3.10	33.88	43.50	9.62
208.90	17.21	H	16.29	3.20	36.70	43.50	6.80
220.40	13.77	H	16.70	3.50	33.97	46.00	12.03
240.60	20.89	H	17.10	3.50	41.49	46.00	4.51
260.20	19.26	V	17.70	3.50	40.46	46.00	5.54
280.40	16.45	H	18.45	3.70	38.60	46.00	7.40
397.43	19.09	H	14.31	3.80	37.20	46.00	8.80
420.33	17.03	H	15.87	4.10	37.00	46.00	9.00
662.10	16.20	V	19.50	5.50	41.20	46.00	4.80
715.00	14.93	V	20.06	5.20	40.19	46.00	5.81
846.00	11.82	V	20.84	5.90	38.56	46.00	7.44

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

\* <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)

**Result : Pass**

The measured emissions level of the EUT have found the below of the specified limit.

**5.6 Test results(Play mode)**

Date of test: Apr 8, 2003.

Freq (MHz)	Reading <Quasi-Peak> (dBuV)	Ant	AF (dB)	CL (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
36.10	8.34	V	16.52	1.60	26.46	40.0	13.54
182.60	7.06	V	16.22	3.00	26.28	43.5	17.22
287.90	2.88	H	18.45	3.70	25.03	46.0	20.97
381.00	8.81	V	14.31	3.80	26.92	46.0	19.08

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

\* <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)

**Result : Pass**

The measured emissions level of the EUT have found the below of the specified limit.



**5.7 Test results(FM tuner)**

T.	Tested	Meter Reading <Quasi-Peak>	Total	Results	Margins	Limits
Frequency	Frequency	[dBuV/m]	Loss	[dBuV/m]	[dBuV/m]	
[MHz]	[MHz]	[A]	[B]	[A+B]	[C]-[A+B]	[C]
87.5	98.20	4.23	12.31	15.75	-	43.5
	196.40	<5	19.05	-	-	43.5
	294.60	<5	22.53	-	-	46.0
	392.80	<5	20.07	-	-	46.0
	491.00	3.22	21.64	24.26	-	46.0
	589.20	<5	23.72	-	-	46.0
	687.40	<5	25.19	-	-	46.0
	785.60	2.38	26.39	28.16	-	46.0
	883.80	<5	27.28	-	-	46.0
	982.00	0.75	29.15	29.55	-	54.0
98.0	108.70	<5	13.69	-	-	43.5
	217.40	1.27	19.60	20.97	-	46.0
	326.10	6.11	17.55	23.81	-	46.0
	434.80	<5	18.11	-	-	46.0
	543.50	4.24	23.16	26.28	-	46.0
	652.20	<5	24.70	-	-	46.0
	760.90	<5	25.98	-	-	46.0
	869.60	0.47	27.61	28.18	-	46.0
	978.30	<5	29.15	-	-	54.0
108.0	118.70	<5	14.52	-	-	43.5
	237.40	<5	20.20	-	-	46.0
	356.10	3.21	18.11	21.32	-	46.0
	474.80	<5	21.36	-	-	46.0
	593.50	1.91	24.08	25.07	-	46.0
	712.20	<5	25.56	-	-	46.0
	830.90	1.29	27.28	28.03	-	46.0
	949.60	1.34	28.70	29.60	-	54.0

\* Receiving Antenna Mode : **Horizontal, Vertical**  
 \* 10m chamber, Total Loss: Antenna factor[dB]+Cable loss[dB]  
 \* <5 : mean less than 5dB  
 \* **Measurement uncertainty (K=2)**  
 30-300MHz : +3.96dB / -4.04dB  
 300-1000MHz : +3.04dB / -3.00dB

**Result : Pass**

The measured emissions level of the EUT have found the below of the specified limit.

