

TEST REPORT



DANAK

Reg. no. 19

DELTA

DELTA
Electronics Testing

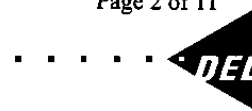
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**Measurements of radio frequency Interference from
EasyCom Xpress 62 411 Including SafeCom X34 150
Manufactured by I-data International A/S
Project no.: K220864-1
Date: 1999-07-05**



Title Measurements of radio frequency interference from
EasyCom Xpress 62 411 including SafeCom X34 150

Test object EasyCom Xpress 62 411 including SafeCom X34 150

Report no. DANAK-194612

Project no. K220864-1

Date of test 1999-06-17

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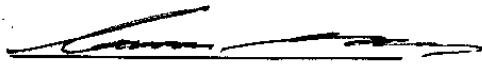
Manufacturer i-data International A/S

Specification EN 55022:1994 (CISPR 22:1985 + A1 + A2) class B
+ A1 + A2
FCC part 15 Subpart B class B demonstrated by
compliance with EN 55022:1994, class B.

Test personnel Henrik Egeberg Nielsen

Results The emission from the EasyCom Xpress 62 411 including
SafeCom X34 150 was below the limit of the above
specifications.

Date 1999-07-05

Project manager 
Per Hansen, Facility Manager, EMC
DELTA Electronics Testing

Responsible 
Jørgen Duvald Christensen
Department Manager, EMC
DELTA Electronics Testing

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1. SUMMARY OF TEST RESULTS

The results of the emission tests can be summarised as follows:

Emission tests	EN 55022:1994 (CISPR 22: 1985 + A1 + A2) class B + A1 + A2	FCC part 15 Subpart B class B *
Conducted emission, AC mains	Passed	Passed
Radiated electromagnetic field	Passed	Passed

Abbreviations : Passed : The emission was below the limit.
Not done : No test was performed.
N/A : Not applicable.
Not relevant : The test was not relevant for the test object.

* The FCC class B was demonstrated by compliance with EN 55022:1994, class B.

The test results relate only to the specimen tested.

2. TEST SPECIMEN 1

Category : Card Reader
Manufacturer : i-data International A/S
Model/Type : SafeCom X34 150
Part no. : -
Serial no. : -
Supply voltage : 12 VDC from 115 VAC
Operational mode : Normal operation

TEST SPECIMEN 2

Category : Printer server
Manufacturer : i-data International A/S
Model/Type : EasyCom Xpress X62 411
Part no. : -
Serial no. : -
Supply voltage : 5 VDC from SafeCom X34 150 via communication cable
Operational mode : Normal operation

3. GENERAL TEST CONDITIONS

3.1 Test set-up

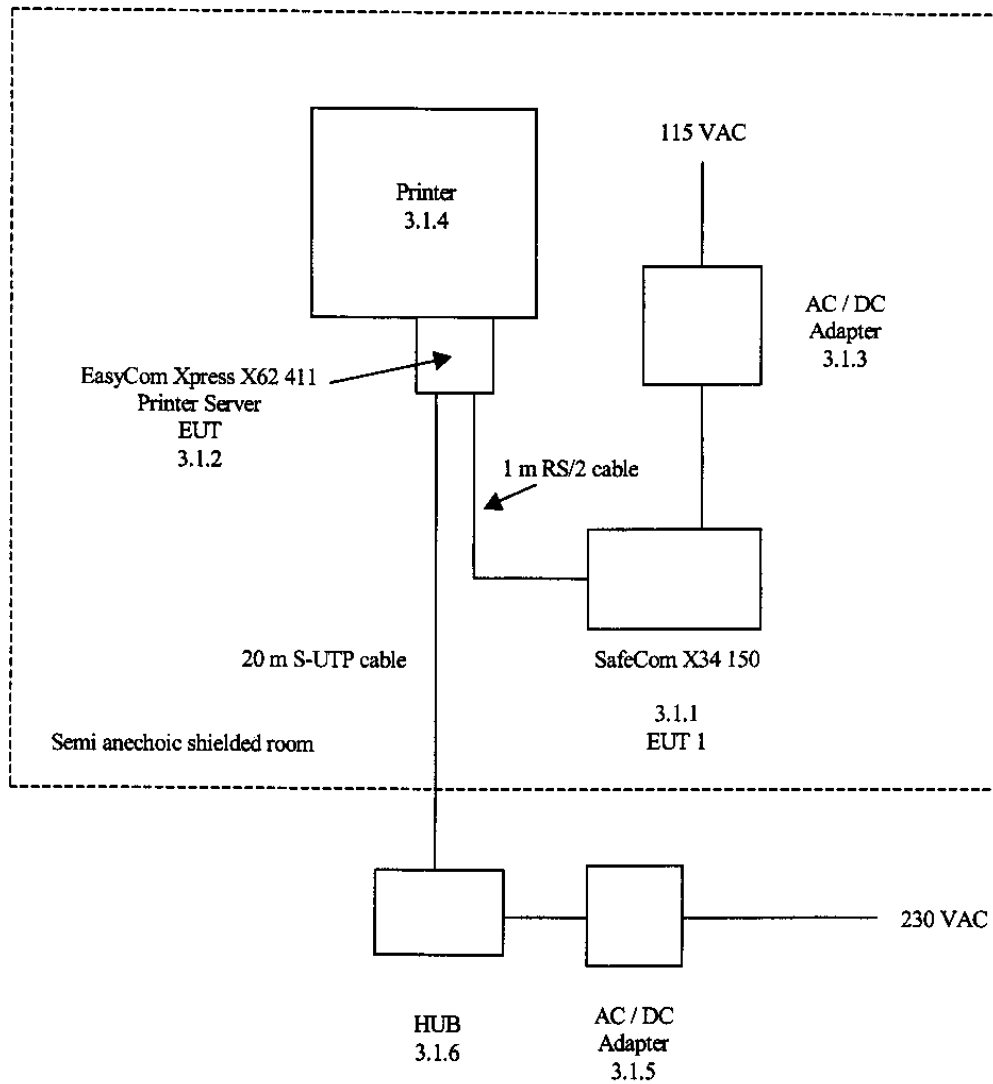


FIG. 1 Test set-up including test object and peripheral equipment.

The complete system used during the tests consisted of the following units:

- 3.1.1 Card Reader EUT 1**
- | | | |
|--------------|---|--------------------------|
| Manufacturer | : | i-data International A/S |
| Model/type | : | SafeCom X34 150 |
| Part no. | : | - |
| Serial no. | : | - |
| FCC ID. | : | - |
- 3.1.2 Printer Server EUT 2**
- | | | |
|--------------|---|--------------------------|
| Manufacturer | : | i-data International A/S |
| Model/type | : | EasyCom Xpress X62 411 |
| Part no. | : | - |
| Serial no. | : | - |
| FCC ID. | : | - |
- 3.1.3 AC / DC Adapter**
- | | | |
|--------------|---|---------|
| Manufacturer | : | FRIWO |
| Model/type | : | FW 3288 |
| Part no. | : | - |
| Serial no. | : | - |
| FCC ID | : | - |
- 3.1.4 Printer**
- | | | |
|--------------|---|-----------------|
| Manufacturer | : | Hewlett Packard |
| Model/type | : | C1676A |
| Part no. | : | - |
| Serial no. | : | SGC5302456 |
| FCC ID | : | B94C1676 |
- 3.1.5 AC / DC Adapter**
- | | | |
|--------------|---|-------------|
| Manufacturer | : | EIA |
| Model/type | : | T48-6-1000D |
| Part no. | : | 363 9836 E |
| Serial no. | : | - |
| FCC ID | : | - |
- 3.1.6 HUB (100 Mbit)**
- | | | |
|--------------|---|-------------------------------|
| Manufacturer | : | EDIMAX Palmtop Dual speed Hub |
| Model/type | : | ED 15048 |
| Part no. | : | CE2400049 |
| Serial no. | : | - |
| FCC ID | : | (DoC) |

4. TESTS AND RESULTS

4.1 Conducted emission, AC mains (EN 55022, class B)

	Requirements	
Specification	EN 50081-1:1992	
Test method	EN 55022:1994 (CISPR 22:1985 + A1 + A2) class B + A1 + A2	
Frequency range	0.15 - 30 MHz	
Limit: (quasi-peak)	0.15-0.50 MHz: (decreasing lin. with the logarithm of freq.)	66-56 dB μ V
	0.50-5 MHz:	56 dB μ V
	5-30 MHz:	60 dB μ V
Limit: (average)	0.15-0.50 MHz: (decreasing lin. with the logarithm of freq.)	56-46 dB μ V
	0.50-5 MHz:	46 dB μ V
	5-30 MHz:	50 dB μ V
Test record sheets and photos		<i>Annex 2</i>

Results:

The emission was within the specified limits.

Comments:

The supply voltage to EUT 1 was 12 VDC from the 115 VAC adapter. EUT 2 was powered with 5 VDC from EUT 1.

4.2 Radiated electromagnetic field (EN 55022, class B)

	Requirements	
Specification	EN 50081-1:1992	
Test method	EN 55022:1994 (CISPR 22:1985 + A1 + A2) class B + A1 + A2	
Measuring distance	10 m	
Frequency range	30 - 1000 MHz	
Limit: (quasi-peak)	30-230 MHz:	30 dB μ V/m
	230-1000 MHz:	37 dB μ V/m
Test record sheets and photos		<i>Annex 3</i>

Results:

The emission was within the specified limits.

Comments:

The supply voltage to EUT 1 was 12 VDC from the 115 VAC adapter. EUT 2 was powered with 5 VDC from EUT 1.

4.3 Conducted emission, AC mains (FCC, class B / EN 55022, class B)

	Requirements	
Specification	FCC Rules and Regulations:1997, part 15, subpart B class B, demonstrated by compliance with EN 55022:1994, class B	
Test method	CISPR 22:1985 + A1 + A2	
Frequency range	0.15 - 30 MHz	
Test set-up	ANSI C63.4:1992	
Limit: (quasi-peak)	0.15-0.50 MHz: (decreasing lin. with the logarithm of freq.)	66-56 dB μ V
	0.50-5 MHz:	56 dB μ V
	5-30 MHz:	60 dB μ V
Limit: (average)	0.15-0.50 MHz: (decreasing lin. with the logarithm of freq.)	56-46 dB μ V
	0.50-5 MHz:	46 dB μ V
	5-30 MHz:	50 dB μ V
Test record sheets and photos		
<i>Annex 4</i>		

Results:

The emission was within the specified limits.

Comments:

The supply voltage to EUT 1 was 12 VDC from the 115 VAC adapter. EUT 2 was powered with 5 VDC from EUT 1.

4.4 Radiated electromagnetic field (FCC, class B / EN 55022, class B)

	Requirements
Specification	FCC Rules and Regulations:1997, part 15, subpart B, class B, demonstrated by compliance with EN 55022:1994, class B
Test method	CISPR 22:1985 + A1 + A2
Test set-up	ANSI C63.4:1992
Measuring distance	10 m
Frequency range	30 - 1000 MHz
Limit: (quasi-peak)	30-230 MHz: 30 dB μ V/m 230-1000 MHz: 37 dB μ V/m
Test record sheets and photos <i>Annex 5</i>	

Results:

The emission was within the specified limits.

Comments:

The supply voltage to EUT 1 was 12 VDC from the 115 VAC adapter. EUT 2 was powered with 5 VDC from EUT 1.

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ANNEX 1

List of instruments

(1 page)

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LIST OF INSTRUMENTS

EC NO.	INSTRUMENT	MANUFACTURER	TYPE
29985	BILOG ANTENNA, 26-2000 MHz	CHAFFNER / CHASE	6140A
29461	ARTIFICIAL MAINS NETWORK	ROHDE & SCHWARZ	ESH2-Z5
29916	AUTOMATIC EMI RECEIVER	ROHDE & SCHWARZ	ESCS-30
29861	EMI-SOFTWARE Ver. 1.50c	ROHDE & SCHWARZ	ES-K1, PART: 1026.6790.02

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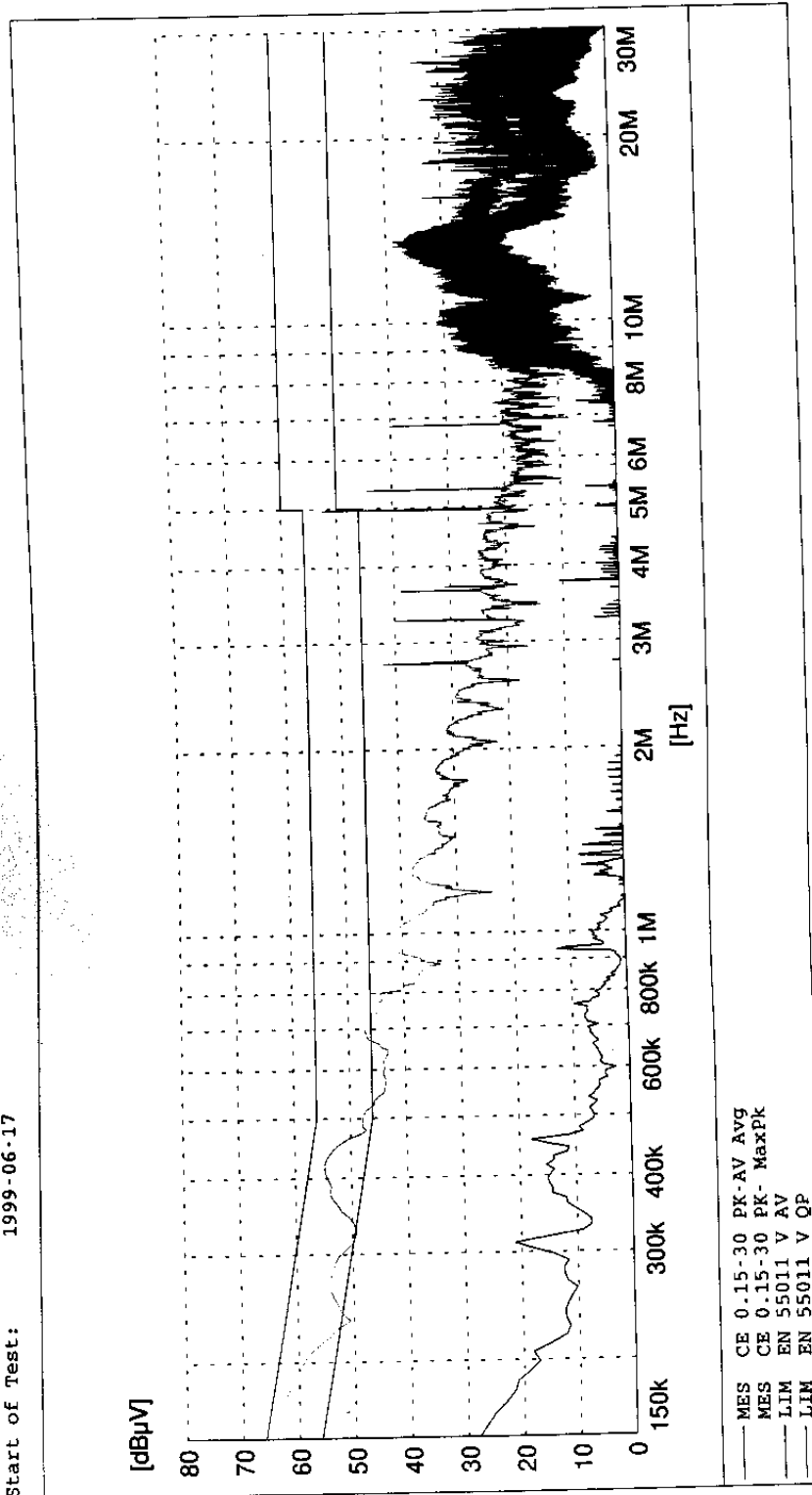
ANNEX 2

Test record sheets and photos regarding
conducted emission, AC mains (EN 55022, class B)

(3 pages)

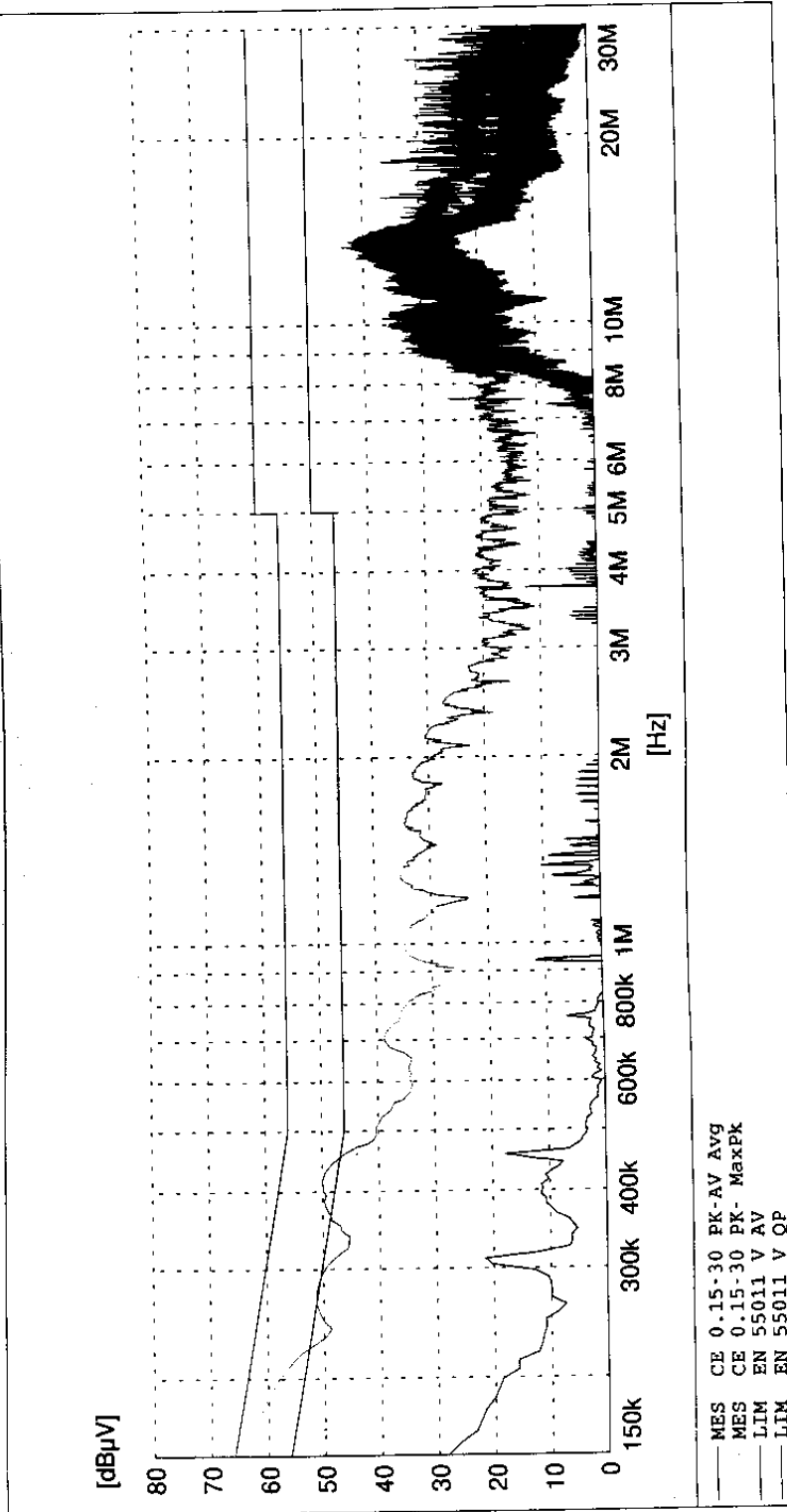
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EUT: EasyCom Xpress and SafeCom
 Manufacturer: I-DATA
 Operating Condition: Line no.: Neutral. 115V
 Test Site: EMC-5
 Operator: HEN-K220864
 Test Specification: EN 55022 class B, FCC B (limited by compliance)
 Comment: Sheet 3
 Start of Test: 1999-06-17



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EUT: EasyCom Xpress and SafeCom 100 unit
 Manufacturer: I-DATA
 Operating Condition: Line no.: Line 1. 115 Vac
 Test Site: EMC-5
 Operator: HEN-K220864
 Test Specification: EN 55022 class B
 Comment: Sheet 4
 Start of Test: 1999-06-17



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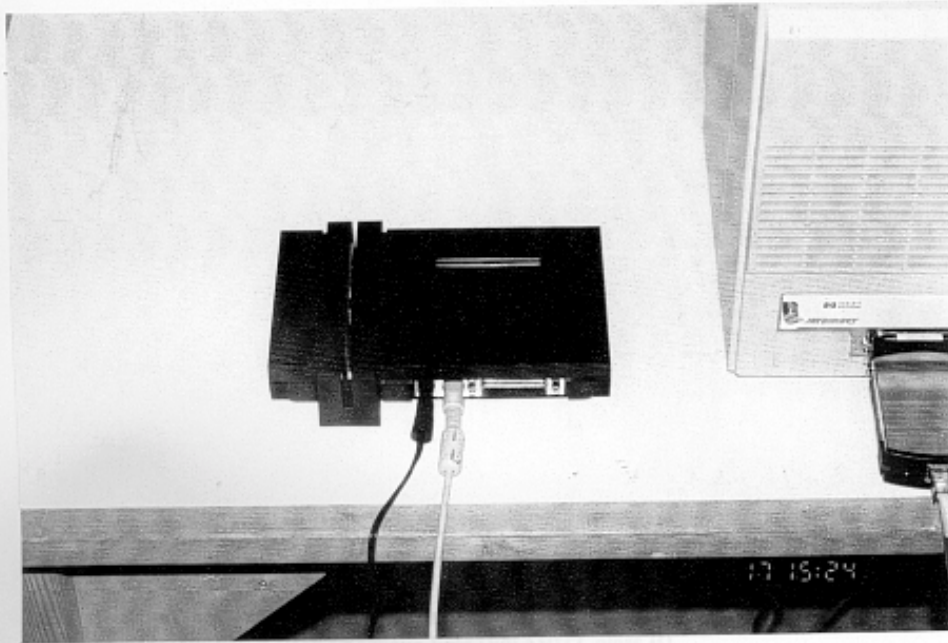


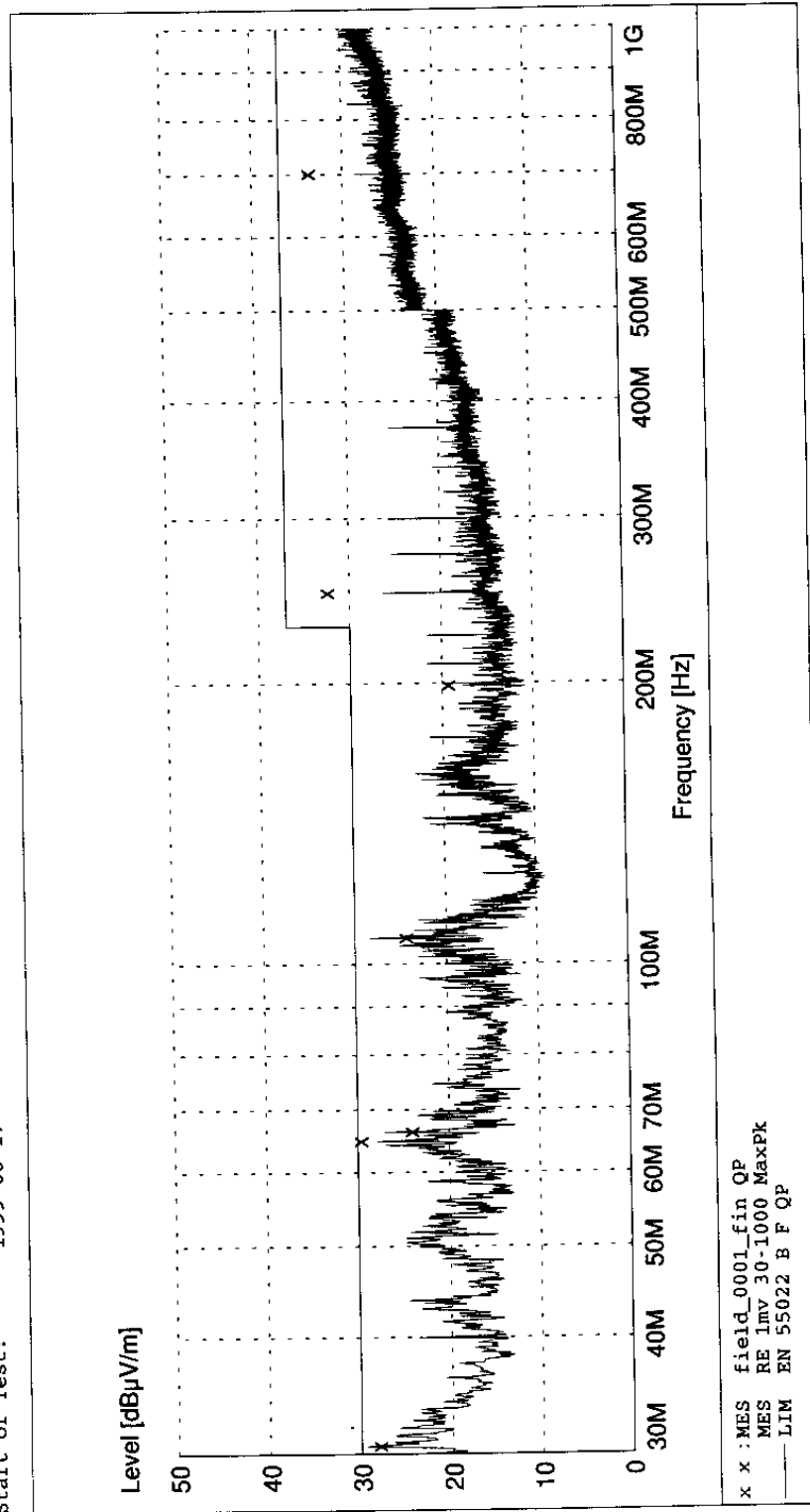
PHOTO A2.1

ANNEX 3

Test record sheets and photos regarding
radiated electromagnetic field (EN 55022, class B)

(3 pages)

EUT: EasyCom Xpress and SafeCom. 100 Mbit
 Manufacturer: I-DATA
 Operating Condition: Ant. 1 m vertical. 115 Vac
 Test Site: EMC-5
 Operator: HEN-K220864
 Test Specification: EN 55022 class B, FCC B (demonstrated by compliance)
 Comment: Sheet 1
 Start of Test: 1999-06-17



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Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
30.600000	28.20	5.1	30.0	1.7	161.0	293.00	VERTICAL
64.800000	29.90	10.7	30.0	0.0	331.0	61.00	VERTICAL
66.300000	24.30	10.6	30.0	5.6	343.0	64.00	VERTICAL
106.700000	24.70	8.2	30.0	5.2	130.0	2.00	VERTICAL
198.720000	19.60	11.9	30.0	10.3	351.0	182.00	HORIZONTAL
250.000000	32.70	15.8	37.0	4.2	102.0	245.00	VERTICAL
700.000000	34.00	25.8	37.0	2.9	114.0	88.00	HORIZONTAL

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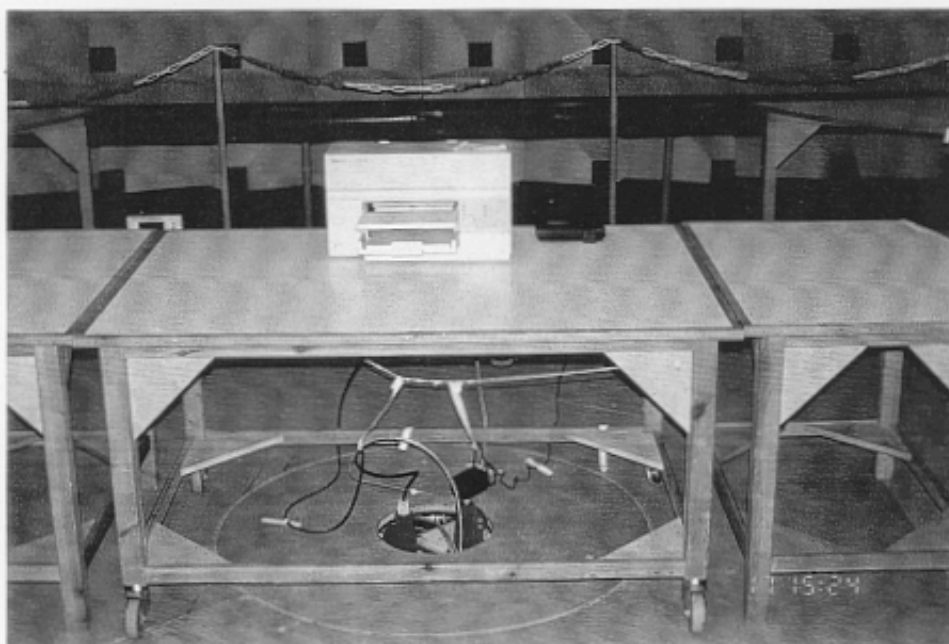


PHOTO A3.1



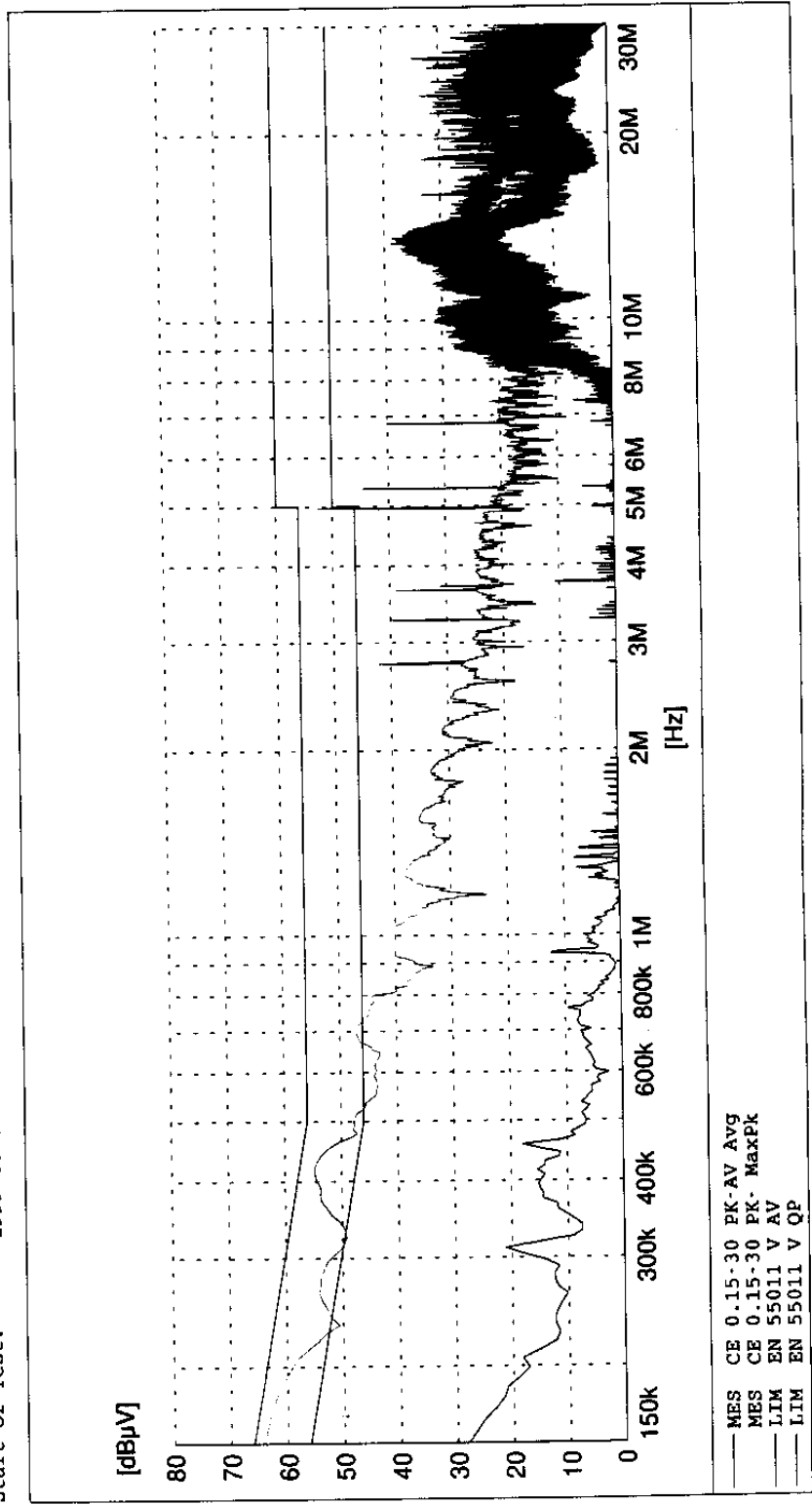
PHOTO A3.2

ANNEX 4

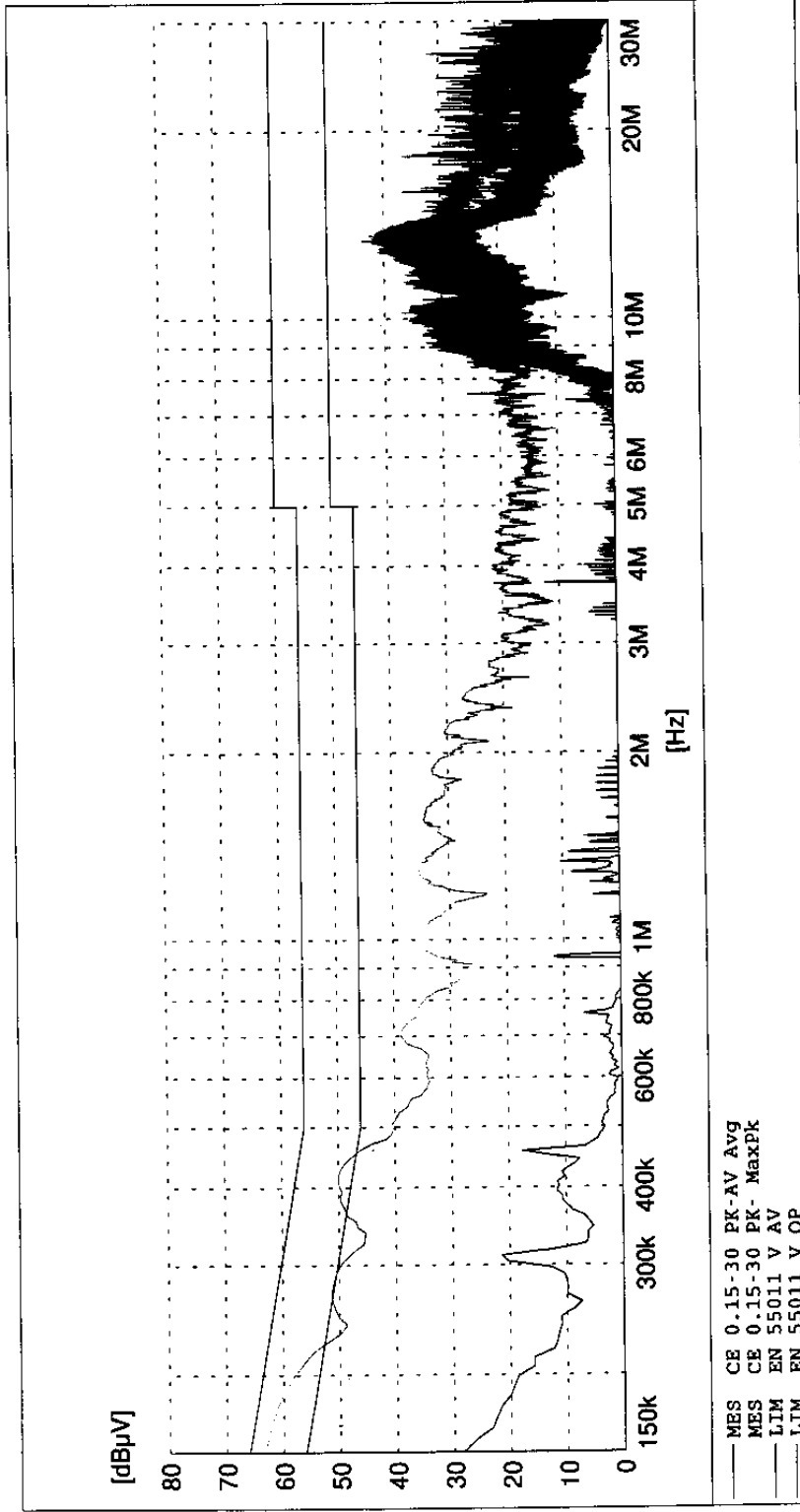
Test record sheets and photos regarding
conducted emission, AC mains (FCC class B, EN 55022 class B)

(3 pages)

EUT: EasyCom Xpress and SafeCom. 100 Mbit
 Manufacturer: I-DATA
 Operating Condition: Line no.: Neutral. 115 Vac
 Test Site: EMC-5
 Operator: HEN-K220864
 Test Specification: EN 55022 class B, **FCC B (demonstrated by compliance)**
 Comment: Sheet 3
 Start of Test: 1999-06-17



EUT: EasyCom Xpress and SafeCom. 100 Mbit
 Manufacturer: I-DATA
 Operating Condition: Line no.: Line 1. 115 Vac
 Test Site: EMC-5
 Operator: HEN-K220864
 Test Specification: EN 55022 class B
 Comment: Sheet 4
 Start of Test: 1999-06-17



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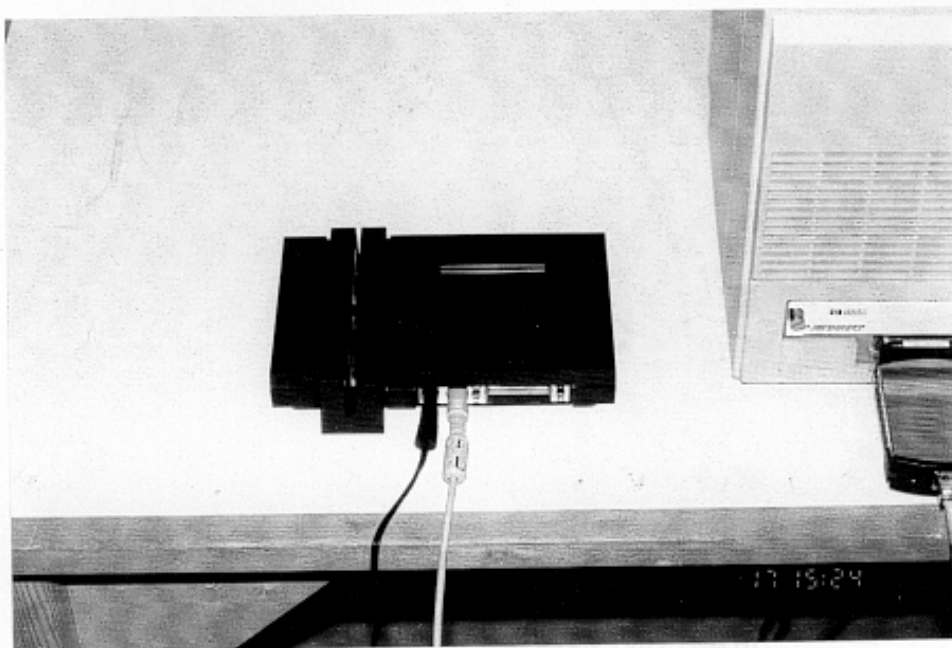


PHOTO A4.1

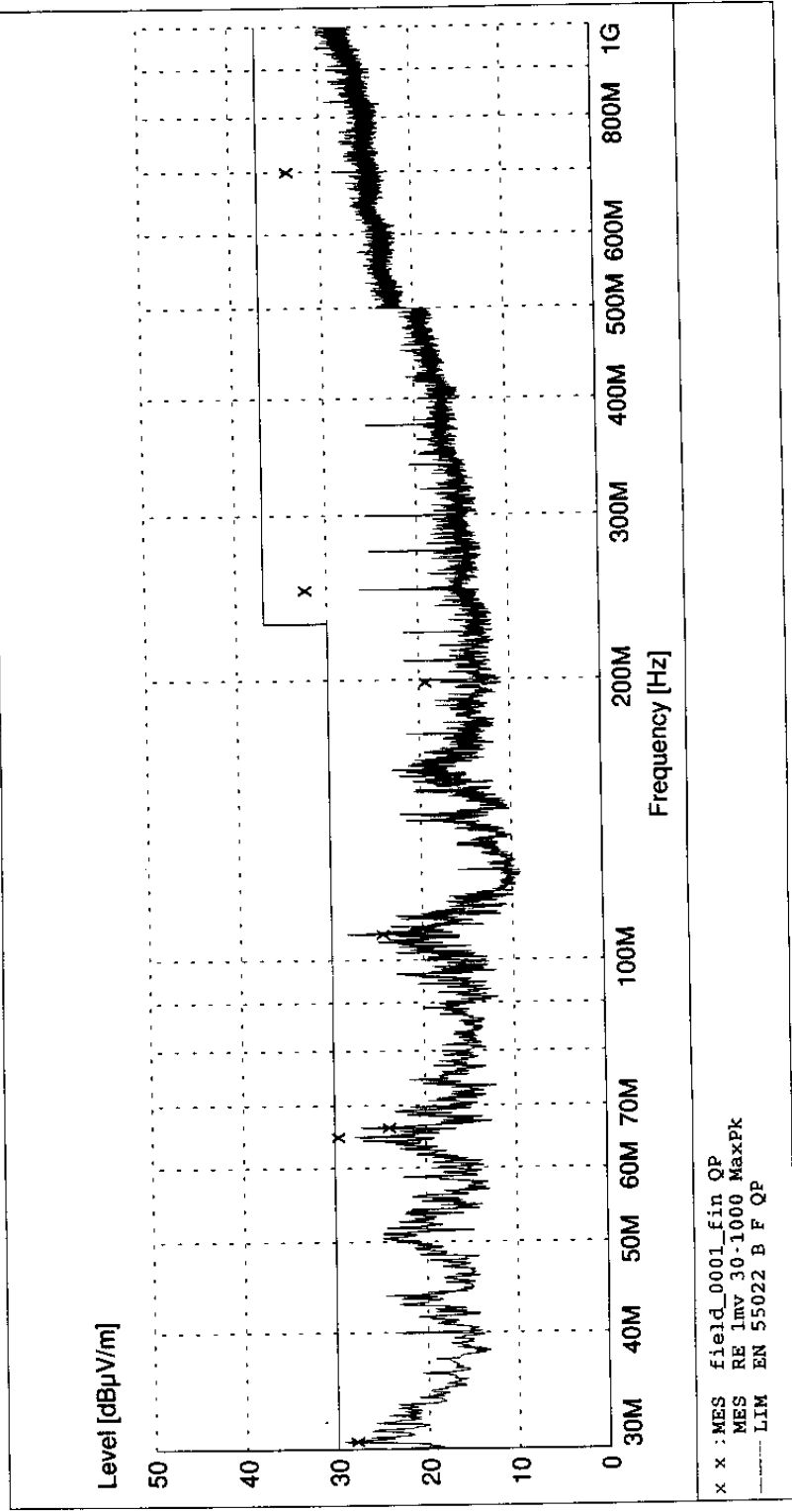
(3 pages)

ANNEX 5

Test record sheets and photos regarding
radiated electromagnetic field (FCC, class B / EN 55022, class B)

(3 pages)

EUT: EasyCom Xpress and SafeCom. 100 Mbit
 Manufacturer: I-DATA
 Operating Condition: Ant. 1 m vertical. 115 Vac
 Test Site: EMC-5
 Operator: HEN-K220864
 Test Specification: EN 55022 class B, FCC B (demonstrated by compliance)
 Comment: Sheet 1
 Start of Test: 1999-06-17



17-06-99 15:19

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Height cm	Azimuth deg	Polarisation
30.600000	28.20	5.1	30.0	1.7	161.0	293.00	VERTICAL
64.800000	29.90	10.7	30.0	0.0	331.0	61.00	VERTICAL
66.300000	24.30	10.6	30.0	5.6	343.0	64.00	VERTICAL
106.700000	24.70	8.2	30.0	5.2	130.0	2.00	VERTICAL
198.720000	19.60	11.9	30.0	10.3	351.0	182.00	HORIZONTAL
250.000000	32.70	15.8	37.0	4.2	102.0	245.00	VERTICAL
700.000000	34.00	25.8	37.0	2.9	114.0	88.00	HORIZONTAL

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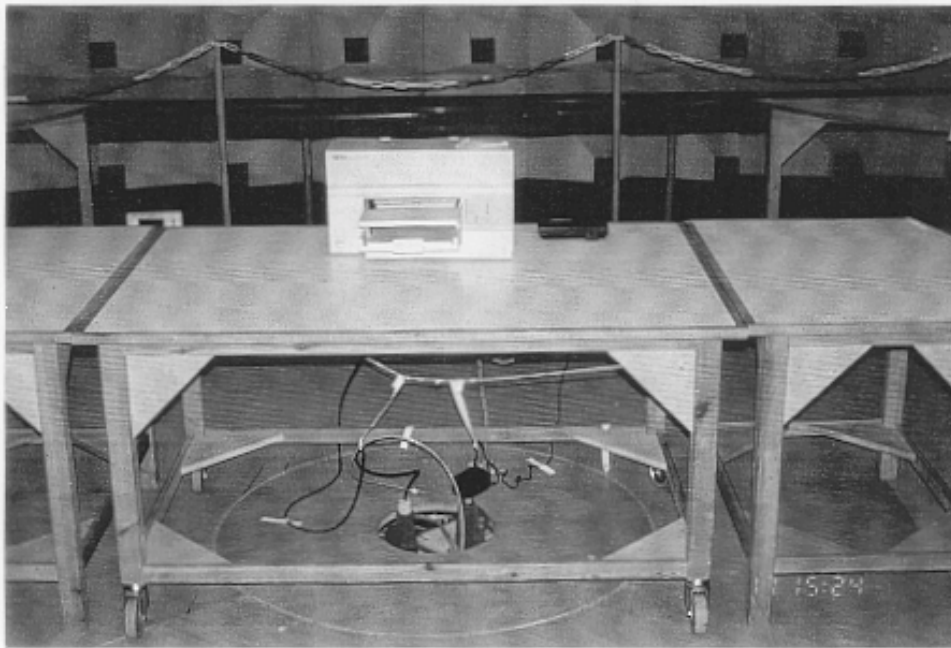


PHOTO A5.1

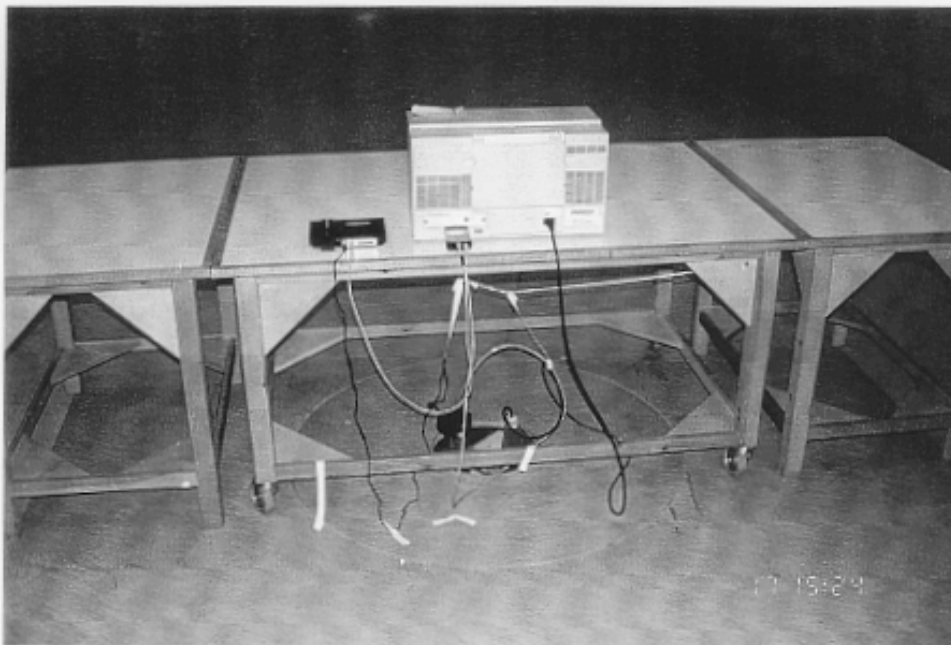


PHOTO A5.2