

TEST REPORT



DANAK

Reg. no. 19

DELTA
Electronics Testing

Venlighedsvej 4
DK-2970 Hørsholm
Denmark

Tel. (+45) 45 86 77 22
Fax (+45) 45 86 58 98
www.delta.dk

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**Measurements of radio frequency interference from
EasyCom Xpress X62 411
Manufactured by I-data International A/S
Project no.: K220955-1
Date: 1999-07-01**



Title Measurements of radio frequency interference from
EasyCom Xpress X62 411

Test object EasyCom Xpress X62 411

Report no. DANAK-194610

Project no. K220955-1

Dates of test 1999-06-17

Client i-data International A/S
Vadstrupvej 27
DK-2880 Bagsværd
Denmark

Telephone: +45 44 36 60 00
Fax: +45 44 36 61 11

Contact person Mr. Jens Henneke

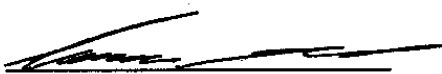
Manufacturer i-data International A/S

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 X62 411 was below
the limit of the above specifications.

Date 1999-07-01

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

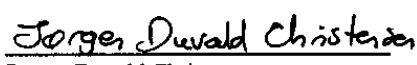
Responsible 
Jørgen Duvald Christensen
Department Manager, EMC
DELTA Electronics Testing

	TABLE OF CONTENTS	PAGE
1.	SUMMARY OF TEST RESULTS	4
2.	TEST SPECIMEN	5
3.	GENERAL TEST CONDITIONS	6
3.1	Test set-up	6
4.	TESTS AND RESULTS	9
4.1	Conducted emission, AC mains (EN 55022, class B)	9
4.2	Radiated electromagnetic field (EN 55022, class B)	10
4.3	Conducted emission, AC mains (FCC class B / EN55022, class B)	11
4.4	Radiated electromagnetic field (FCC class B / EN55022, class B)	12
ANNEX 1	List of instruments	
ANNEX 2	Test record sheets and photos regarding conducted emission, AC mains (EN 55022, class B)	
ANNEX 3	Test record sheets and photos regarding radiated electromagnetic field (EN 55022, class B)	
ANNEX 4	Test record sheets and photos regarding conducted emission, AC mains (FCC class B / EN55022, class B)	
ANNEX 5	Test record sheets and photos regarding radiated electromagnetic field (FCC class B / EN55022, class B)	
ANNEX 6	Photo of the EUT	

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

Category	:	Printer server
Manufacturer	:	i-data International A/S
Model/Type	:	EasyCom Xpress X62 411
Part no.	:	-
Serial no.	:	-
Supply voltage	:	5.5 VDC from 115 VAC / 230 VAC adapter
Operational mode	:	Normal operation.
Comments	:	The printer server was tested at both 10 Mbit and 100 Mbit transmission speed.

3. GENERAL TEST CONDITIONS

3.1 Test set-up

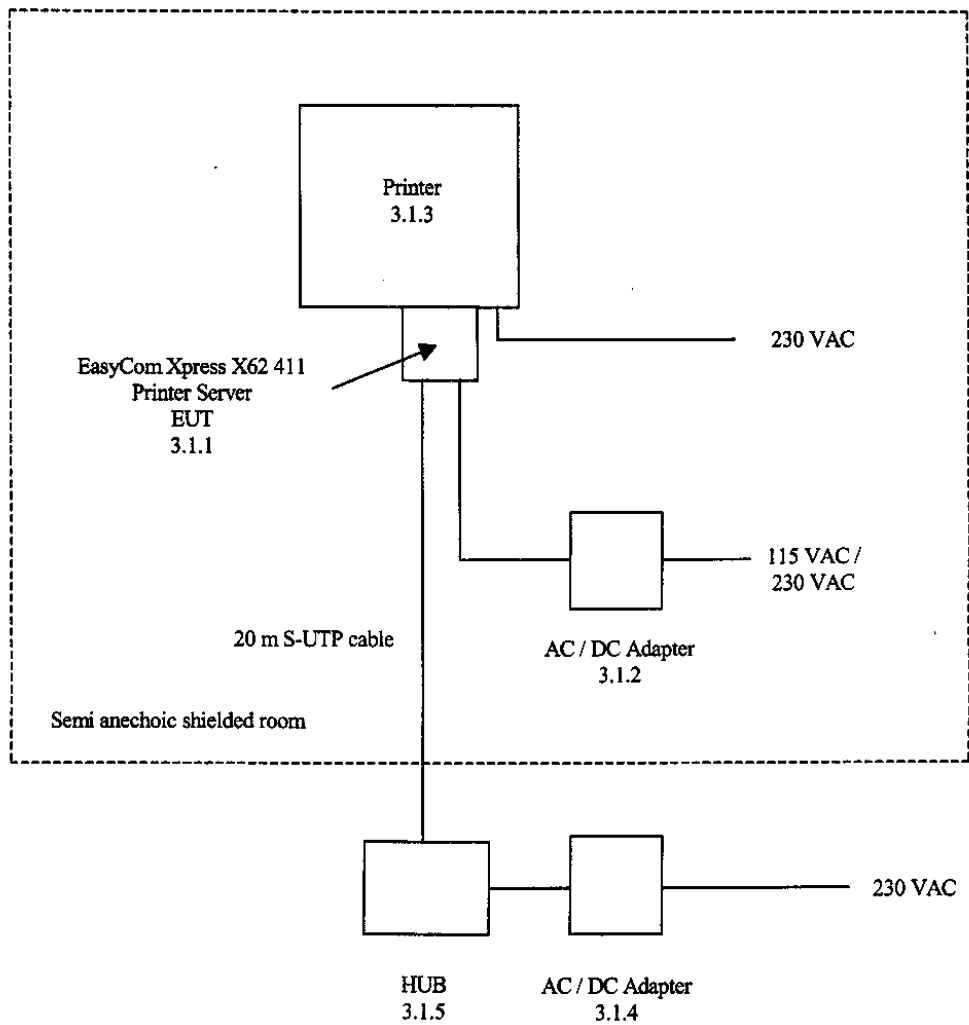


FIG. 1 Test set-up including test object and peripheral equipment at 100 Mbit transmission speed.

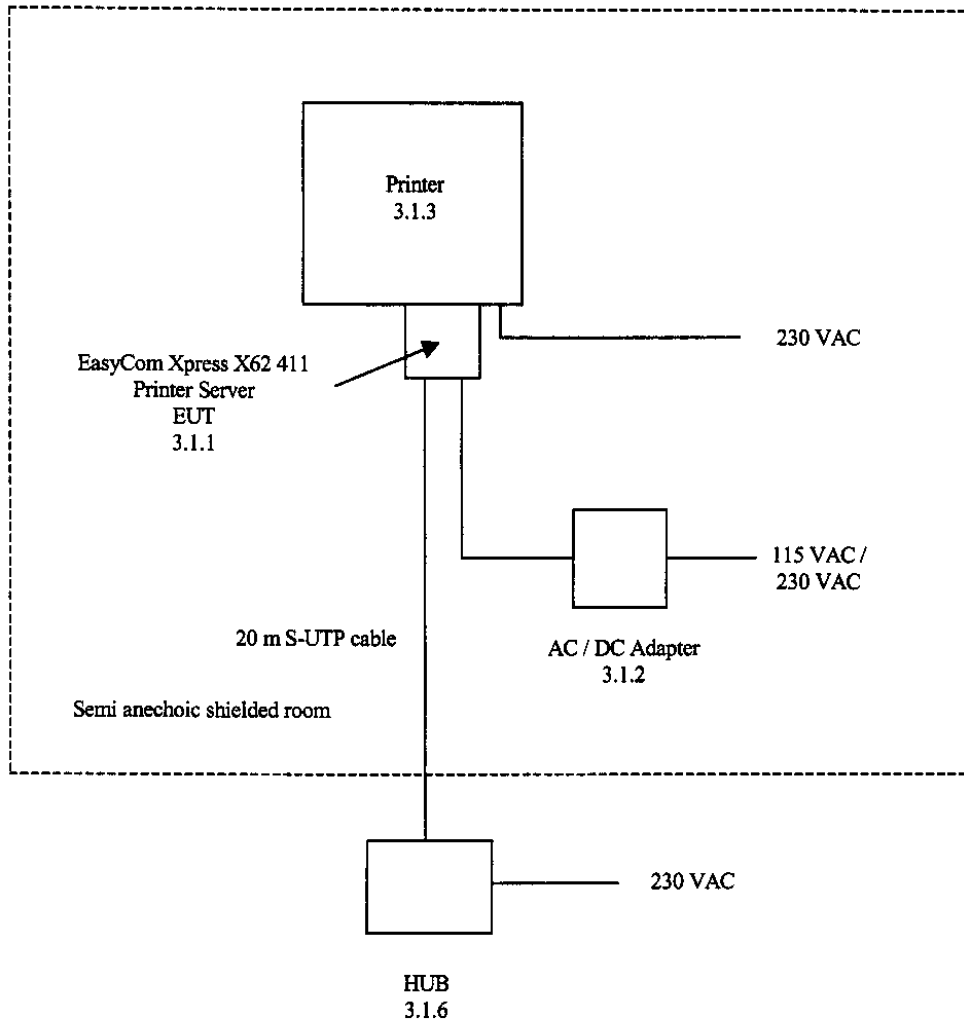


FIG. 2 Test set-up including test object and peripheral equipment at 10 Mbit transmission speed.

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

- 3.1.1 Printer Server EUT 1**
- | | | |
|--------------|---|--------------------------|
| Manufacturer | : | i-data International A/S |
| Model/type | : | EasyCom Xpress X62 411 |
| Part no. | : | - |
| Serial no. | : | - |
| FCC ID. | : | - |
- 3.1.2 AC / DC Adapter**
- | | | |
|--------------|---|---------|
| Manufacturer | : | FRIWO |
| Model/type | : | - |
| Part no. | : | 1881605 |
| Serial no. | : | 1798 |
| FCC ID | : | - |
- 3.1.3 Printer**
- | | | |
|--------------|---|-----------------|
| Manufacturer | : | Hewlett Packard |
| Model/type | : | C1676A |
| Part no. | : | - |
| Serial no. | : | SGC5302456 |
| FCC ID | : | B94C1676 |
- 3.1.4 AC / DC Adapter**
- | | | |
|--------------|---|-------------|
| Manufacturer | : | EIA |
| Model/type | : | T48-6-1000D |
| Part no. | : | 363 9836 E |
| Serial no. | : | - |
| FCC ID | : | - |
- 3.1.5 HUB (100 Mbit)**
- | | | |
|--------------|---|-------------------------------|
| Manufacturer | : | EDIMAX Palmtop Dual speed Hub |
| Model/type | : | ED 15048 |
| Part no. | : | CE2400049 |
| Serial no. | : | - |
| FCC ID | : | (DoC) |
- 3.1.6 HUB (10 Mbit)**
- | | | |
|--------------|---|-------------------|
| Manufacturer | : | Cabletron Systems |
| Model/type | : | SEHI-24 |
| Part no. | : | - |
| Serial no. | : | 10846350323050DF |
| 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.) 0.50-5 MHz: 5-30 MHz:	66-56 dB μ V 56 dB μ V 60 dB μ V
Limit: (average)	0.15-0.50 MHz: (decreasing lin. with the logarithm of freq.) 0.50-5 MHz: 5-30 MHz:	56-46 dB μ V 46 dB μ V 50 dB μ V
Test record sheets and photos	Annex 2	

Results:

The emission was within the specified limits.

Comments:

The supply voltage was 5.5 VDC from the AC / DC adapter.

The printer server was tested at both 10 Mbit and 100 Mbit transmission speed.

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 was 5.5 VDC from the AC / DC adapter.

The printer server was tested at both 10 Mbit and 100 Mbit transmission speed.

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 was 5.5 VDC from the AC / DC adapter.

The printer server was tested at both 10 Mbit and 100 Mbit transmission speed.

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		
Annex 5		

Results:

The emission was within the specified limits.

Comments:

The supply voltage was 5.5 VDC from the AC / DC adapter.

The printer server was tested at both 10 Mbit and 100 Mbit transmission speed.

DANAK-194610
DELTA-K220955-1

ANNEX 1

List of instruments

(1 page)

DANAK-194610
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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

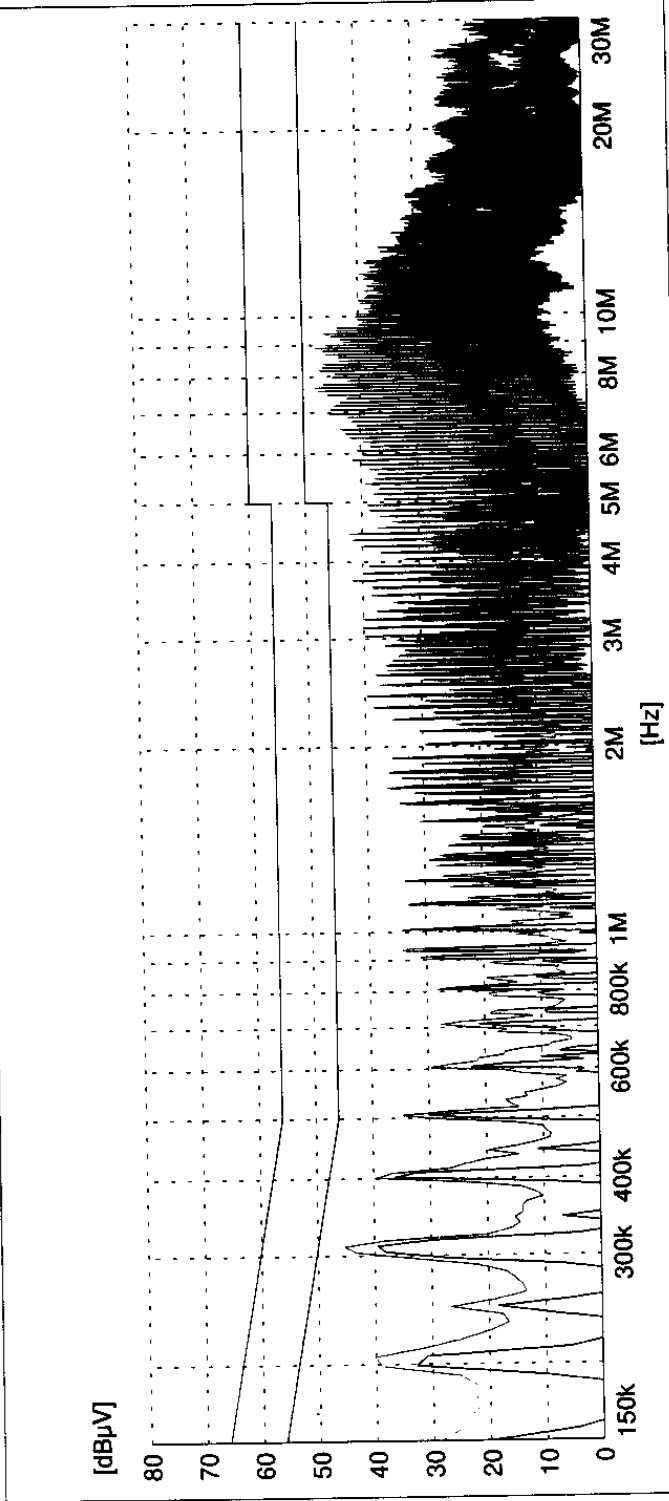
DANAK-194610
DELTA-K220955-1

ANNEX 2

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

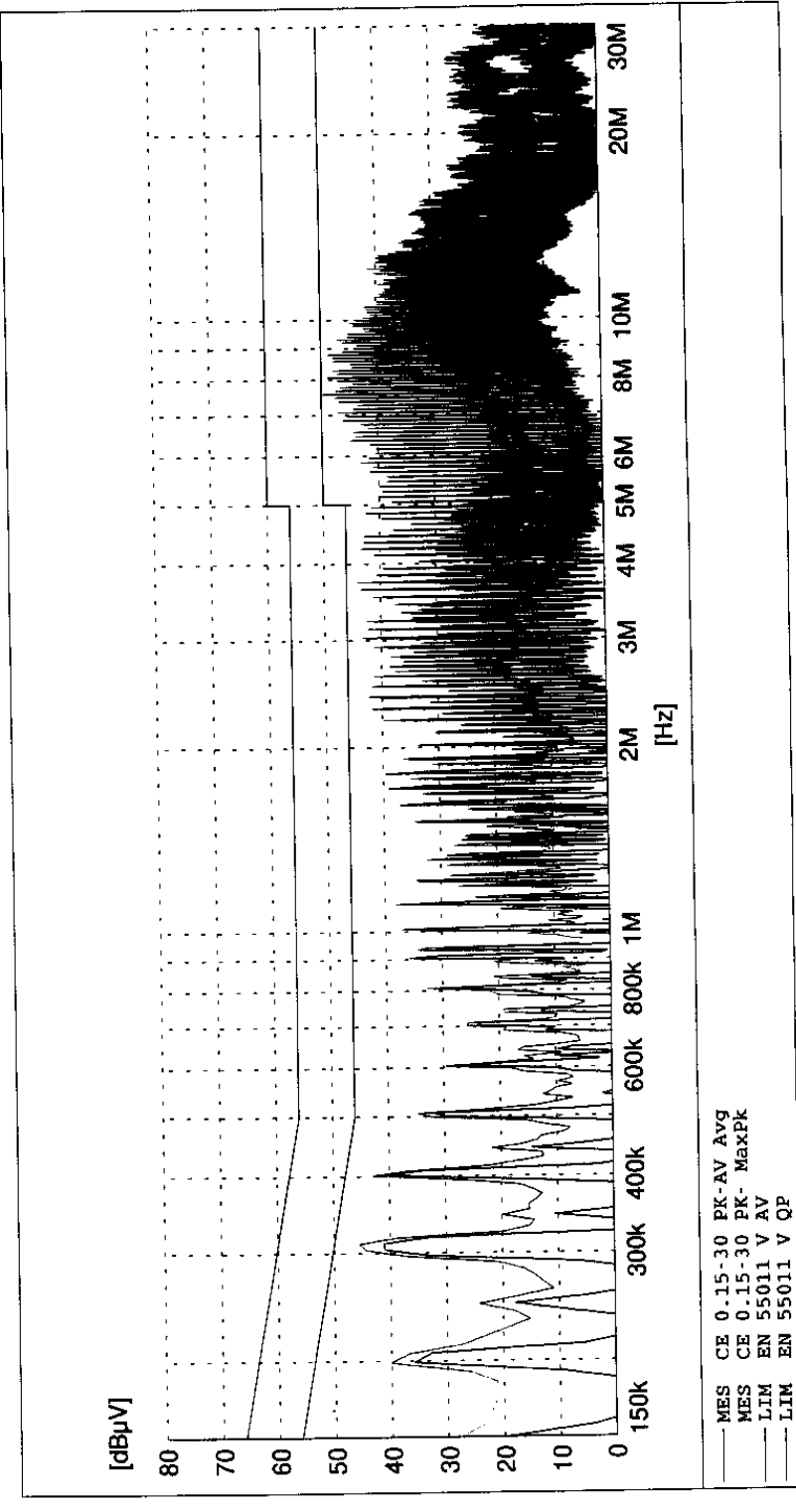
(5 pages)

EUT: EasyCom Xpress. 10 Mbit
 Manufacturer: I-DATA
 Operating Condition: Line no: Neutral. 230 Vac
 Test Site: EMC-5
 Operator: HEN-K220955
 Test Specification: EN 55022 class B
 Comment: Sheet 10
 Start of Test: 1999-06-17

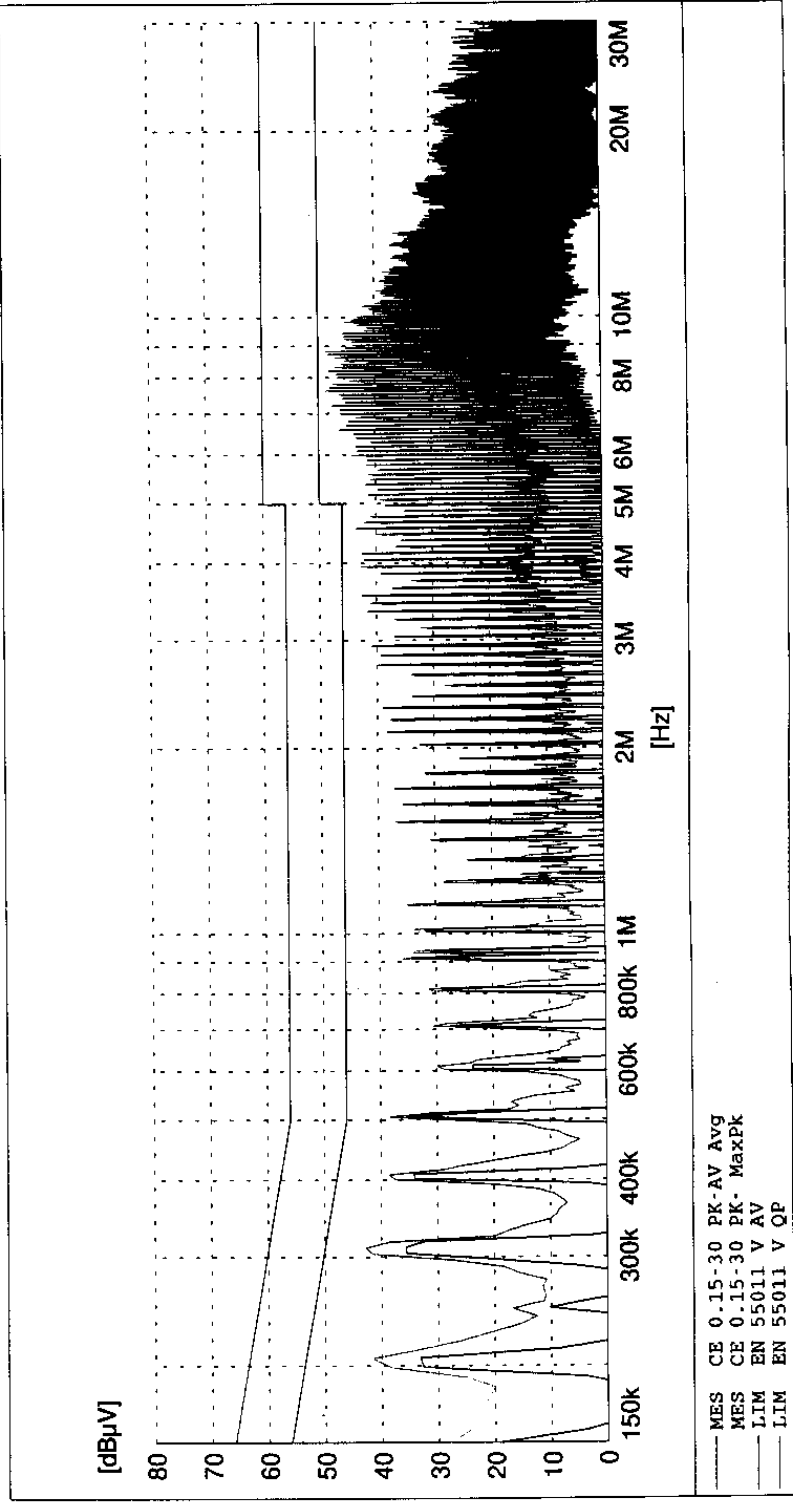


— MES CE 0.15-30 PK-AV Avg
 — MES CE 0.15-30 PK- MaxPk
 — LIM EN 55011 V AV
 — LIM EN 55011 V QP

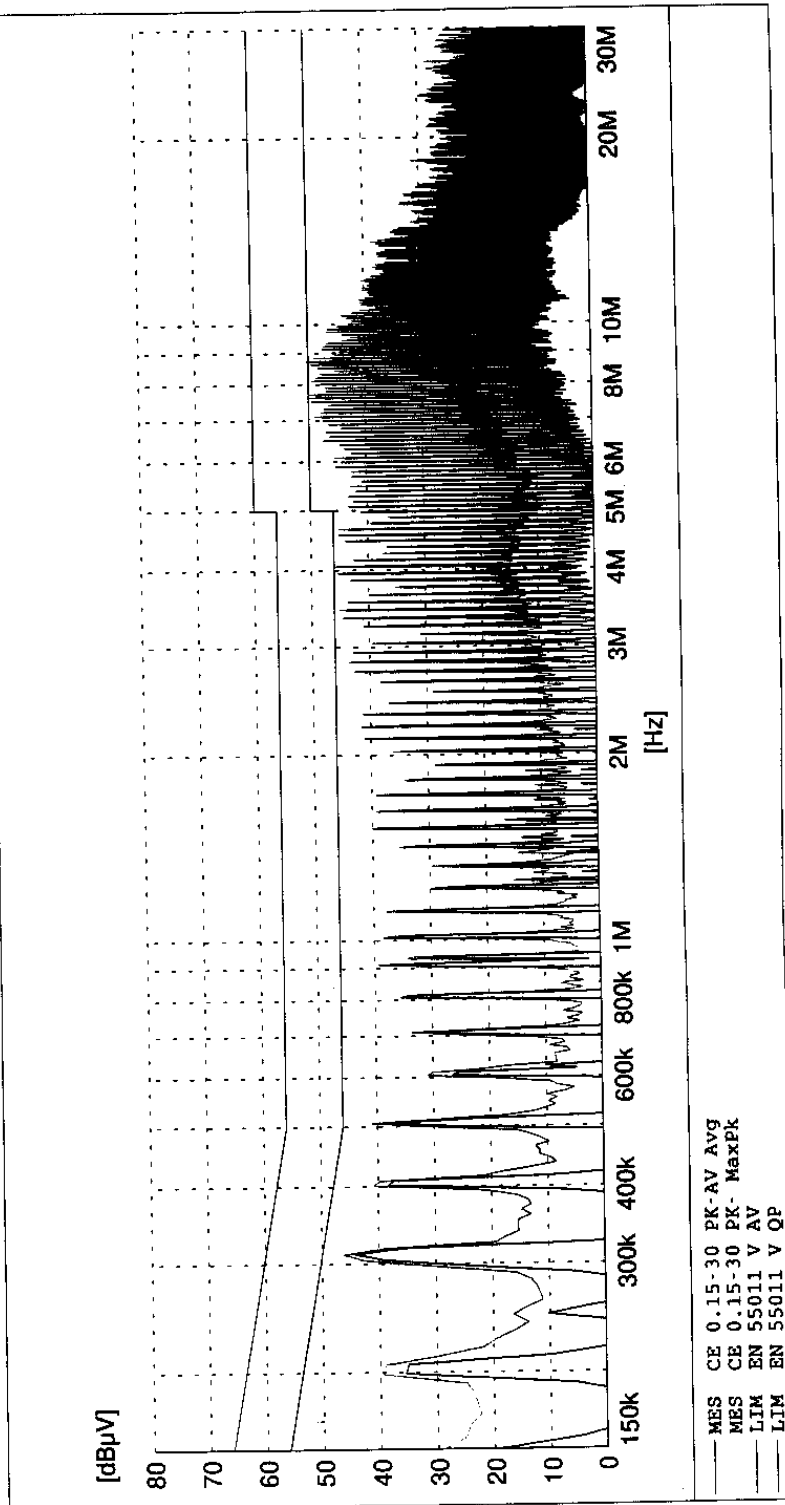
EUT: EasyCom Xpress. 10 Mbit
I-DATA
Manufacturer: I-DATA
Operating Condition: Line no: Line 1. 230 Vac
Test Site: EMC-5
Operator: HEN-K220955
Test Specification: EN 55022 class B
Comment: Sheet 11
Start of Test: 1999-06-17



EUT: EasyCom Xpress. 100 Mbit
 Manufacturer: I-DATA
 Operating Condition: Line no: Neutral. 230 Vac
 Test Site: EMC-5
 Operator: HEN-K220955
 Test Specification: EN 55022 class B
 Comment: Sheet 9
 Start of Test: 1999-06-17



EUT: EasyCom Xpress. 100 Mbit
 Manufacturer: I-DATA
 Operating Condition: Line no: Line 1. 230 Vac
 Test Site: EMC-5
 Operator: HEN-K220955
 Test Specification: EN 55022 class B
 Comment: Sheet 8
 Start of Test: 1999-06-17



DANAK-194610
DELTA-K220955-1

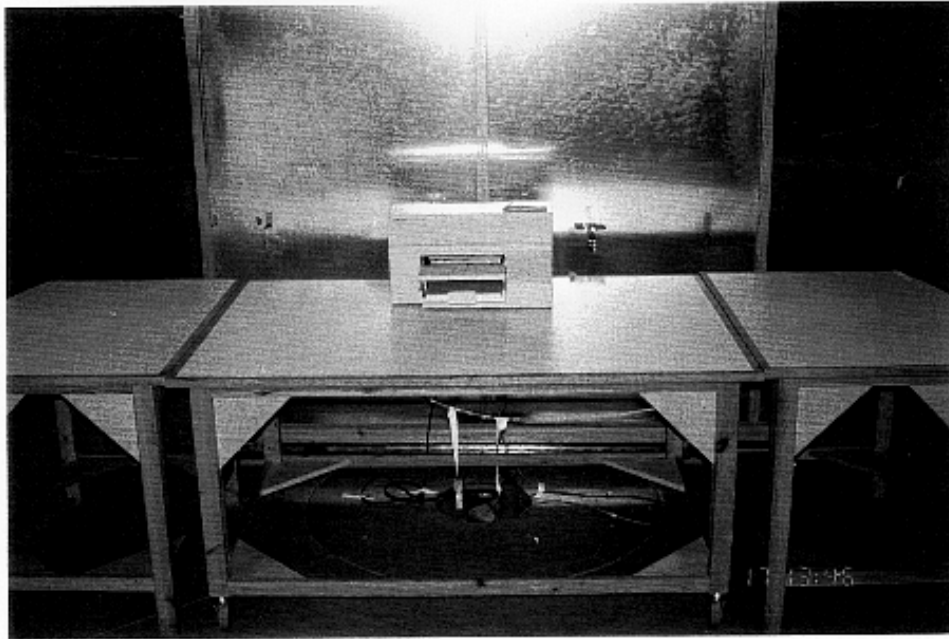


PHOTO A2.1

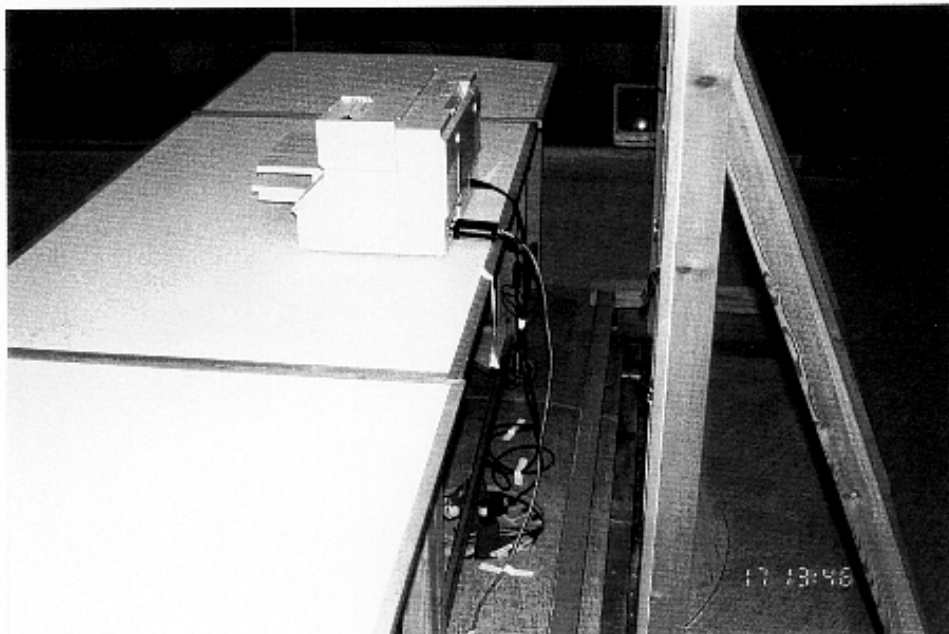


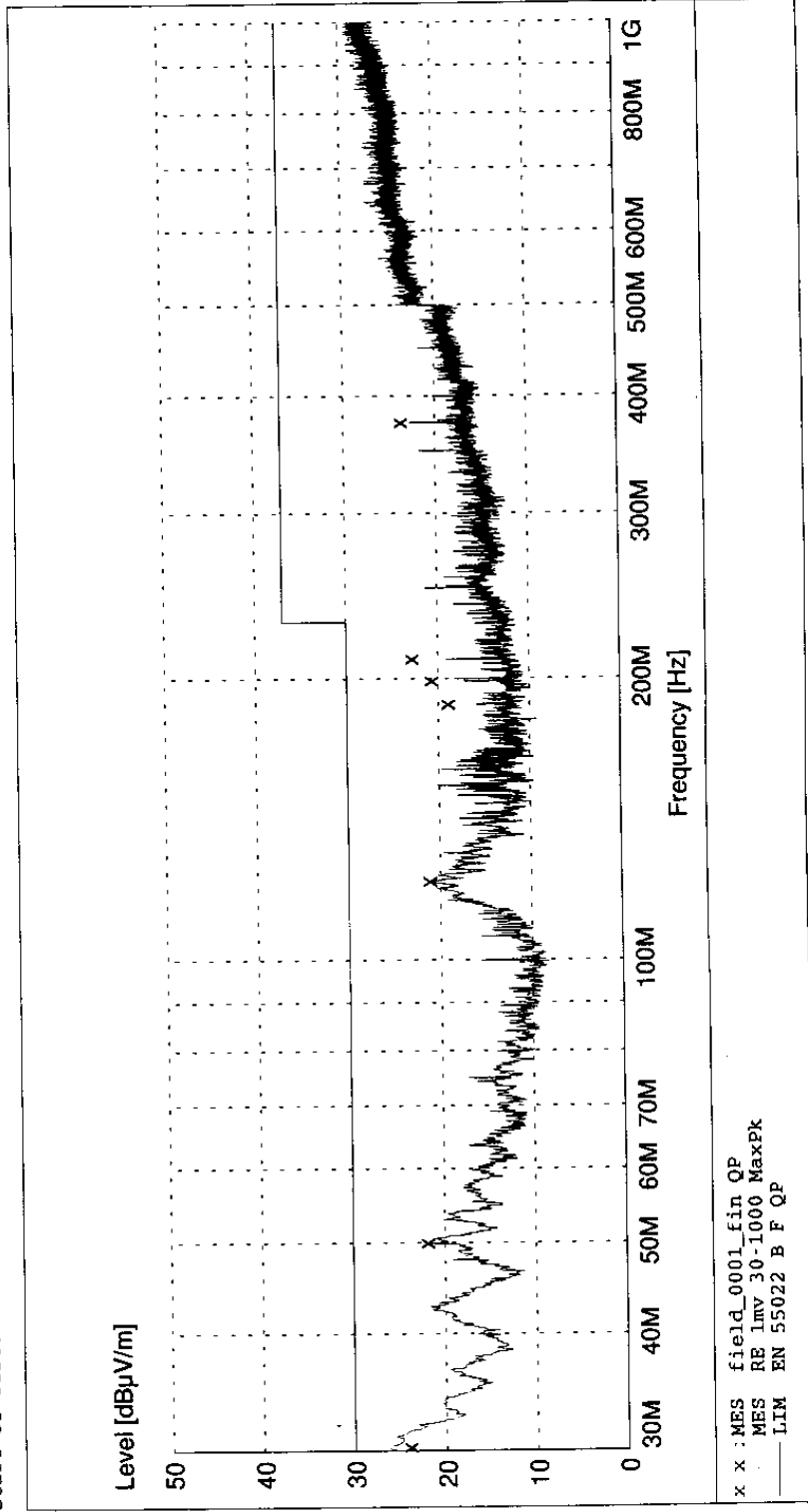
PHOTO A2.2

ANNEX 3

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

(5 pages)

EUT: EasyCom Xpress. 10 Watt
 Manufacturer: I-DATA
 Operating Condition: ant. 1 m vertical. 115 Vac
 Test Site: EMC-5
 Operator: HEN-K220955
 Test Specification: EN 55022 class B
 Comment: Sheet # 2
 Start of Test: 1999-06-17

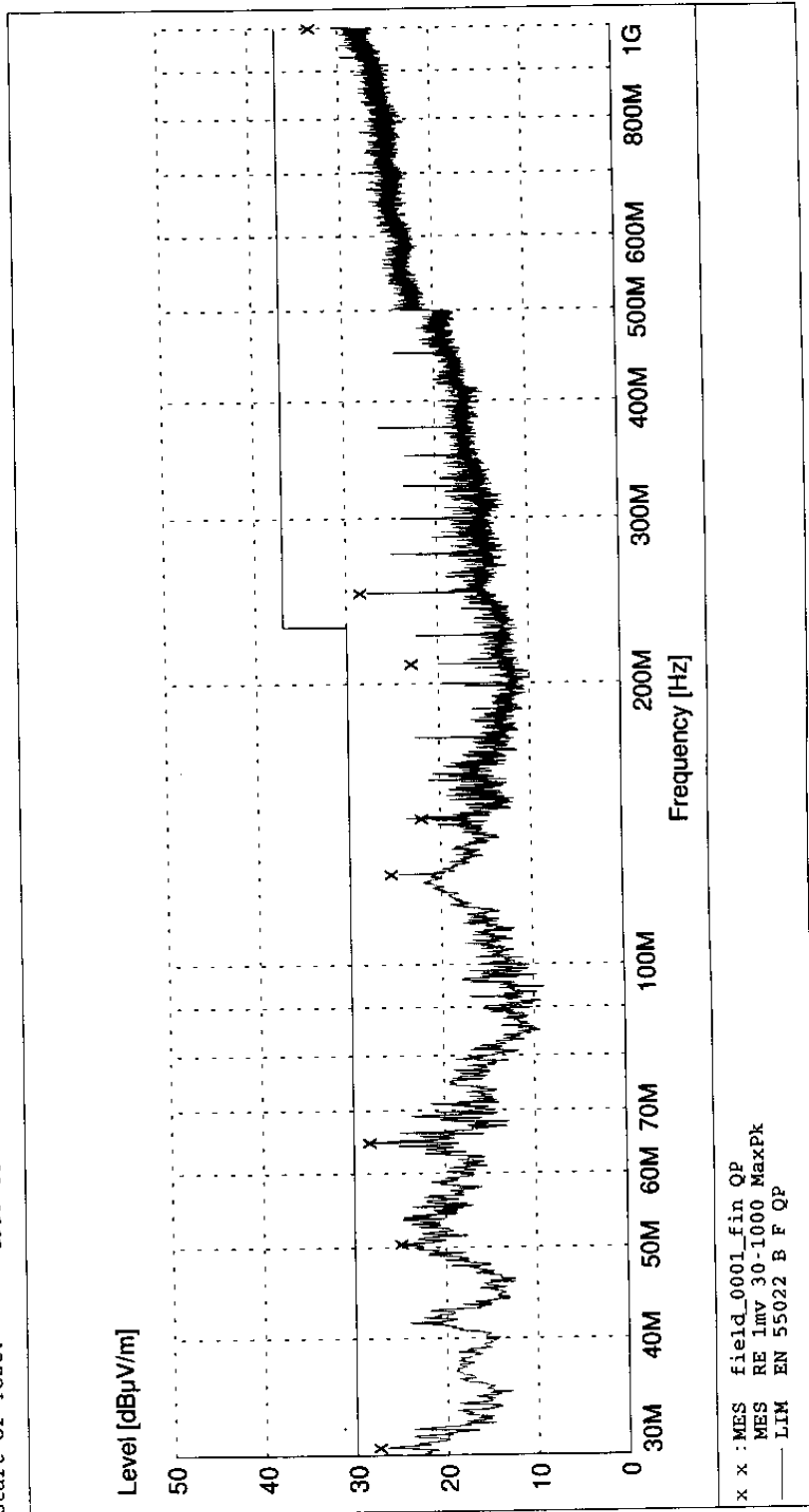


MEASUREMENT RESULT: "field_0001_fin_QP"

17-06-99 11:10

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
30.300000	24.20	4.9	30.0	5.7	150.0	336.00	VERTICAL
50.000000	22.10	10.4	30.0	7.8	112.0	222.00	VERTICAL
121.400000	21.40	8.5	30.0	8.5	113.0	359.00	VERTICAL
187.680000	19.20	11.2	30.0	10.7	345.0	165.00	HORIZONTAL
198.720000	21.00	11.9	30.0	8.9	384.0	181.00	HORIZONTAL
209.760000	23.10	12.4	30.0	6.8	388.0	201.00	HORIZONTAL
375.000000	24.00	18.6	37.0	12.9	113.0	196.00	VERTICAL

EUT: EasyCom Xpress. 100 Mbit
Manufacturer: I-DATA
Operating Condition: ant. 1 m vertical. 115 Vac
Test Site: EMC-5
Operator: HEN-K220955
Test Specification: EN 55022 class B
Comment: Sheet 4
Start of Test: 1999-06-17



DANAK-194610
DELTA-K220955-1

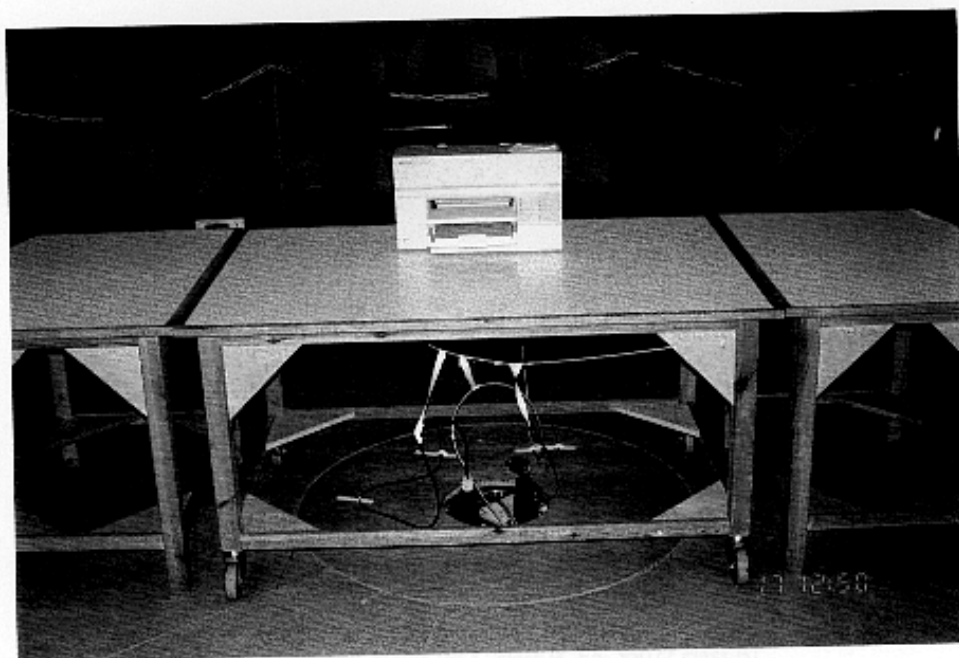


PHOTO A3.1

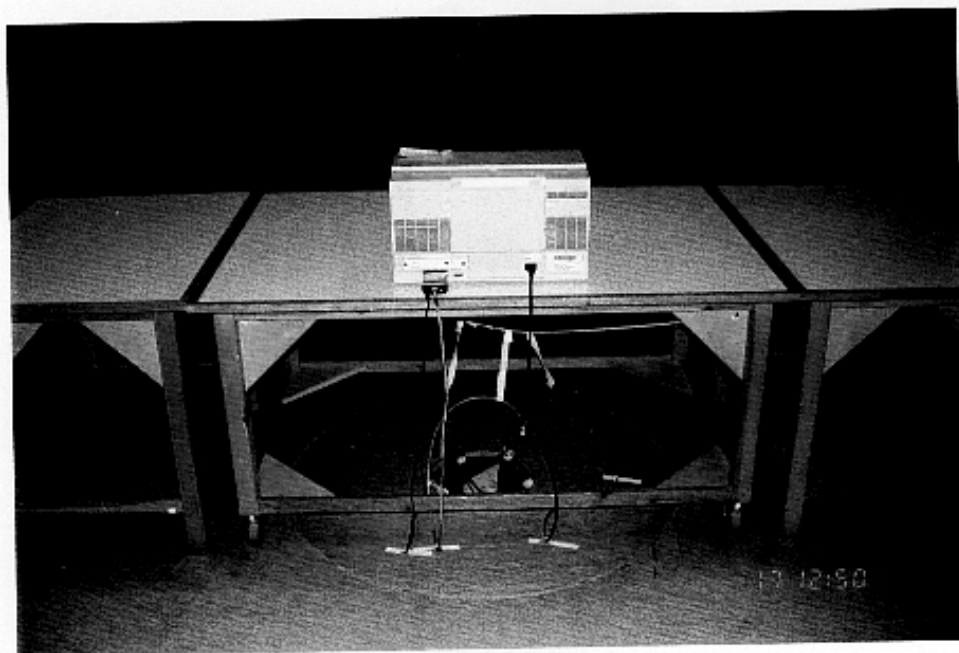


PHOTO A3.2

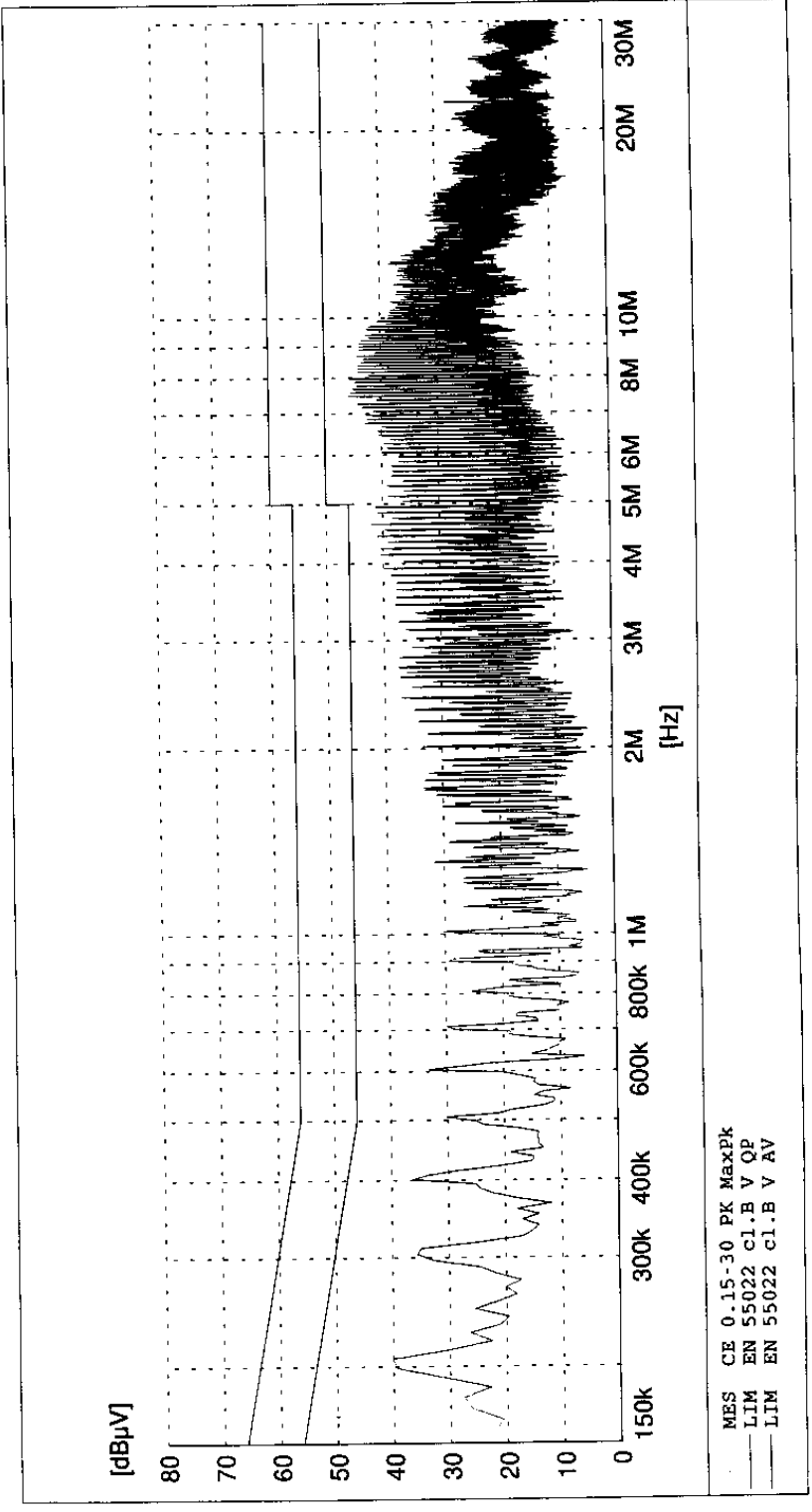
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ANNEX 4

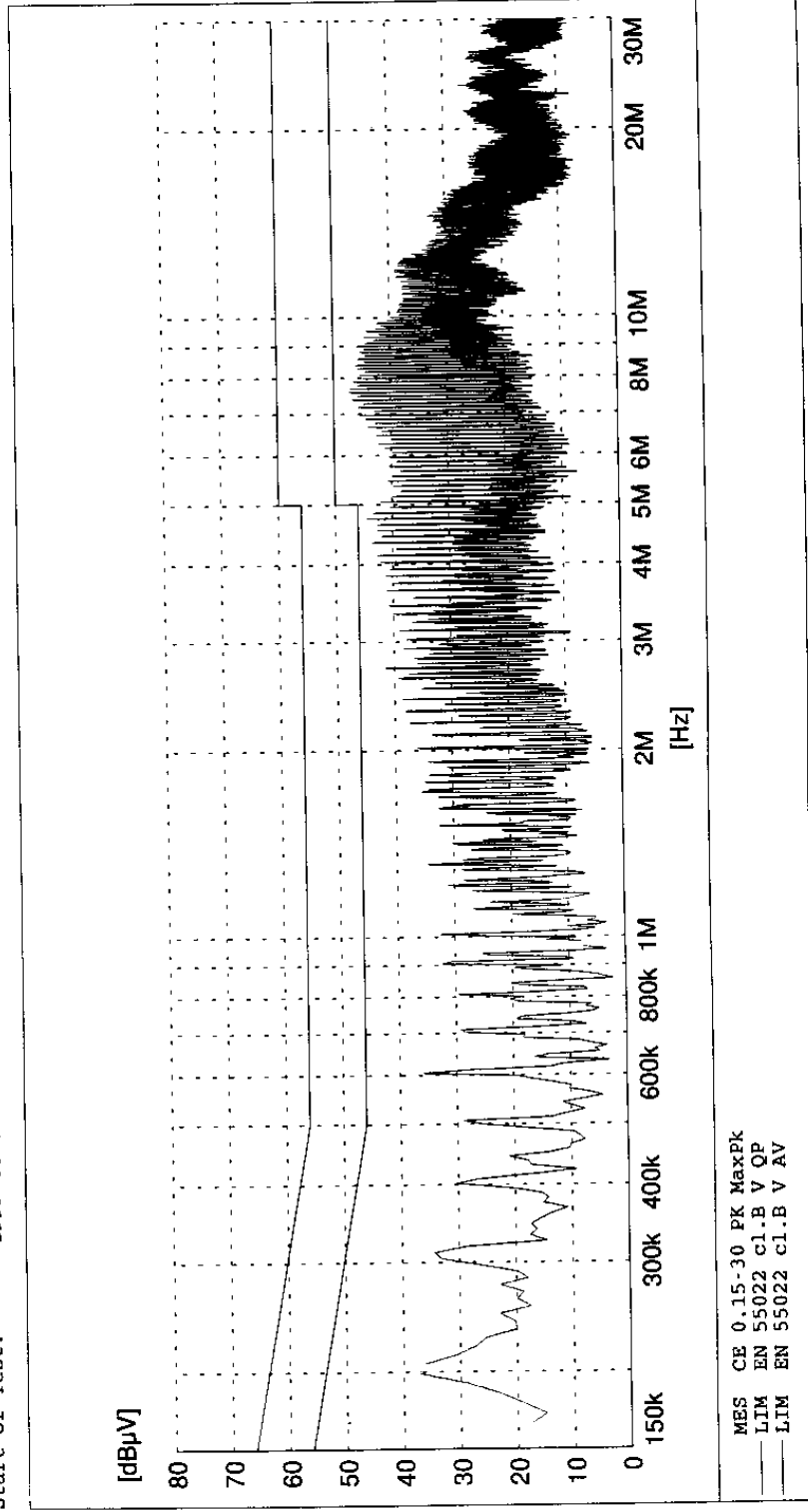
Test record sheets and photos regarding
conducted emission, AC mains (FCC class B, EN 55022 class B)

(5 pages)

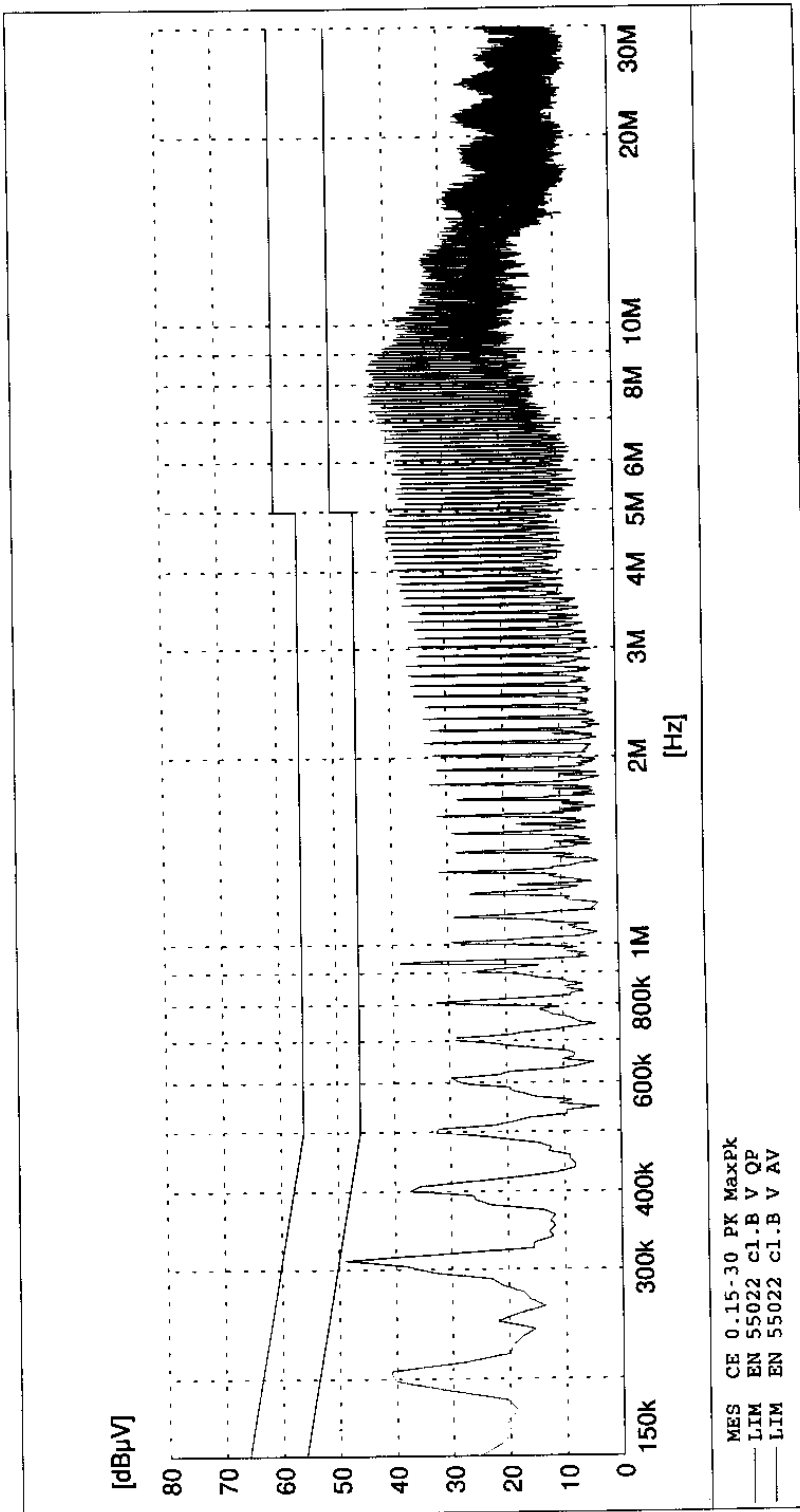
EUT: EasyCom Xpress. 10 Mbit
Manufacturer: I-DATA
Operating Condition: Line no: Neutral. 115 Vac
Test Site: EMC-5
Operator: HEN-K220955
Test Specification: EN 55022 class B
Comment: Sheet 13
Start of Test: 1999-06-17



EUT: EasyCom Xpress. 10 Mbit
Manufacturer: I-DATA
Operating Condition: Line no: Line 1. 115 Vac
Test Site: EMC-5
Operator: HEN-K220955
Test Specification: EN 55022 class B
Comment: Sheet 12
Start of Test: 1999-06-17

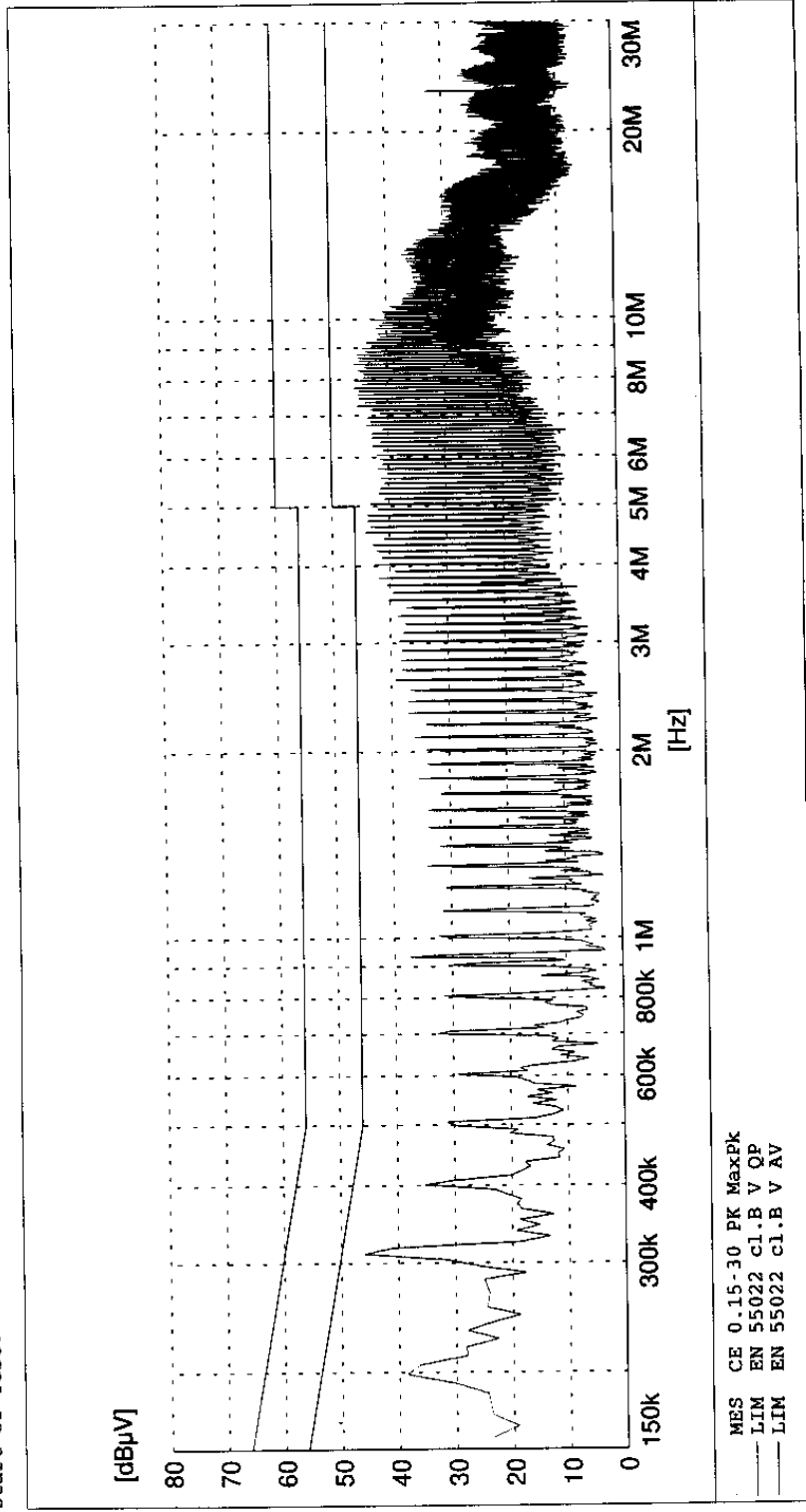


EUT: EasyCom Xpress. 100 Mbit
 Manufacturer: I-DATA
 Operating Condition: Line no: Neutral. 115 Vac
 Test Site: EMC-5
 Operator: HEN-K220955
 Test Specification: EN 55022 class B
 Comment: Sheet 6
 Start of Test: 1999-06-17



MES CE 0.15-30 PK MaxPk
 LIM EN 55022 cl.B V QP
 LIM EN 55022 cl.B V AV

EUT: EasyCom Xpress. 100 Mbit
Manufacturer: I-DATA
Operating Condition: Line no: Line 1. 115 Vac
Test Site: EMC-5
Operator: HEN-K220955
Test Specification: EN 55022 class B
Comment: Sheet 7
Start of Test: 1999-06-17



DANAK-194610
DELTA-K220955-1



PHOTO A4.1

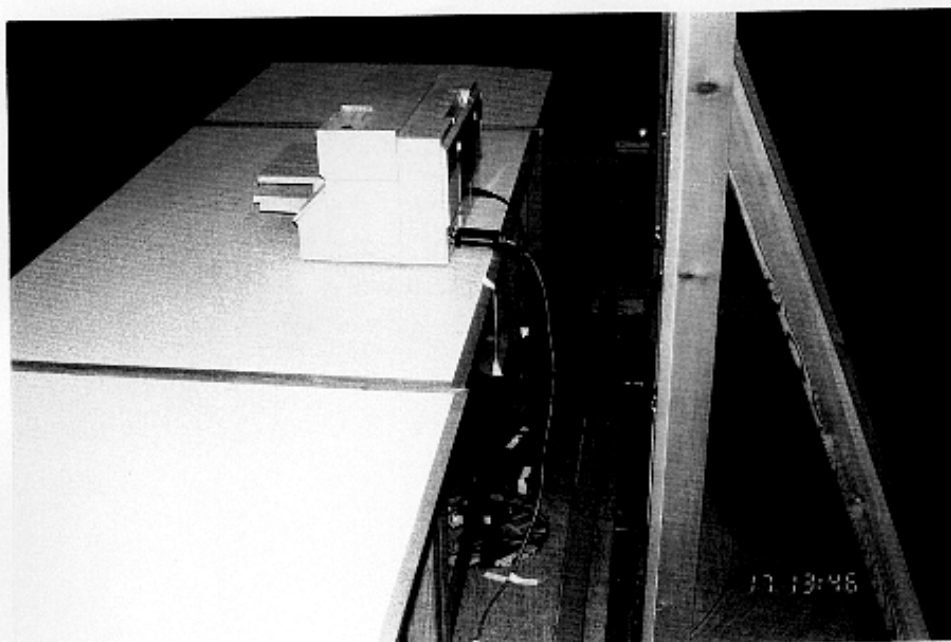


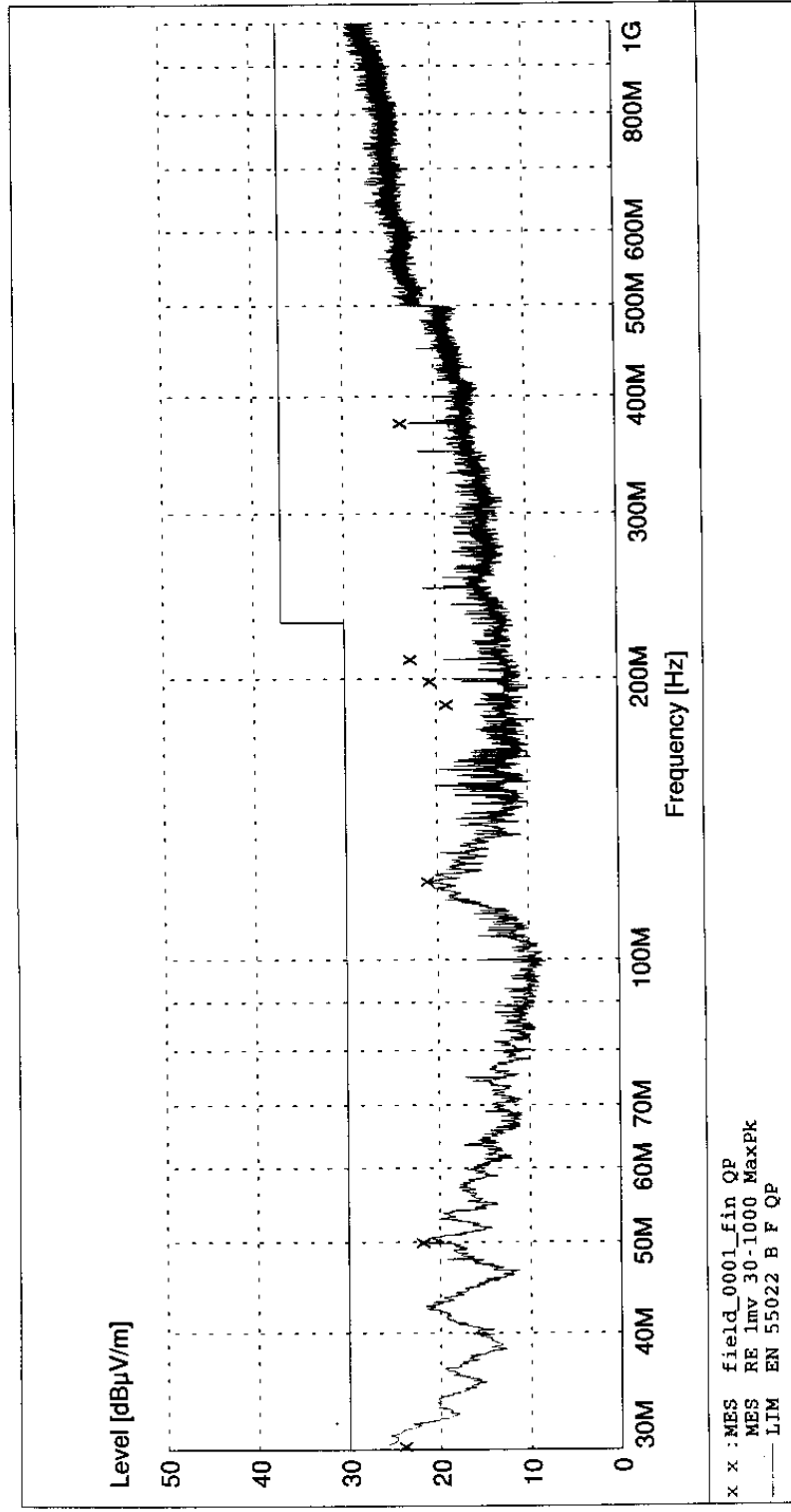
PHOTO A4.2

ANNEX 5

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

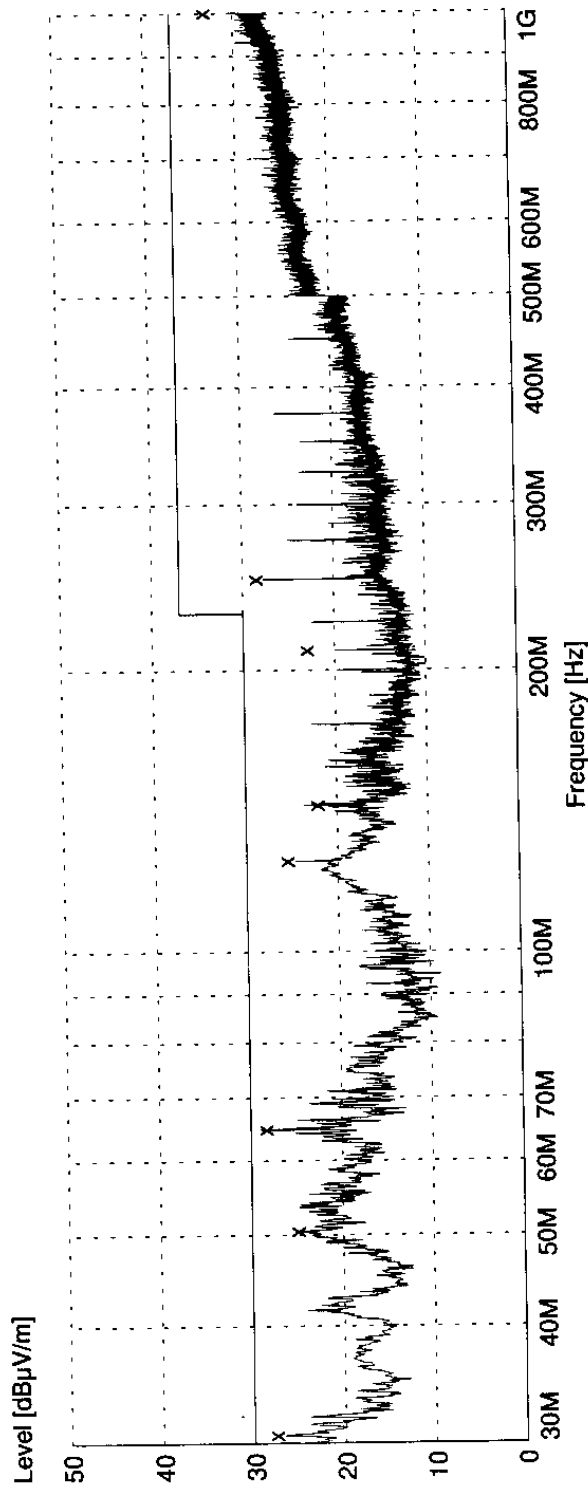
(5 pages)

EUT: EasyCom Xpress. 10 Flt. 1
 Manufacturer: I-DATA
 Operating Condition: ant. 1 m vertical. 115 Vac
 Test Site: EMC-5
 Operator: HEN-K220955
 Test Specification: EN 55022 class B
 Comment: Sheet # 2
 Start of Test: 1999-06-17



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
30.300000	24.20	4.9	30.0	5.7	150.0	336.00	VERTICAL
50.000000	22.10	10.4	30.0	7.8	112.0	222.00	VERTICAL
121.400000	21.40	8.5	30.0	8.5	113.0	359.00	VERTICAL
187.680000	19.20	11.2	30.0	10.7	345.0	165.00	HORIZONTAL
198.720000	21.00	11.9	30.0	8.9	384.0	181.00	HORIZONTAL
209.760000	23.10	12.4	30.0	6.8	388.0	201.00	HORIZONTAL
375.000000	24.00	18.6	37.0	12.9	113.0	196.00	VERTICAL

EUT: EasyCom Xpress. 100 Mbit
 Manufacturer: I-DATA
 Operating Condition: ant. 1 m vertical. 115 Vac
 Test Site: EMC-5
 Operator: HEN-K220955
 Test Specification: EN 55022 class B
 Comment: Sheet 4
 Start of Test: 1999-06-17



x x : MES field_0001_fin QP
 MES RE 1mv 30-1000 MaxPk
 — LIM EN 55022 B F QP

MEASUREMENT RESULT: "field_0001_fin_QP"

17-06-99 12:45

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
30.600000	27.80	5.1	30.0	2.1	149.0	329.00	VERTICAL
50.500000	25.20	10.5	30.0	4.7	185.0	212.00	VERTICAL
64.800000	28.60	10.7	30.0	1.3	227.0	359.00	VERTICAL
125.000000	25.80	8.7	30.0	4.1	102.0	135.00	VERTICAL
143.300000	22.40	9.4	30.0	7.5	118.0	6.00	VERTICAL
209.760000	23.30	12.4	30.0	6.6	386.0	190.00	HORIZONTAL
250.000000	28.80	15.8	37.0	8.1	110.0	28.00	VERTICAL
999.980000	33.50	30.6	37.0	3.4	113.0	273.00	VERTICAL

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DELTA-K220955-1

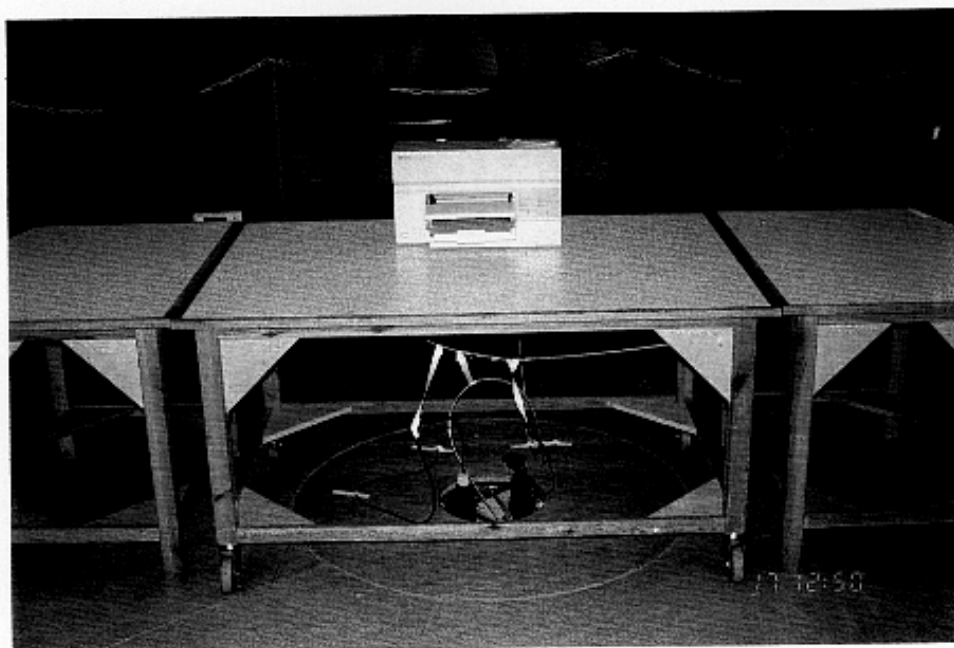


PHOTO A5.1

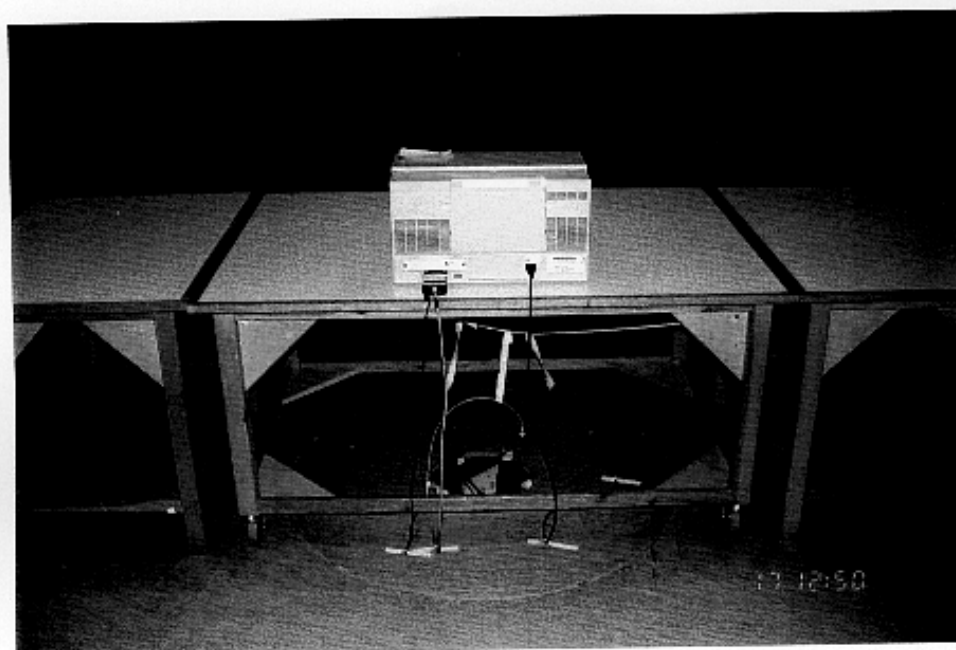


PHOTO A5.2

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ANNEX 6

Photo of the EUT

(1 page)

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DELTA-K220955-1

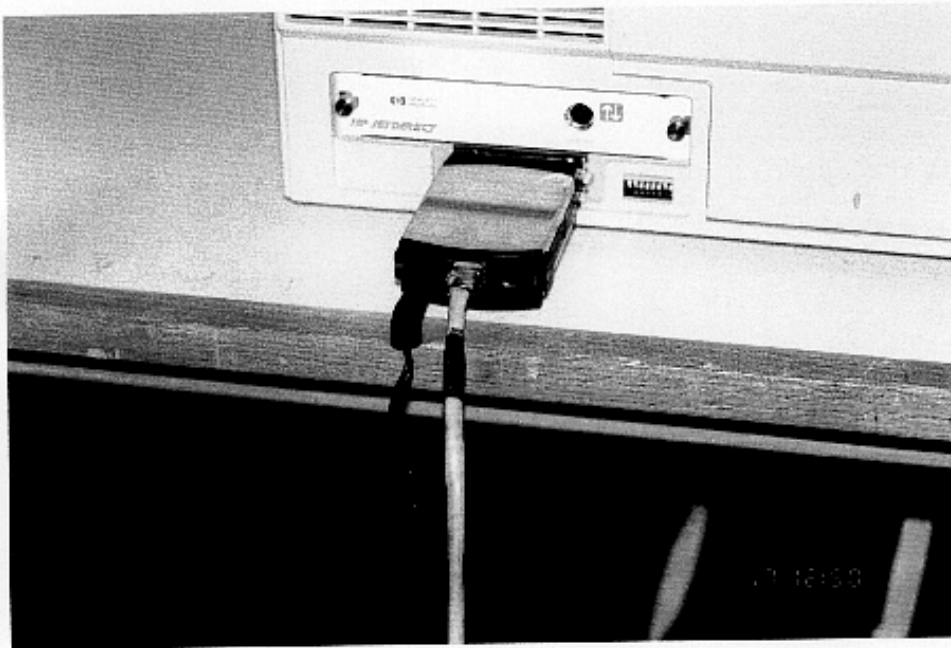


PHOTO A6.1