

DELTA Electronics Testing

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DELTA-K220871-1
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4 annexes

TEST REPORT



DANAK

Reg. no. 19

DELTA

DELTA
Electronics Testing

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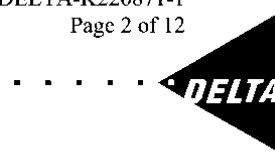
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**Measurements of radio frequency interference from
PlusCom Xpress X62 410 including SafeCom X34 150
Manufactured by i-data International A/S
Project no.: K220871-1
Date: 1999-07-19**

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Title Measurements of radio frequency interference from
PlusCom Xpress X62 410 including SafeCom X34 150

Test object PlusCom Xpress X62 410 including SafeCom X34 150

Report no. DANAK-194611

Project no. K220871-1

Date of test 1999-06-29

Client i-data International A/S
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Contact person Mr. Jens Henneke

Manufacturer i-data International A/S

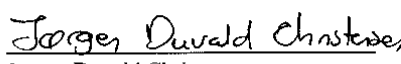
Specification EN 55022:1994 (CISPR 22:1985 + A1 + A2) class B
+ A1 + A2
FCC part 15 Subpart B class B demonstrated by
compliance with EN 55022:1994, class B.

Test personnel Henrik Egeberg Nielsen

Results The emission from the PlusCom Xpress X62 410 including
SafeCom X34 150 was below the limit of the above
specifications.

Date 1999-07-19

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.

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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 adapter.
Operational mode : Normal operation.
Comments : -

TEST SPECIMEN 2

Category : Printer server
Manufacturer : i-data International A/S
Model/Type : PlusCom Xpress X62 410
Part no. : -
Serial no. : -
Supply voltage : 12 VDC from 115 VAC adapter.
Operational mode : Normal operation.
Comments : 100 Mbit transmission speed.

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3. GENERAL TEST CONDITIONS

3.1 Test set-up

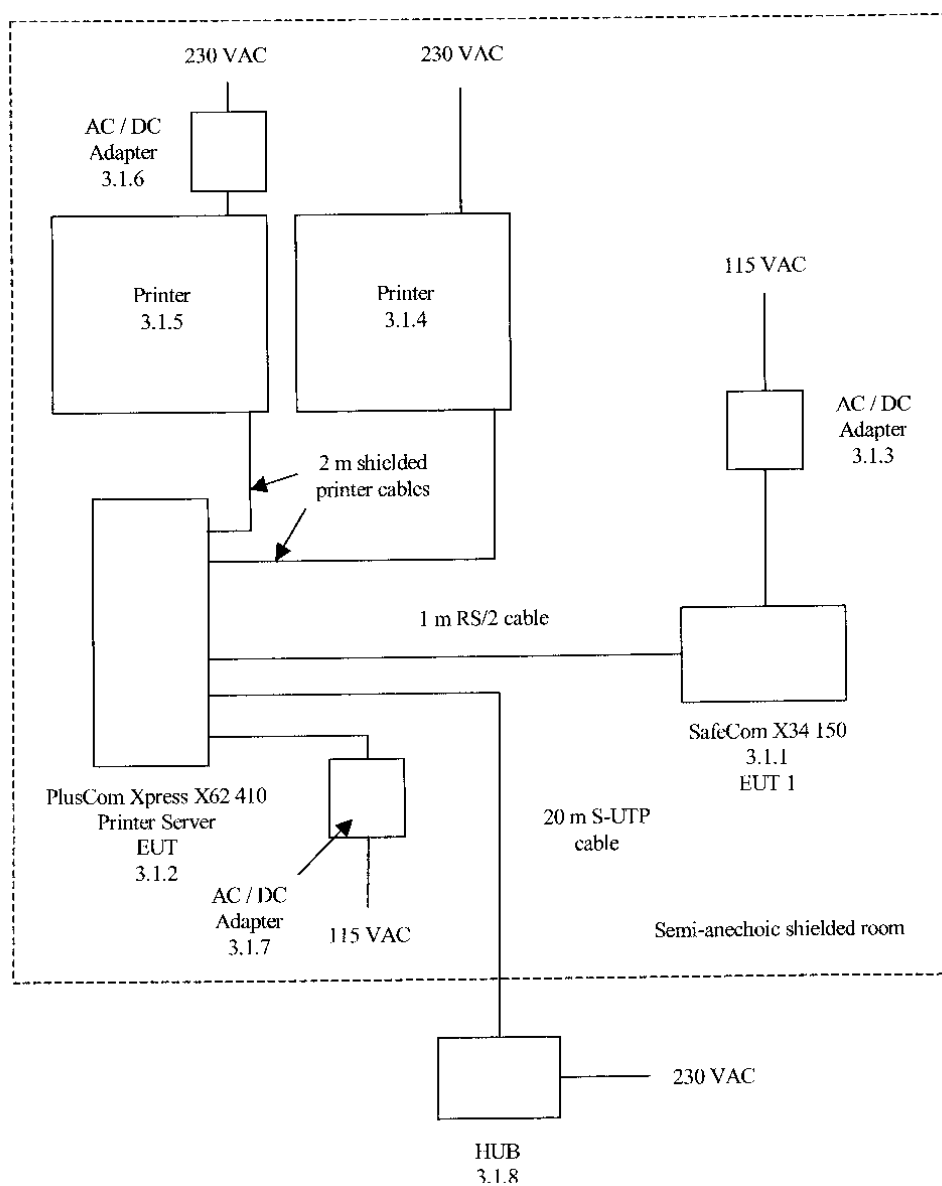


FIG. 1 Test set-up including test object and peripheral equipment

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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	: PlusCom Xpress X62 410
	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	Printer	
	Manufacturer	: Hewlett Packard
	Model/type	: 895 CXi
	Part no.	: C6410A
	Serial no.	: SG89A2W2HT
	FCC ID.	: -
3.1.6	AC / DC Adapter	
	Manufacturer	: Hewlett Packard
	Model/type	: HP Deskjet power adapter
	Part no.	: C6409-60014
	Serial no.	: T5838041928
	FCC ID.	: -

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3.1.7 AC / DC Adapter

Manufacturer	:	FRIWO
Model/type	:	FW 3288
Part no.	:	-
Serial no.	:	-
FCC ID	:	-

3.1.8 HUB (100 Mbit)

Manufacturer	:	Cabletron Systems
Model/type	:	EZ 5208 TX
Part no.	:	720.301
Serial no.	:	K164700128
FCC ID	:	-

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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:

Conducted emission was measured separately on EUT 1 and EUT 2.

The supply voltage to EUT 1 and EUT 2 was 12 VDC from separate 115 VAC adapters.

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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		
Annex 3		

Results:

The emission was within the specified limits.

Comments:

The supply voltage to EUT 1 and EUT 2 was 12 VDC from separate 115 VAC adapters

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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.) 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		<i>Annex 4</i>

Results:

The emission was within the specified limits.

Comments:

Conducted emission was measured separately on EUT 1 and EUT 2

The supply voltage to EUT 1 and EUT 2 was 12 VDC from separate 115 VAC adapters

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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: 230-1000 MHz:	30 dB μ V/m 37 dB μ V/m
Test record sheets and photos		
Annex 5		

Results:

The emission was within the specified limits.

Comments:

The supply voltage to EUT 1 and EUT 2 was 12 VDC from separate 115 VAC adapters.

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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
29301	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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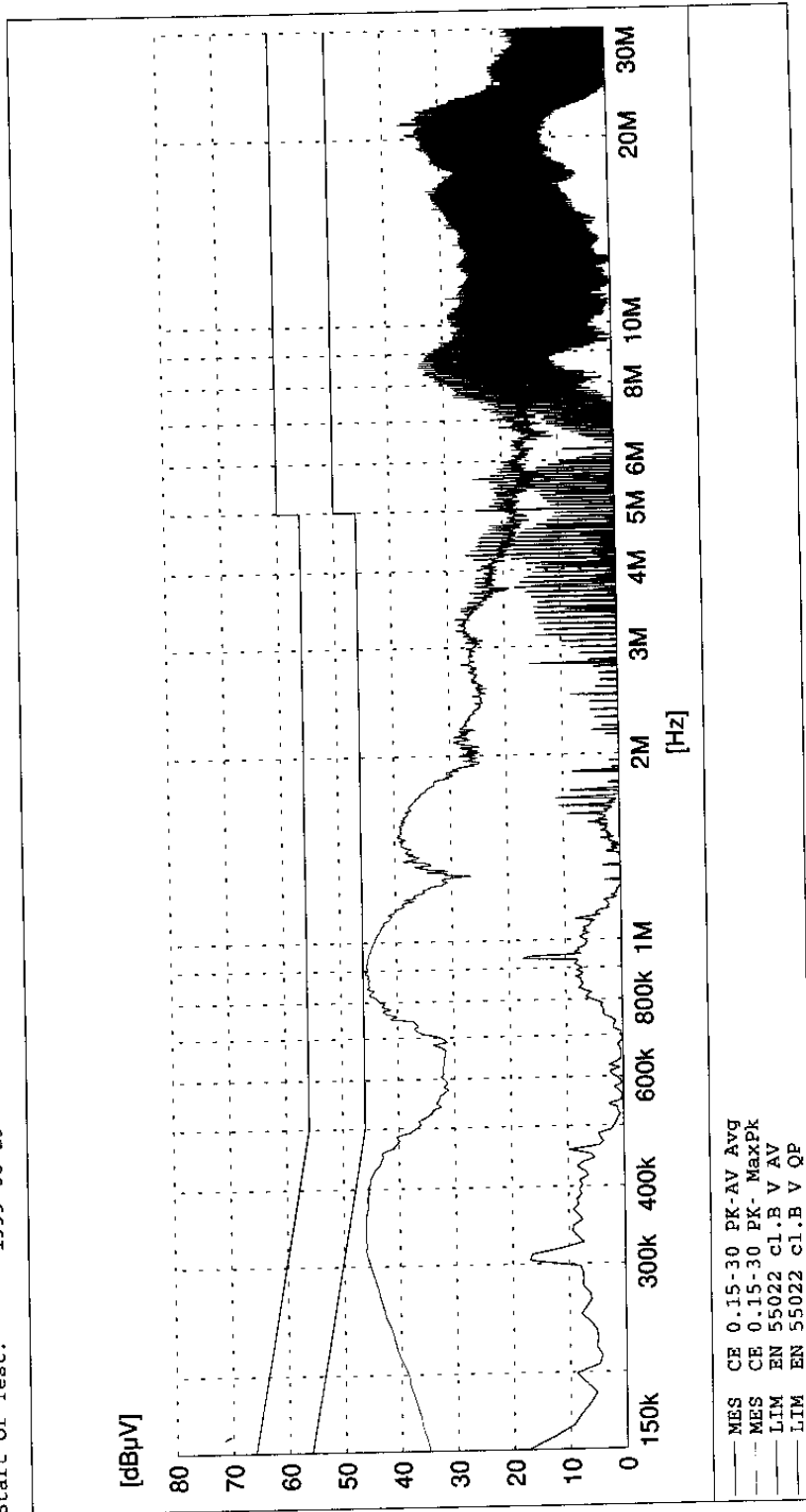
ANNEX 2

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

(6 pages)

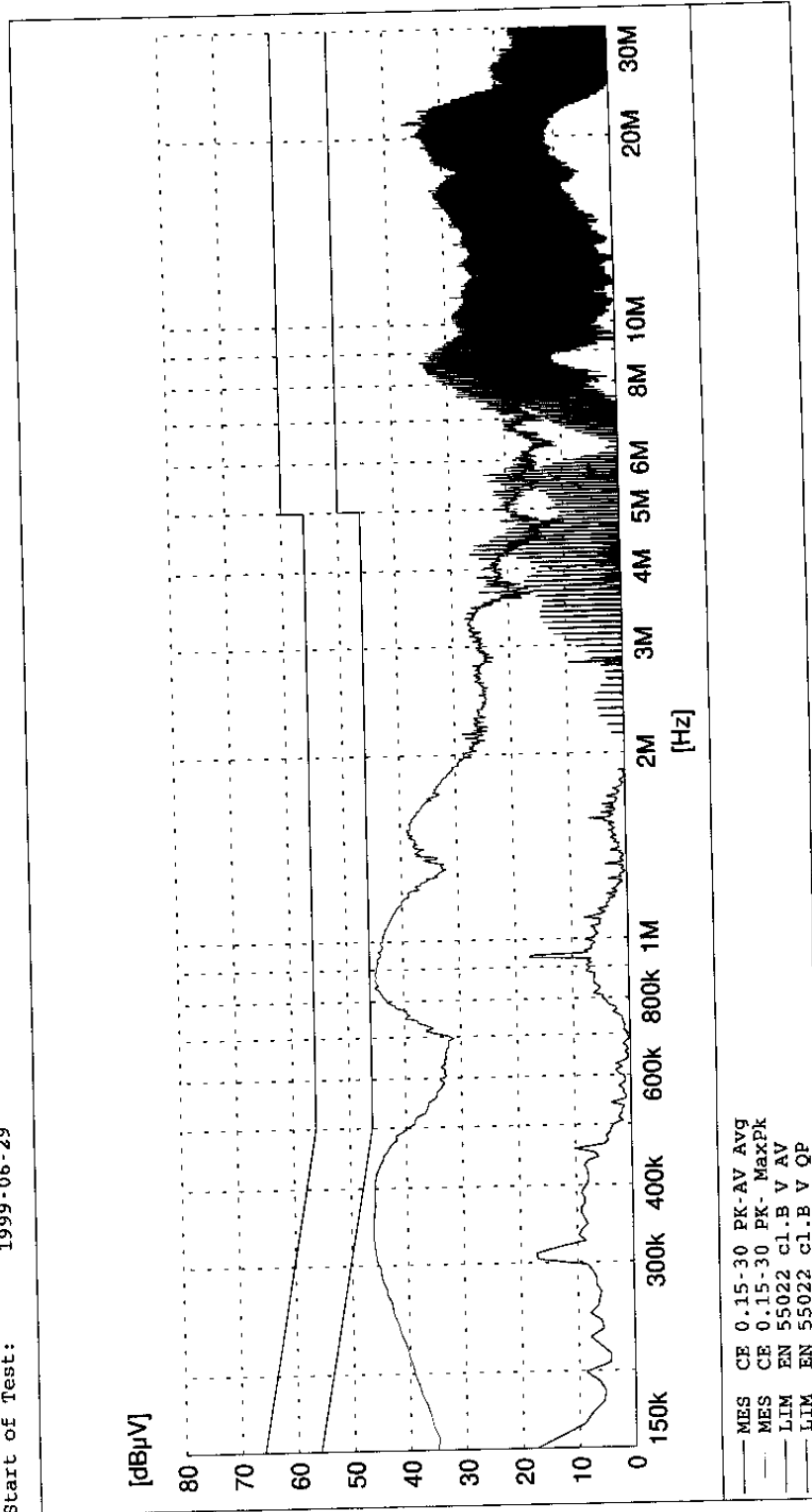
EUT 1

EUT: SafeCom.
 Manufacturer: I-Data.
 Operating Condition: Line no.: Neutral. 115 Vac. S-UTP cable.
 Test Site: EMC-5
 Operator: HEN-K220871
 Test Specification: EN 55022 B, FCC B .
 Comment: Sheet 9
 Start of Test: 1999-06-29



EUT 1

EUT: SafeCom.
 Manufacturer: I-Data.
 Operating Condition: Line no.: Line 1. 115 Vac. S-UTP cable.
 Test Site: EMC-5
 Operator: HEN-K220871
 Test Specification: EN 55022 B, FCC B.
 Comment: Sheet 10
 Start of Test: 1999-06-29



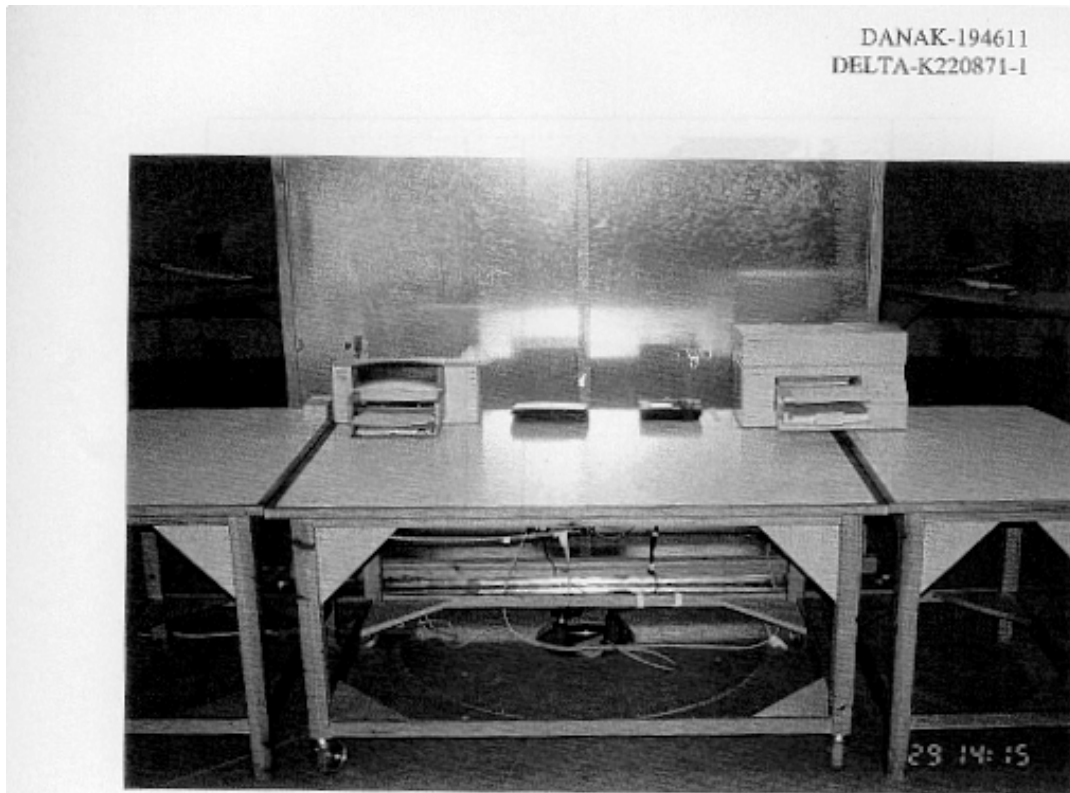


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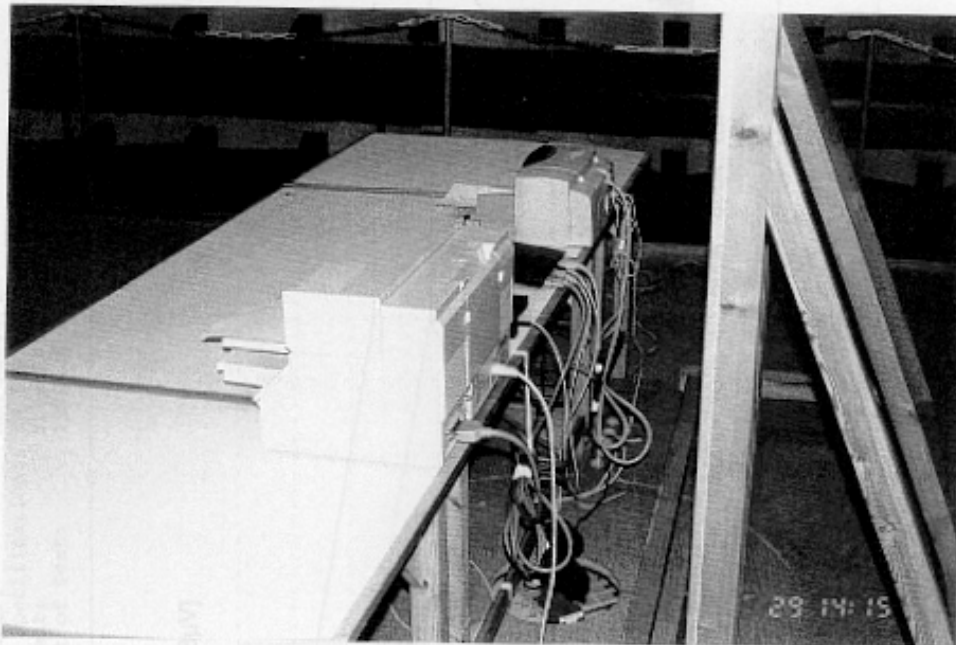
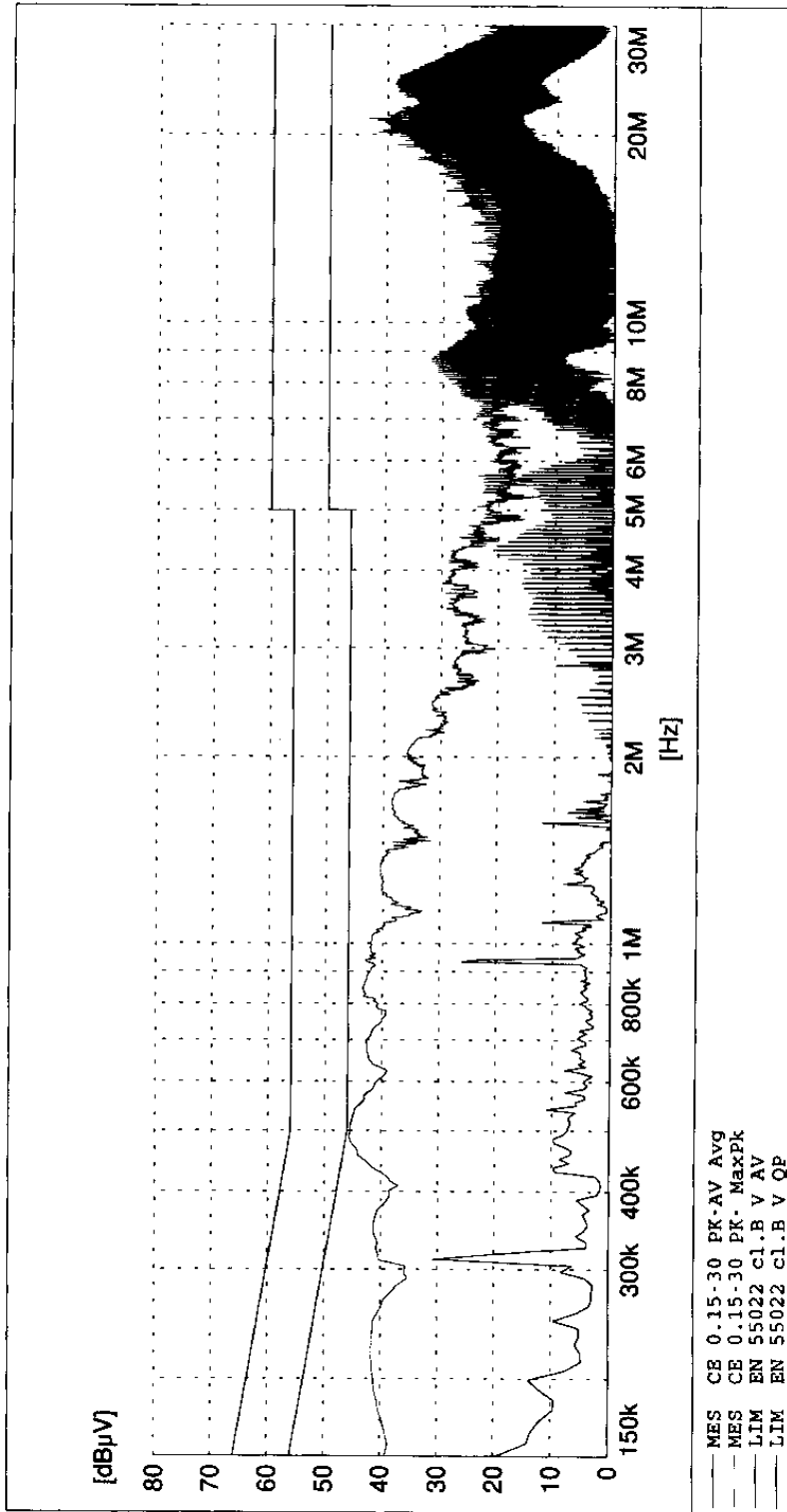
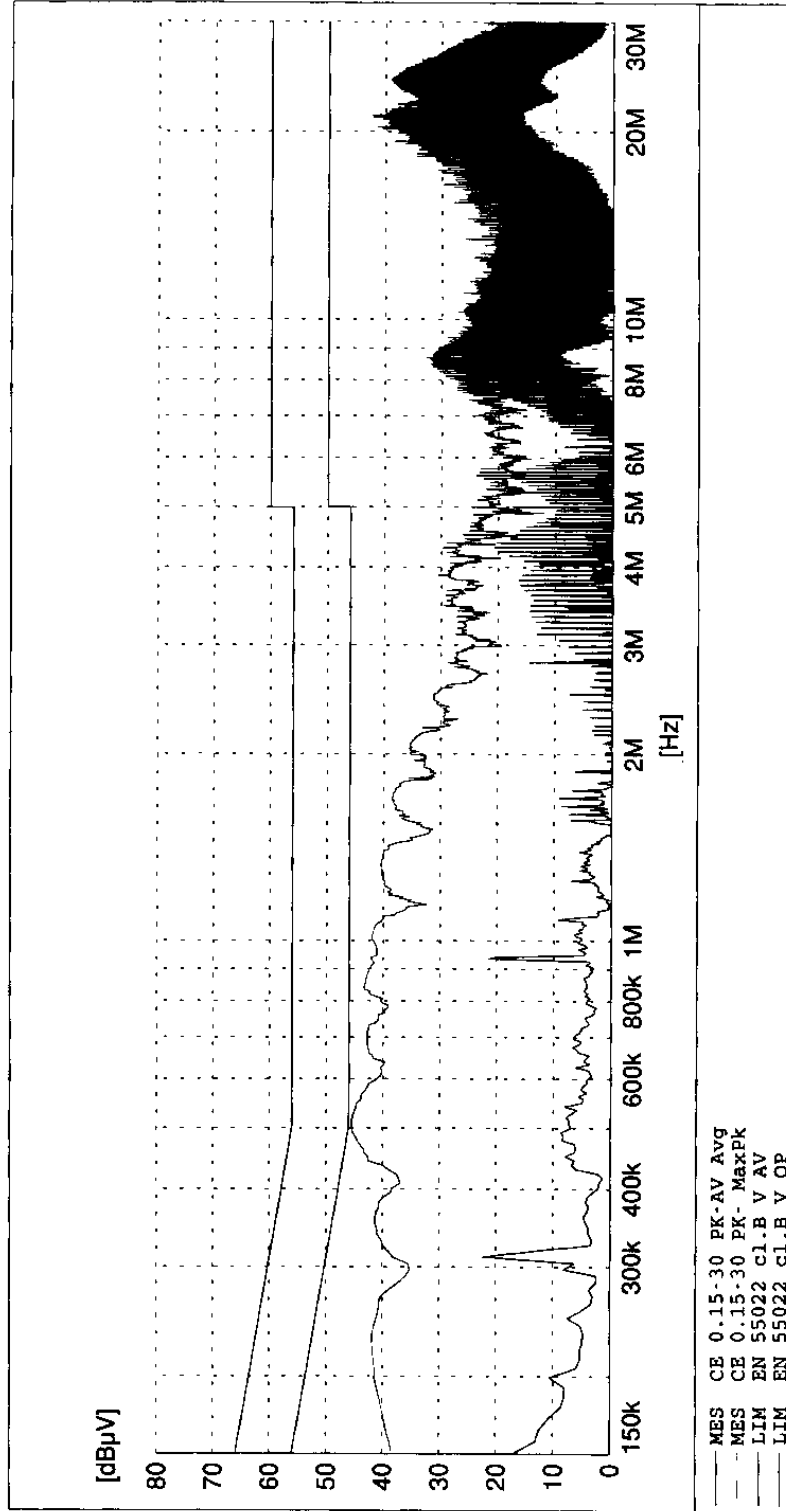


PHOTO A2.2

2011
 Manufacturer: FUSCOM Apress 5V14
 I-Data.
 Operating Condition: Line no.: Neutral, 115 Vac, S-UTP cable.
 Test Site: EMC-5
 Operator: HEN-K220871
 Test Specification: EN 55022 B, FCC B.
 Comment: Sheet 7
 Start of Test: 1999-06-29



Manufacturer: I-Data.
 Operating Condition: Line no.: Line 1. 115 Vac. S-UTP cable.
 Test Site: EMC-5
 Operator: HEN-K220871
 Test Specification: EN 55022 B, FCC B.
 Comment: Sheet 8
 Start of Test: 1999-06-29



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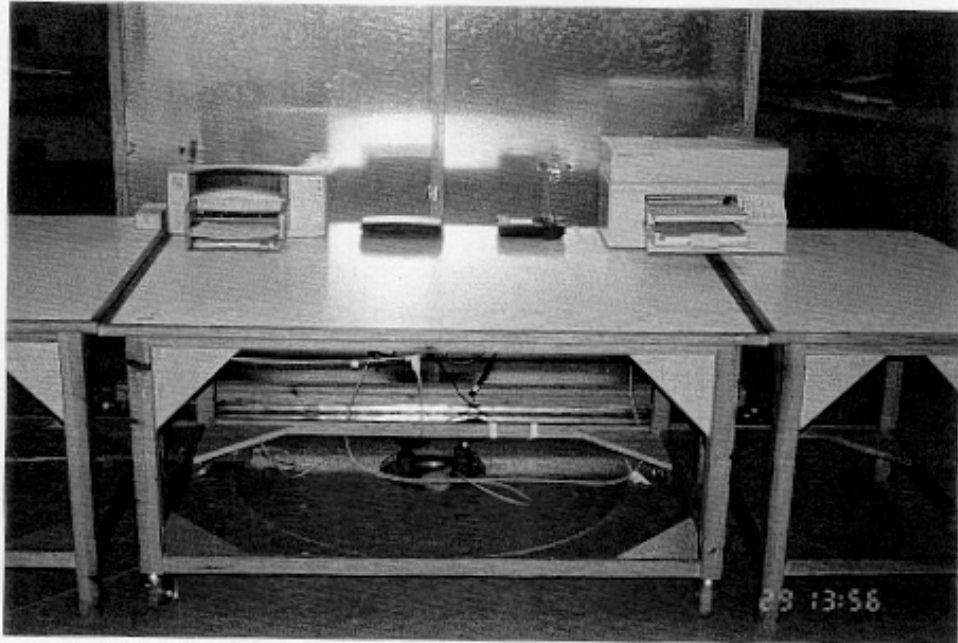


PHOTO A2.3

(4 pages)

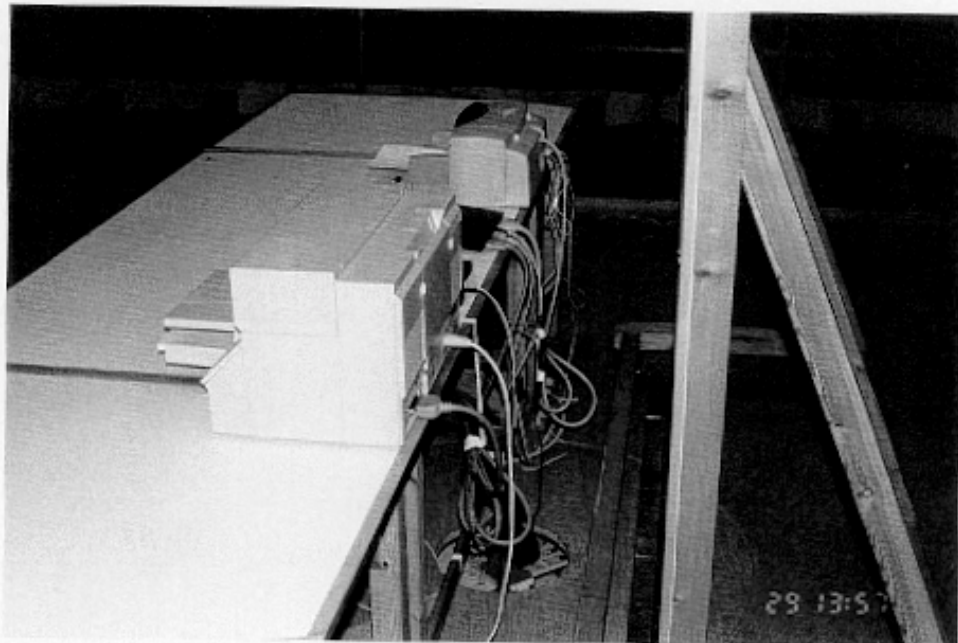


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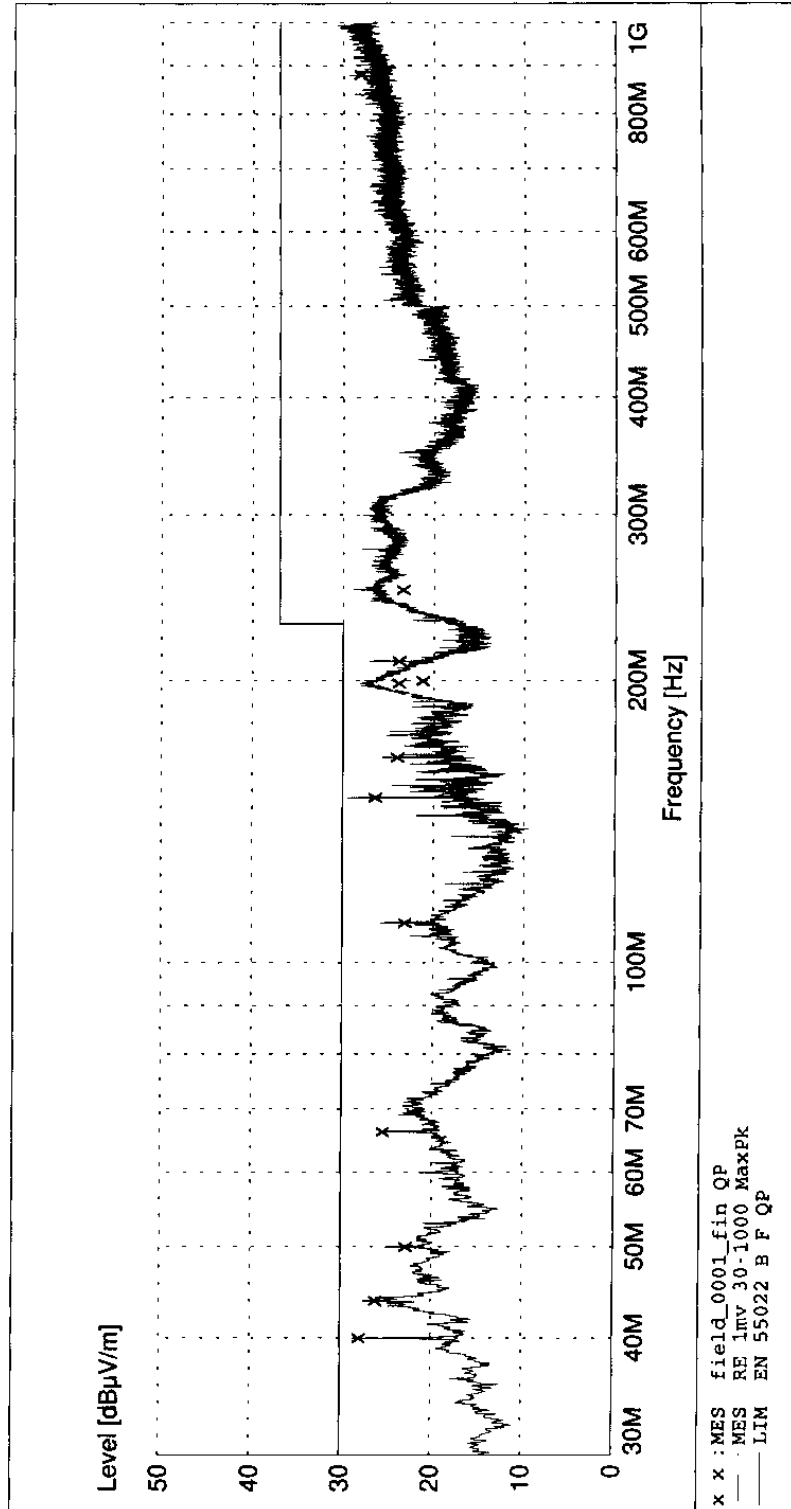
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ANNEX 3

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

(4 pages)

Manufacturer: I-Data.
 Operating Condition: ant 1 m vertical. 115 Vac. S-UTP cable.
 Test Site: EMC-5
 Operator: HEN-K220871
 Test Specification: EN 55022 B, FCC B.
 Comment: Sheet 3
 Start of Test: 1999-06-29



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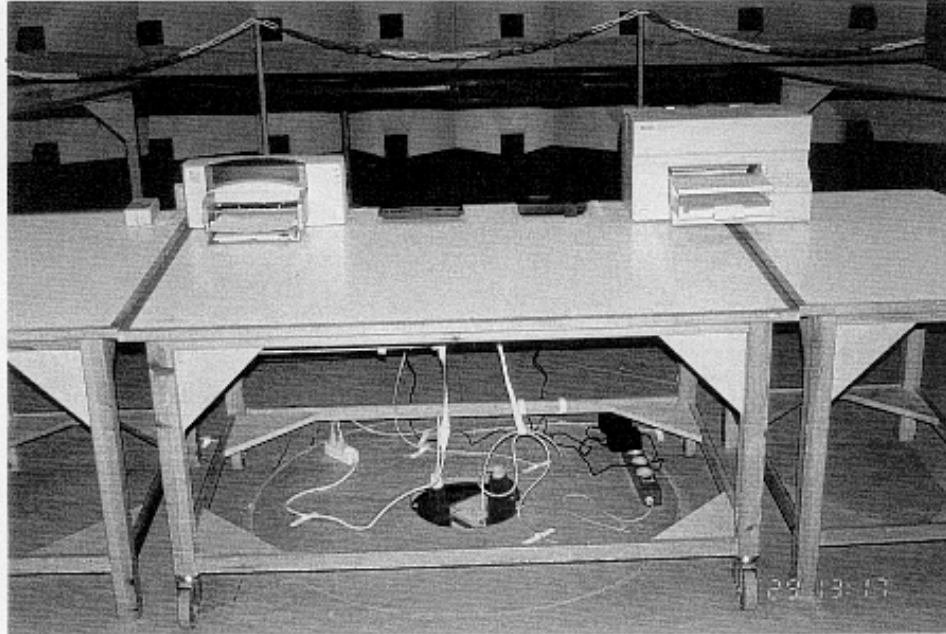


PHOTO A3.1



PHOTO A3.2

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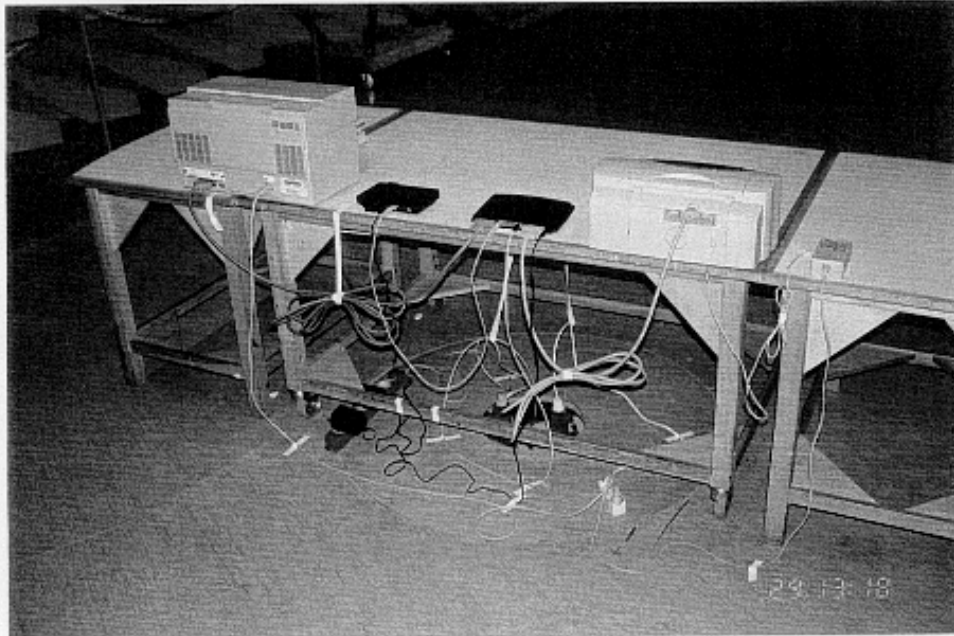


PHOTO A3.3

(6 pages)

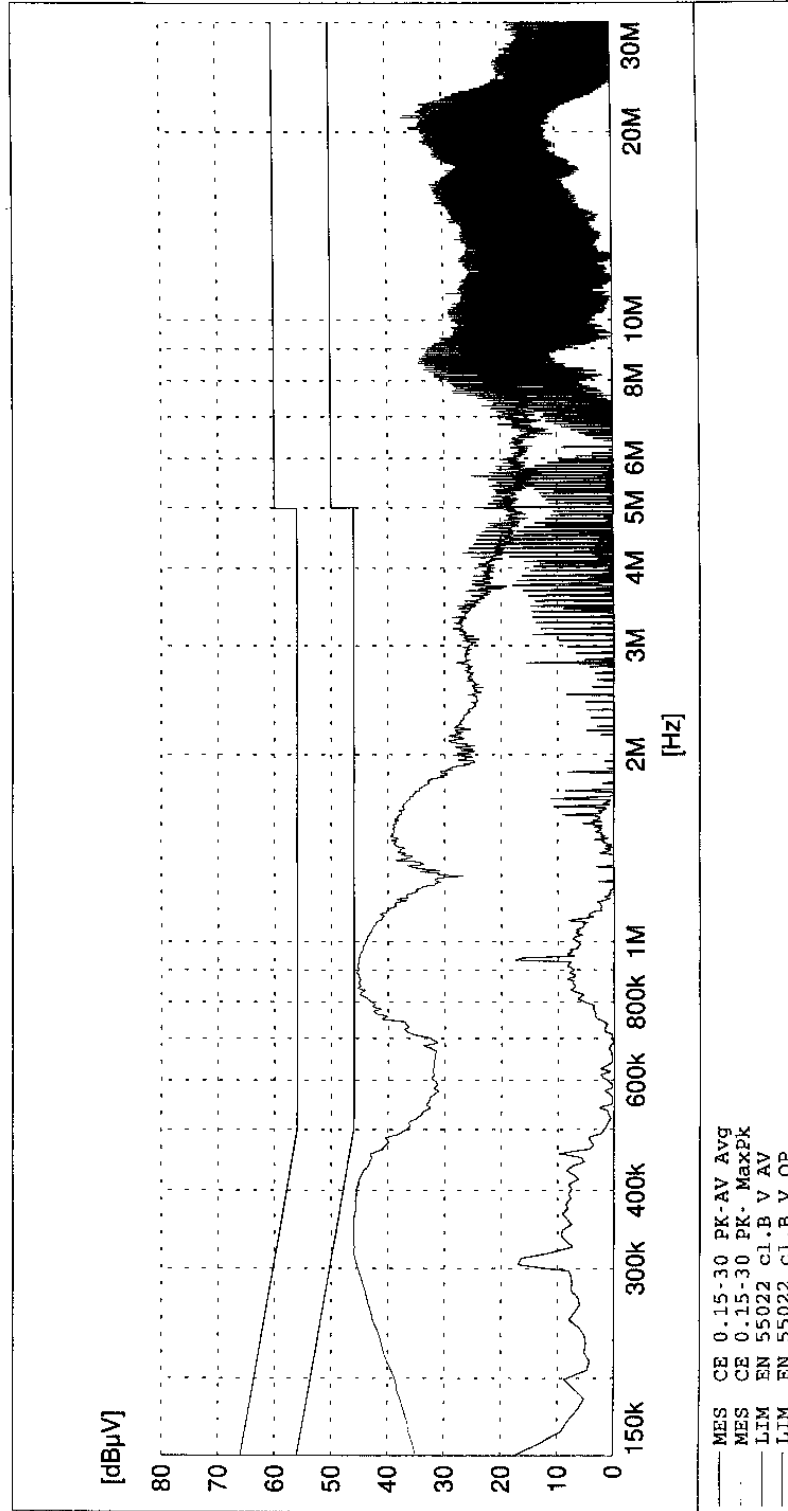
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ANNEX 4

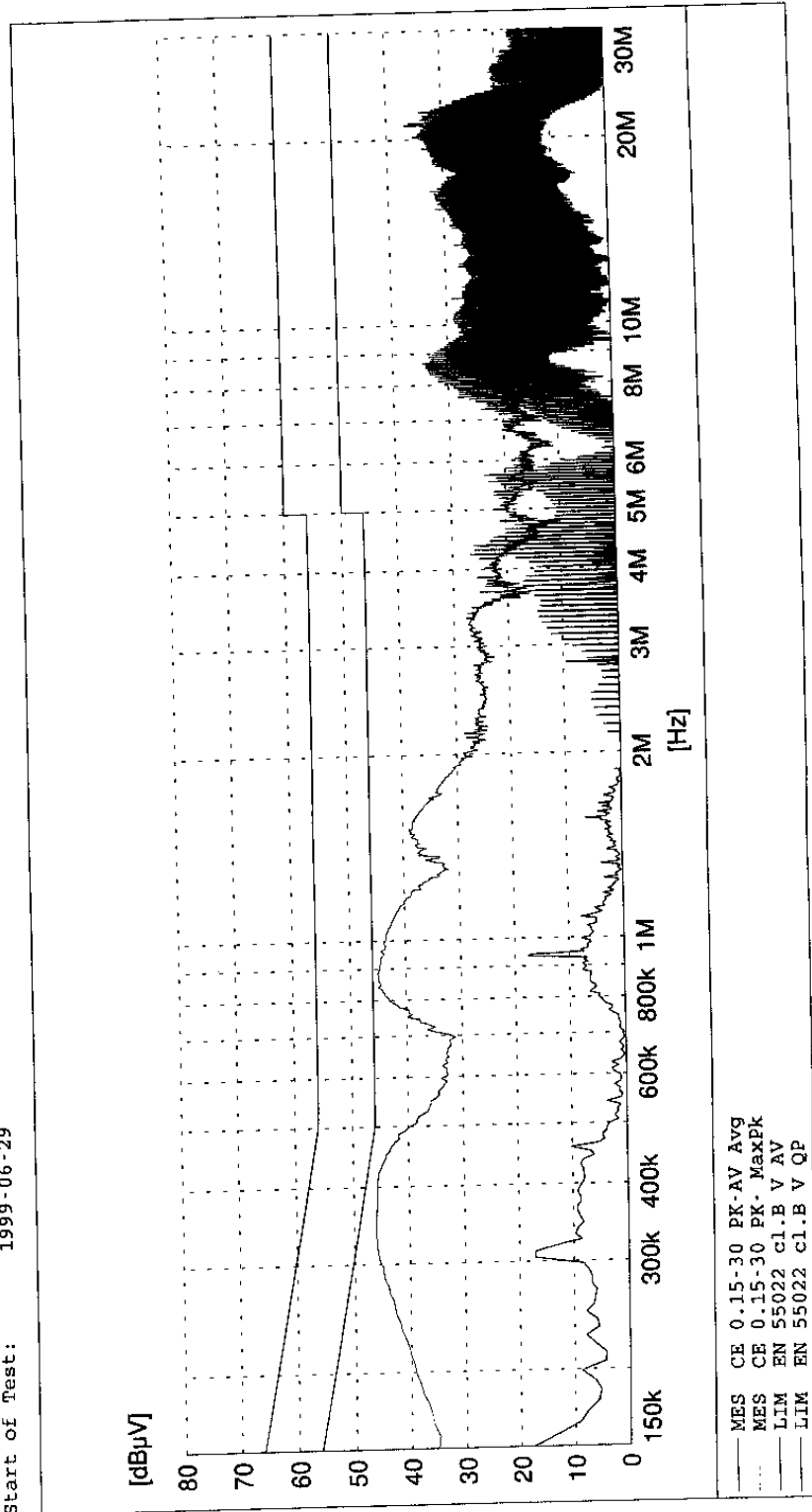
Test record sheets and photos regarding
conducted emission, AC mains (FCC class B, EN 55022 class B)

(6 pages)

EUT: SafeCom. **EUT 1**
 Manufacturer: I-Data.
 Operating Condition: Line no.: Neutral, 115 Vac, S-UTP cable.
 Test Site: EMC-5
 Operator: HEN-K220871
 Test Specification: EN 55022 B, FCC B .
 Comment: Sheet 9
 Start of Test: 1999-06-29



EUT: SafeCom. **EUT 1**
 Manufacturer: I-Data.
 Operating Condition: Line no.: Line 1. 115 Vac. S-UTP cable.
 Test Site: EMC-5
 Operator: HEN-K220871
 Test Specification: EN 55022 B, FCC B.
 Comment: Sheet 10
 Start of Test: 1999-06-29



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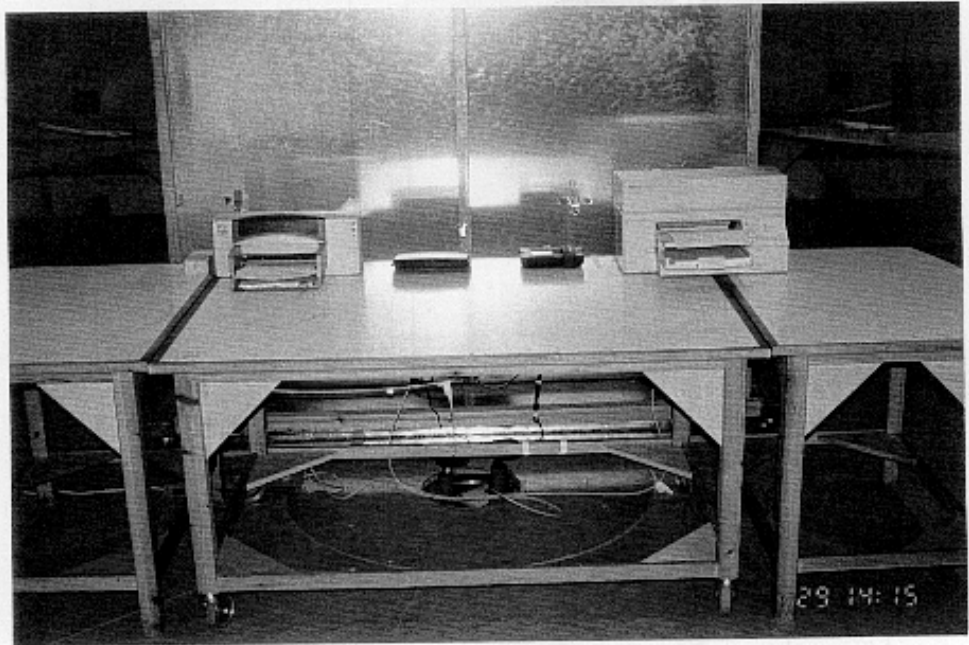


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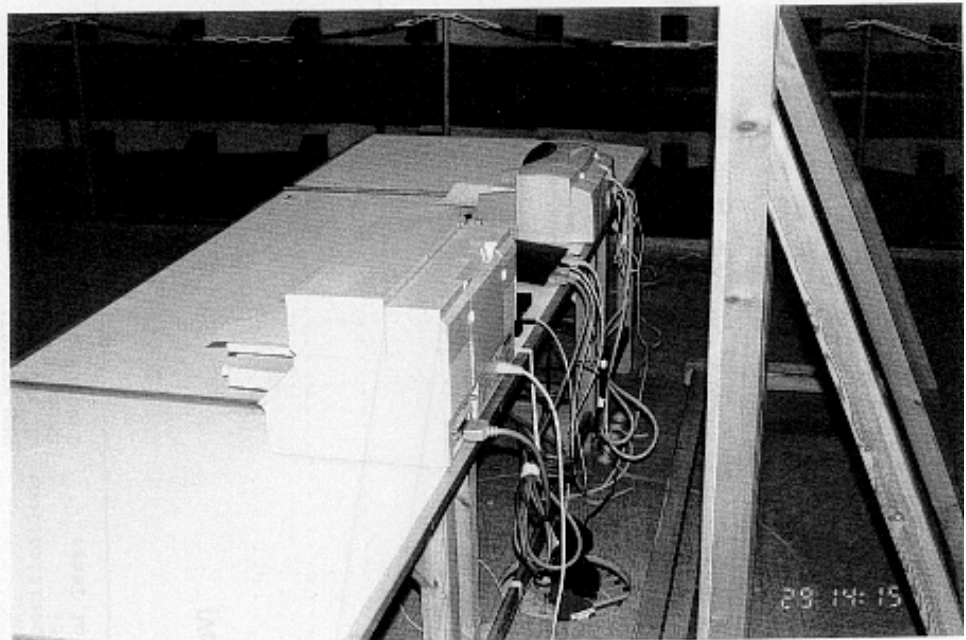
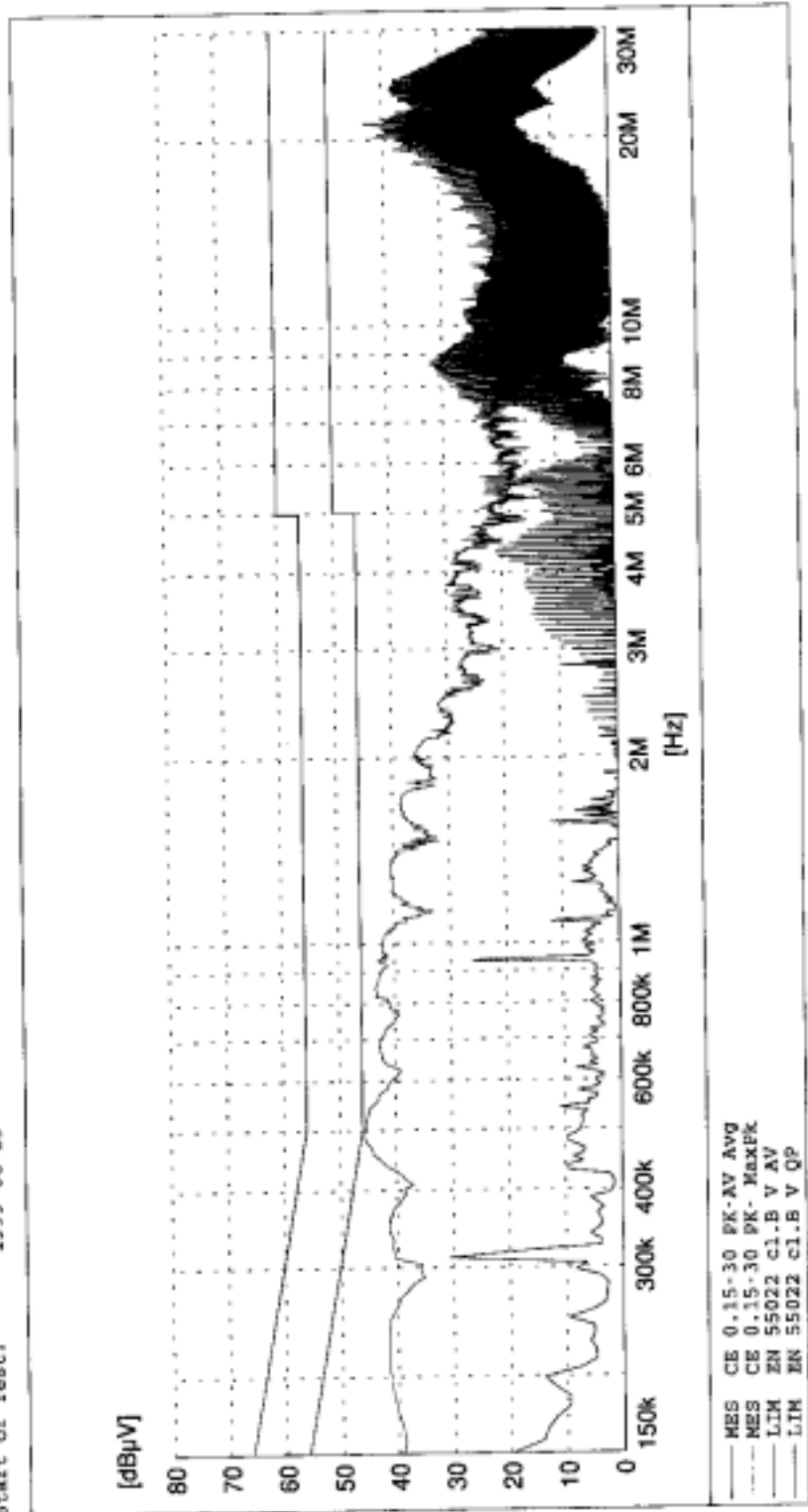


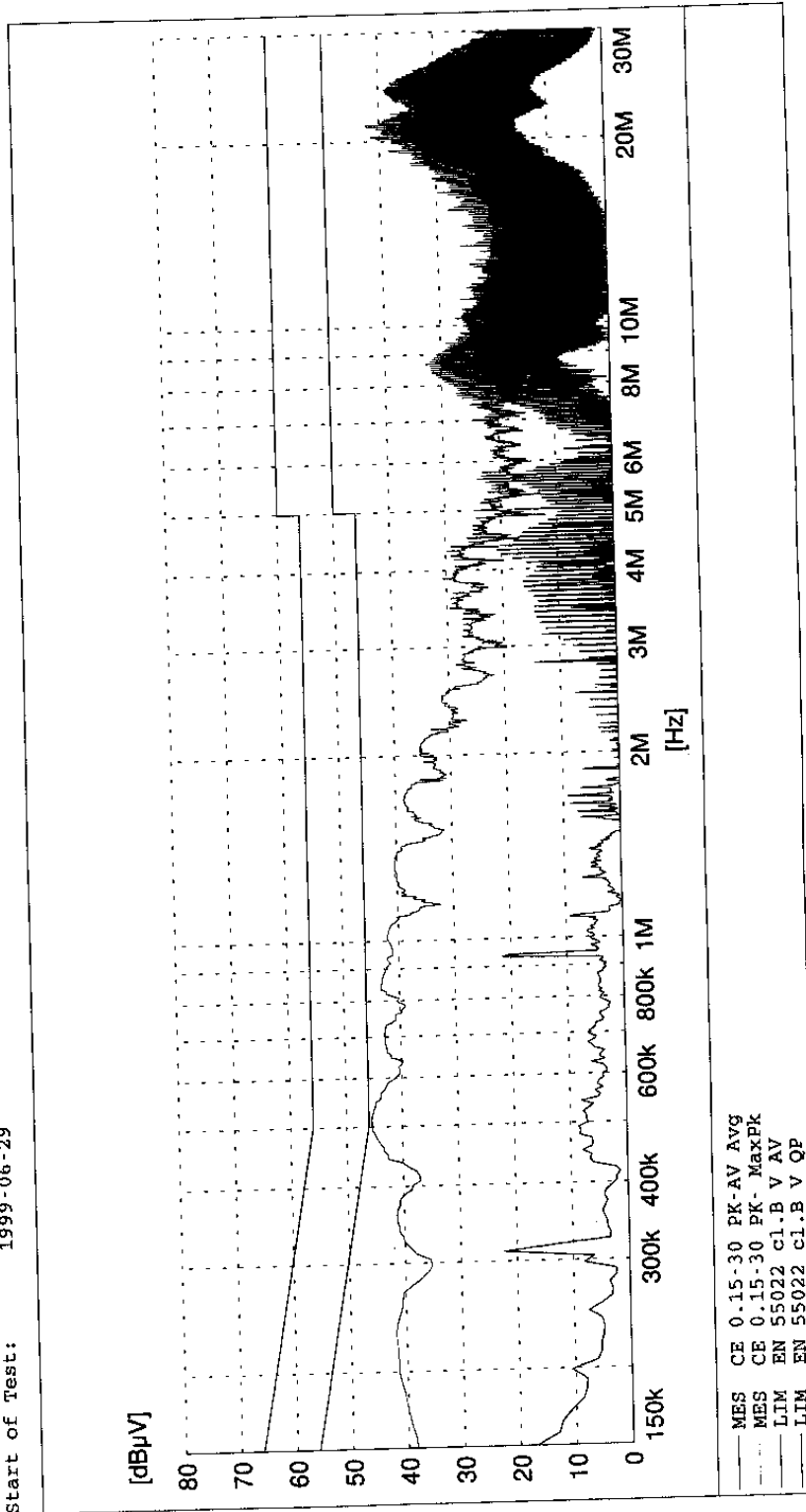
PHOTO A4.2

EUT: PlusCom Xpress EVT 2
 Manufacturer: i-Data.
 Operating Condition: Line no.: Neutral. 115 Vac. 9-UTP cable.
 Test Site: EMC-5
 Operator: HEN-K220071
 Test Specification: EN 55022 B, FCC B.
 Comment: Sheet 7
 Start of Test: 1999-06-29



PlusCom Xpress EUT 2

EUT:
 Manufacturer: I-Data.
 Operating Condition: Line no.: Line 1. 115 Vac. S-UTP cable.
 Test Site: EMC-5
 Operator: HEN-K220871
 Test Specification: EN 55022 B, FCC B .
 Comment: Sheet 8
 Start of Test: 1999-06-29



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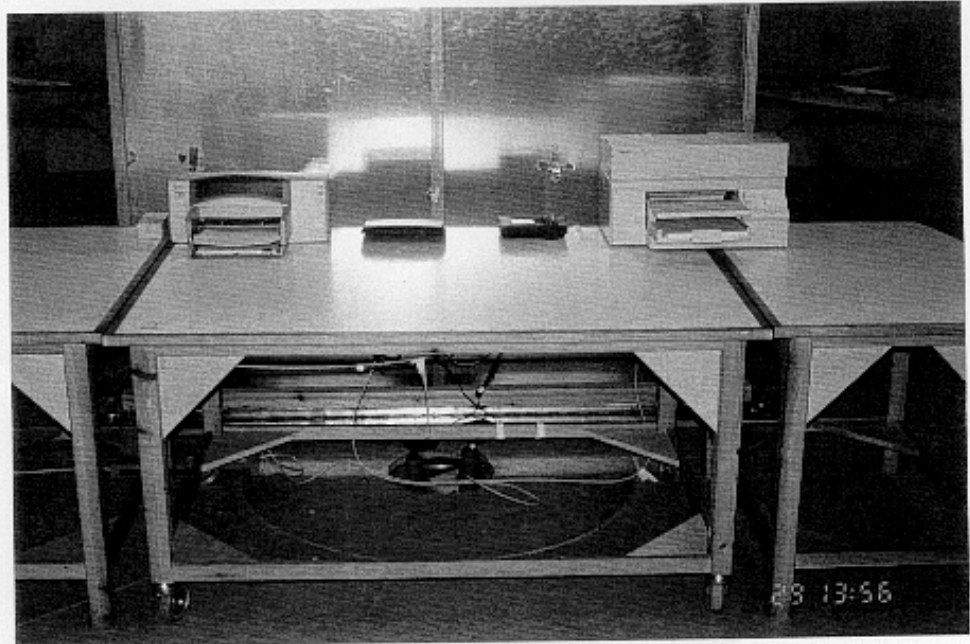


PHOTO A4.3

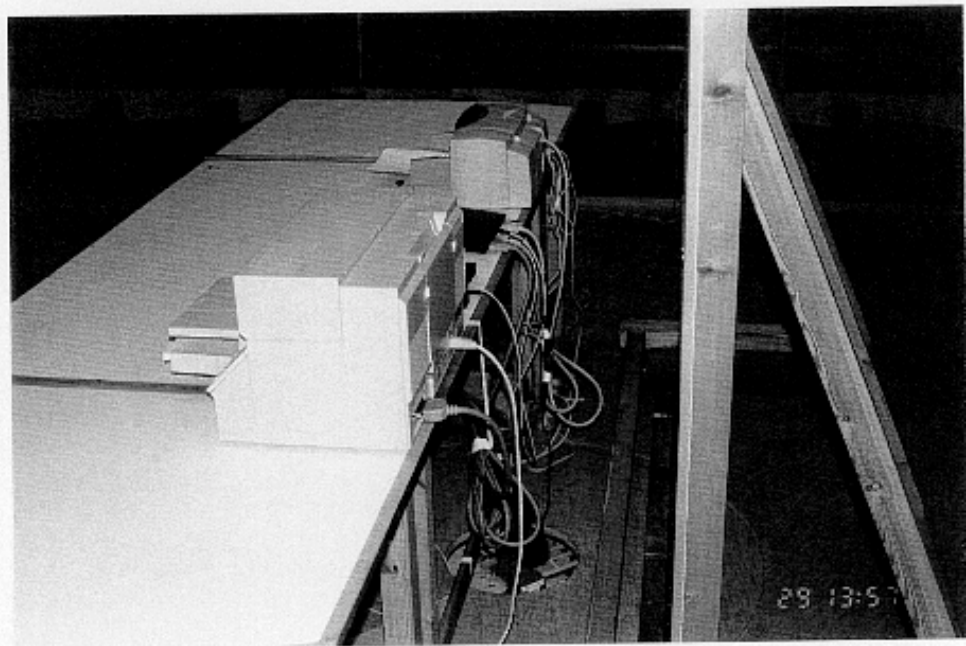


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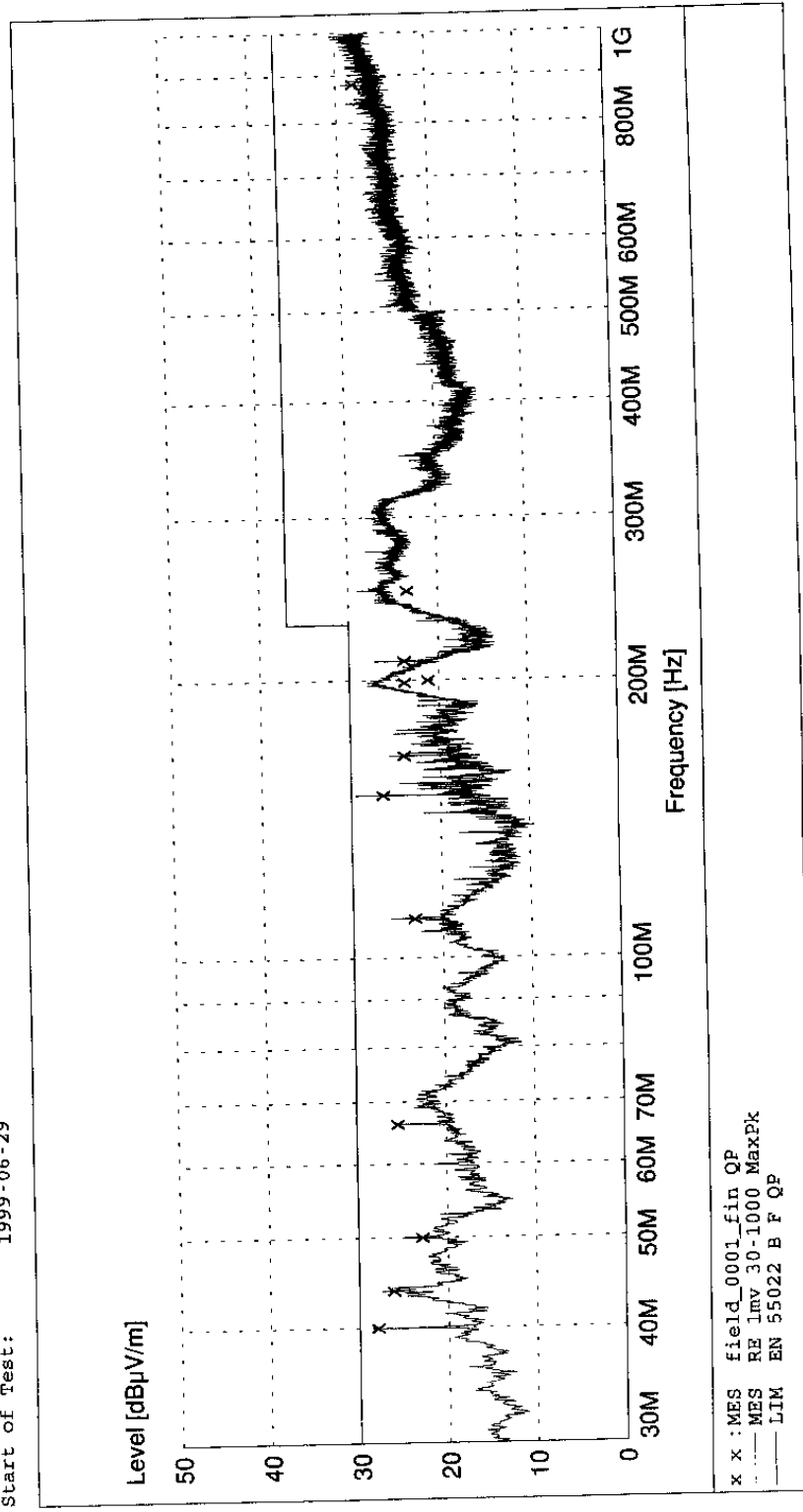
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ANNEX 5

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

(4 pages)

EUT: PlusCom Xpress & SafeCom.
 Manufacturer: I-Data.
 Operating Condition: ant 1 m vertical. 115 Vac. S-UTP cable.
 Test Site: EMC-5
 Operator: HEN-K220871
 Test Specification: EN 55022 B, FCC B.
 Comment: Sheet 3
 Start of Test: 1999-06-29



Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Height cm	Azimuth deg	Polarisation
40.000000	28.20	9.0	30.0	1.7	102.0	118.00	VERTICAL
43.820000	26.40	9.5	30.0	3.5	129.0	135.00	VERTICAL
50.000000	23.10	9.8	30.0	6.8	222.0	8.00	VERTICAL
66.240000	25.70	9.8	30.0	4.2	300.0	28.00	VERTICAL
110.400000	23.40	6.8	30.0	6.5	131.0	14.00	VERTICAL
150.000000	26.70	8.2	30.0	3.2	102.0	2.00	VERTICAL
165.600000	24.30	8.5	30.0	5.6	102.0	23.00	VERTICAL
198.720000	24.10	10.1	30.0	5.8	113.0	351.00	VERTICAL
200.000000	21.50	10.2	30.0	8.4	149.0	344.00	VERTICAL
209.760000	24.10	10.6	30.0	5.8	112.0	180.00	VERTICAL
250.000000	23.70	13.7	37.0	13.2	112.0	66.00	VERTICAL
879.970000	28.40	24.1	37.0	8.5	151.0	210.00	VERTICAL

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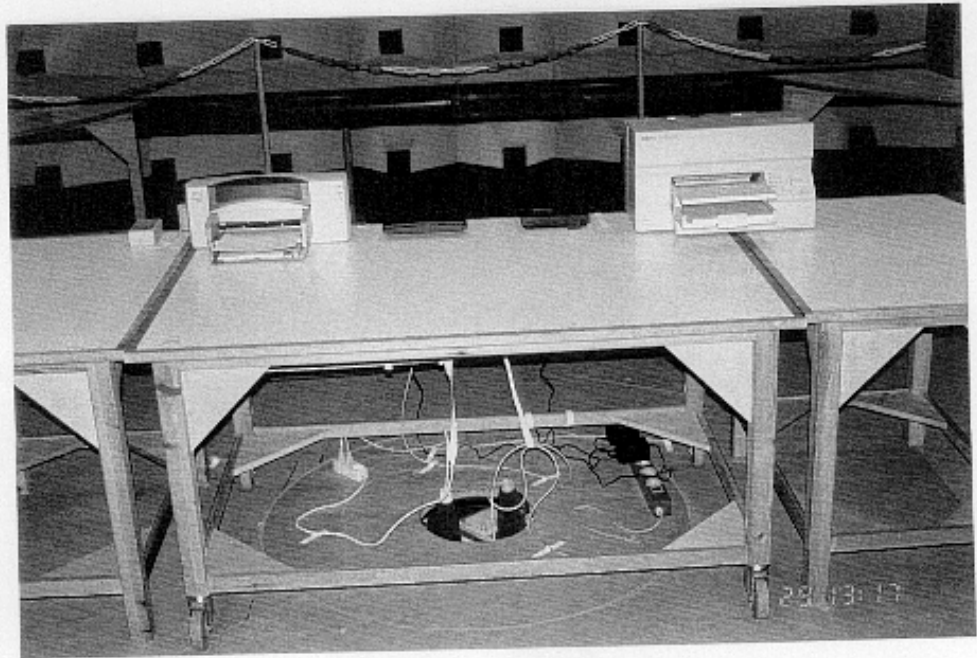


PHOTO A5.1

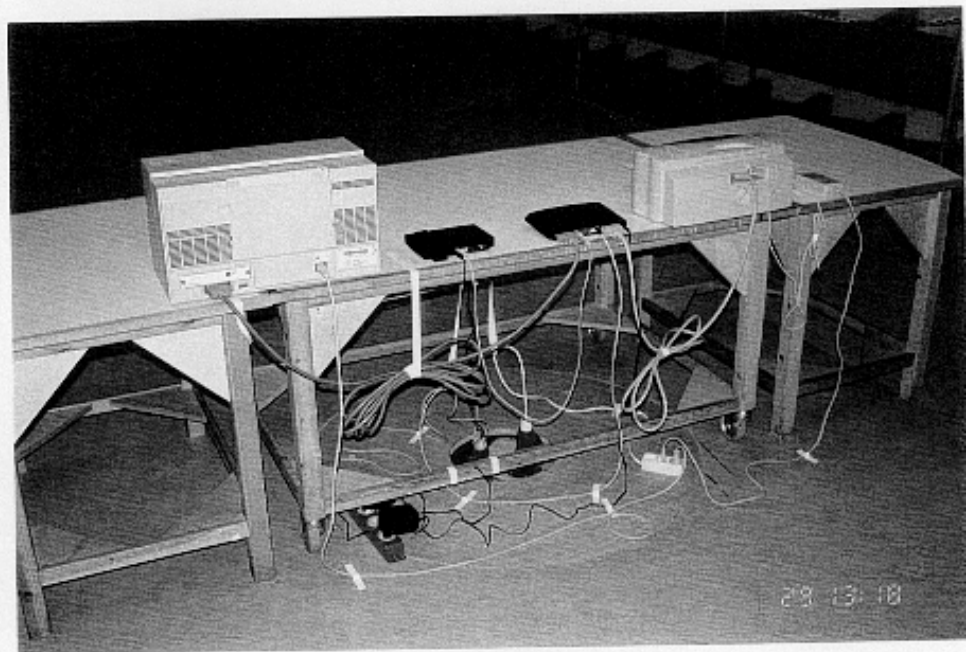


PHOTO A5.2

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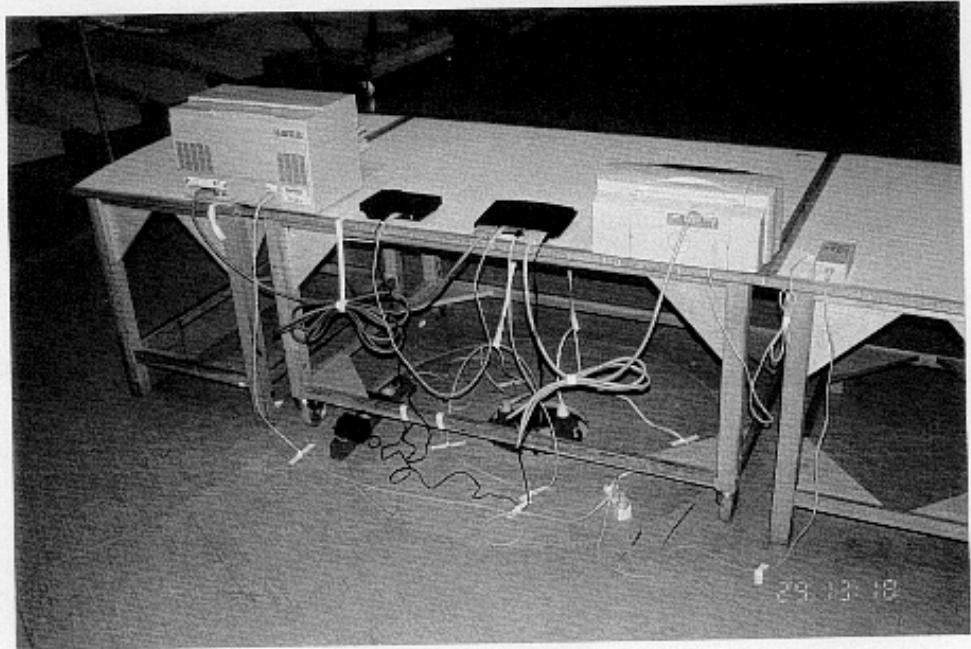


PHOTO A5.3