

Test Report



DANAK
Reg. no. 19

***Radio frequency interference from Fingerprint Reader
Precise 100AX according to FCC requirements***

Performed for Precise Biometrics AB

DANAK-196991

Project no.: E501178-1

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4 annexes

11 June 2003

DELTA

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Title Radio frequency interference from Fingerprint Reader
Precise 100AX according to FCC requirements

Test object Fingerprint Reader Precise 100AX

Report no. DANAK-196991

Project no. E501178-1

Test period 2003-05-19

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Contact person Mr. Per Ola Olsson

Manufacturer Precise Biometrics AB

Specifications FCC Part 15, Subpart B, Class B

Results The AC mains conducted emission and radiated electromagnetic field did not exceed the limits of FCC Part 15, Subpart B, Class B.

Test personnel Jesper Nielsen

Date 11 June 2003

Project manager 

Per Hansen
Facility Manager - EMC
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Responsible 

Vagn Sylvest
Project Manager - EMC
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1. **Summary of test results**

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

	FCC Part 15 Subpart B, Class B
Conducted emission, AC mains	Passed
Radiated electromagnetic field emission	Passed

Abbreviations

Passed	:	The requirements are met.
Not done	:	No test was performed.
N/A	:	Not applicable.
Not relevant	:	The test was not relevant for the test object.

The test results relate only to the object tested.

2. Test object and auxiliary equipment

2.1 Test object - Fingerprint Reader Precise 100AX

Category	Electronic personnel identification equipment
Manufacturer	Precise Biometrics AB
Model / type	Precise 100AX
Part no.	MS010074
Serial no.	0001
FCC ID	PBKMS010074
Supply voltage	Internal from USB
Operational mode	Normal

2.2 Auxiliary equipment - PC

Manufacturer	IBM
Model/type	2545-4BG
Part no.	-
Serial no.	5528TVC 02/99
FCC ID	Compliant

2.3 Auxiliary equipment - AC adapter

Manufacturer	IBM
Model/type	AC adapter
Part no.	-
Serial no.	-
FCC ID	-

2.4 Auxiliary equipment - Printer

Manufacturer	HP
Model/type	DeskJet 895Cxi
Part no.	C6410A
Serial no.	HU0151N087
FCC ID	Compliant

2.5 Auxiliary equipment - AC adapter (marketed with Printer, part 2.4)

Manufacturer	HP
Model/type	-
Part no.	C6409-60014
Serial no.	T5018499464
FCC ID	-

2.6 *Auxiliary equipment - Mouse*

Manufacturer	Microsoft
Model/type	83351-576
Part no.	X05-51692
Serial no.	0304842-00000
FCC ID	Compliant

3. General test conditions

3.1 Test set-up

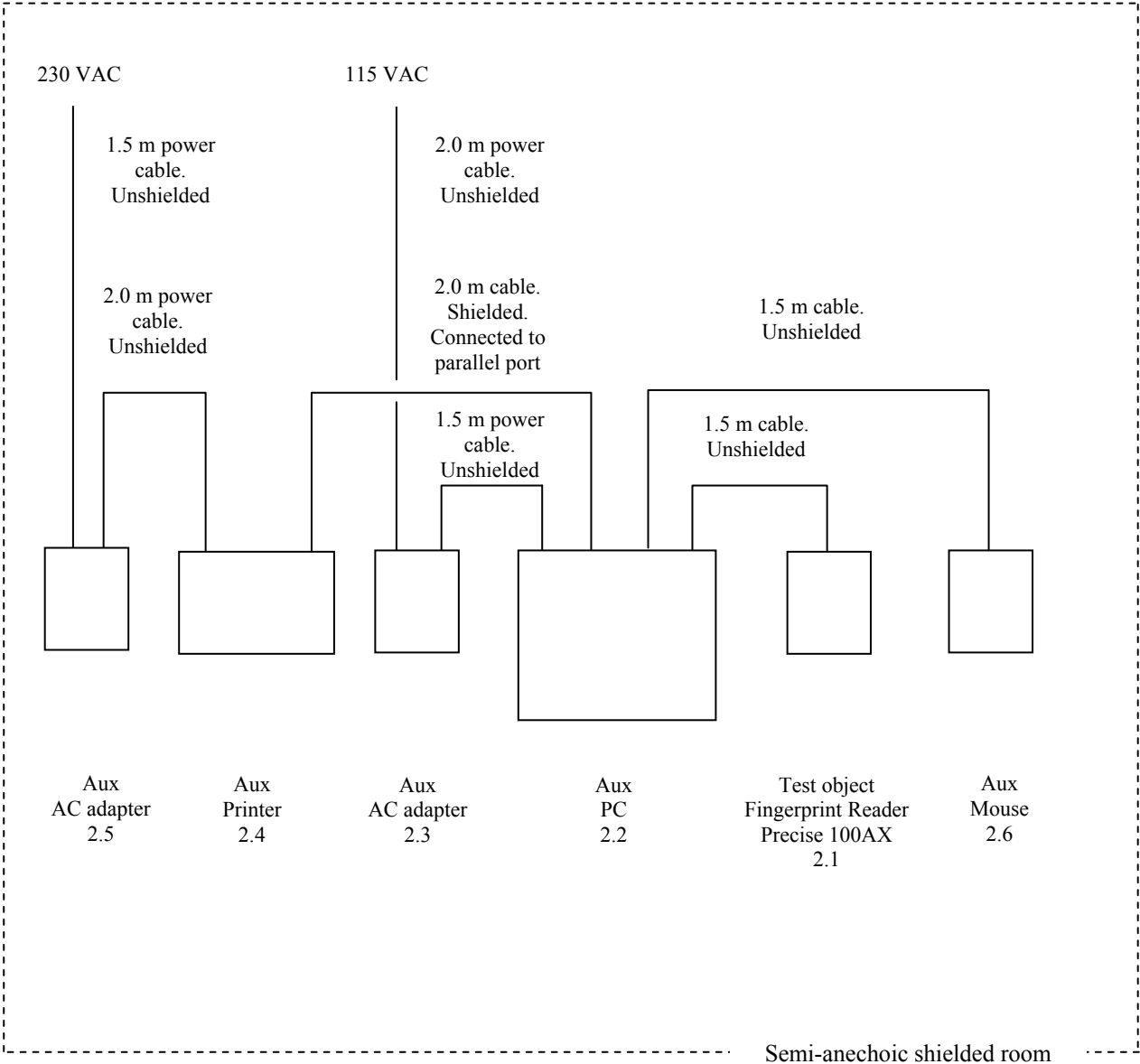


FIG. 1 Test set-up including all cables and peripheral equipment.

4. Tests and results

4.1 Conducted emission, AC mains

	Requirements
Specification	FCC Rules and Regulations Part 15, Subpart B, Class B
Test method	FCC Rules and Regulations Part 15, Subpart B
Test set-up	ANSI C63.4:1992
Frequency range	0.15 - 30 MHz
Limit: (quasi-peak)	0.15 - 0.50 MHz: 66 - 56 dB μ V (decreasing lin. with the logarithm of freq.) 0.50 - 5 MHz: 56 dB μ V 5 - 30 MHz: 60 dB μ V
Limit: (average)	0.15 - 0.50 MHz: 56 - 46 dB μ V (decreasing lin. with the logarithm of freq.) 0.50 - 5 MHz: 46 dB μ V 5 - 30 MHz: 50 dB μ V
Test record sheets	<i>Annex 2</i>

Results

The AC mains conducted emission did not exceed the specified limits.

Climatic conditions

22.3°C and 51.9% R.H.

Supply voltage

115 VAC to PC power adapter.

Comments

None.

4.2 Radiated electromagnetic field

	Requirements	
Specification	FCC Rules and Regulations Part 15, Subpart B, Class B	
Test method	FCC Rules and Regulations Part 15, Subpart B	
Test set-up	ANSI C63.4:1992	
Measuring distance	3 m	
Frequency range	30 - 1.000 MHz	
Limits: (quasi-peak)	30 - 88 MHz:	40 dB μ V/m
	88 - 216 MHz:	43.5 dB μ V/m
	216 - 960 MHz:	46 dB μ V/m
	Above 960 MHz:	54 dB μ V/m
Test record sheets	Annex 3	

Results

The radiated electromagnetic field did not exceed the specified limits.

Climatic conditions

22.3°C and 51.9% R.H.

Supply voltage

115 VAC to PC power adapter.

Comments

None.

Annex 1

List of instruments

(1 page)

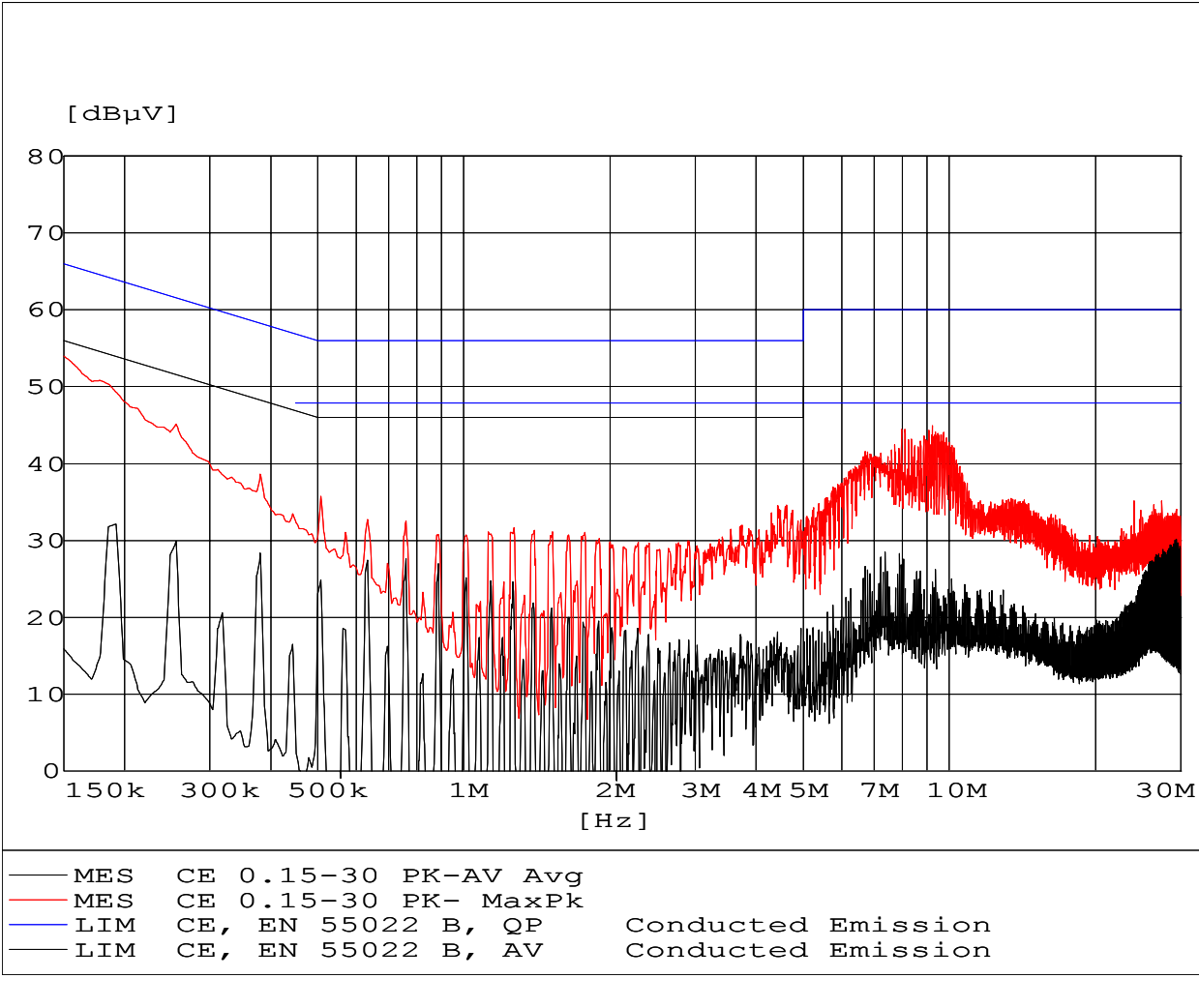
NO	DESCRIPTION	MANUFACTURER	TYPE NO.
29916	AUTOMATIC EMI RECEIVER	ROHDE & SCHWARZ	ESCS-30
29861	EMI-SOFTWARE Ver. 1.60	ROHDE & SCHWARZ	ES-K1
29797	BILOG ANTENNA, 30-1000 MHz	CHASE	CBL6111A
29337	ARTIFICIAL MAINS NETWORK	ROHDE & SCHWARZ	ESH2-Z5

Annex 2

***Test record sheets and photos regarding
conducted emission, AC mains***

(4 pages)

EUT: Precise 100AX (type no: MS 010074 R1A)
Manufacturer: Precise Biometrics AB
Operating Condition: Line no: Neutral. 115 VAC.
Test Site: EMC-5
Operator: JN - E501178-1
Test Specification: FCC Class B
Comment: Sheet 5
Start of Test: 2003-05-19



EUT: Precise 100AX (type no: MS 010074 R1A)
Manufacturer: Precise Biometrics AB
Operating Condition: Line no: Line 1. 115 VAC.
Test Site: EMC-5
Operator: JN - E501178-1
Test Specification: FCC Class B
Comment: Sheet 6
Start of Test: 2003-05-19

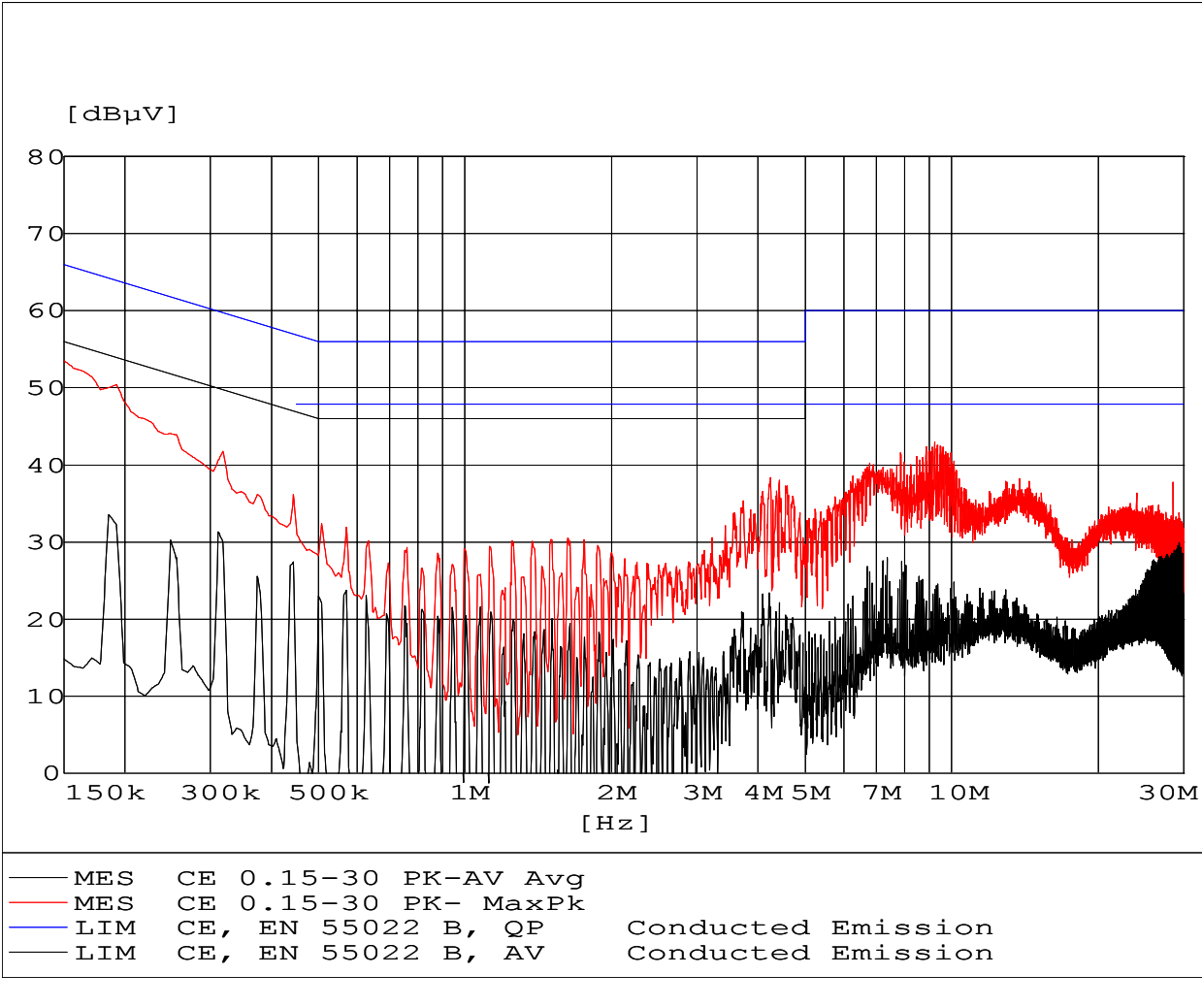




Photo A2.1 AC mains conducted emission measurement.



Photo A2.2 AC mains conducted emission measurement.



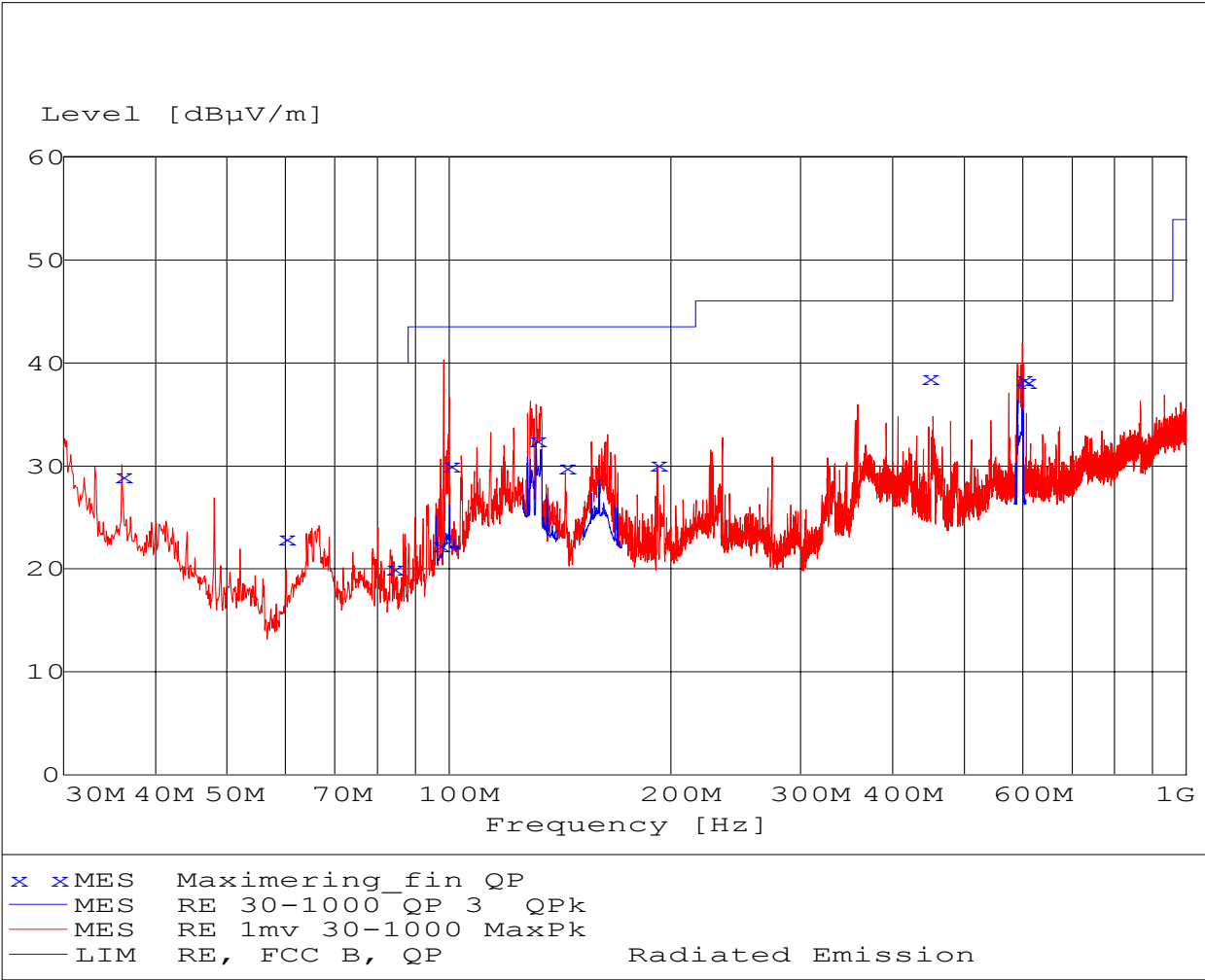
Photo A2.3 AC mains conducted emission measurement.

Annex 3

***Test record sheets and photos regarding
radiated electromagnetic field***

(6 pages)

EUT: Precise 100AX (type no: MS 010074 R1A)
Manufacturer: Precise Biometrics AB
Operating Condition: Ant. 1 meter vertical. 115 VAC
Test Site: EMC-5
Operator: JN - E501178-1
Test Specification: FCC Class B
Comment: Sheet 3
Start of Test: 2003-05-19

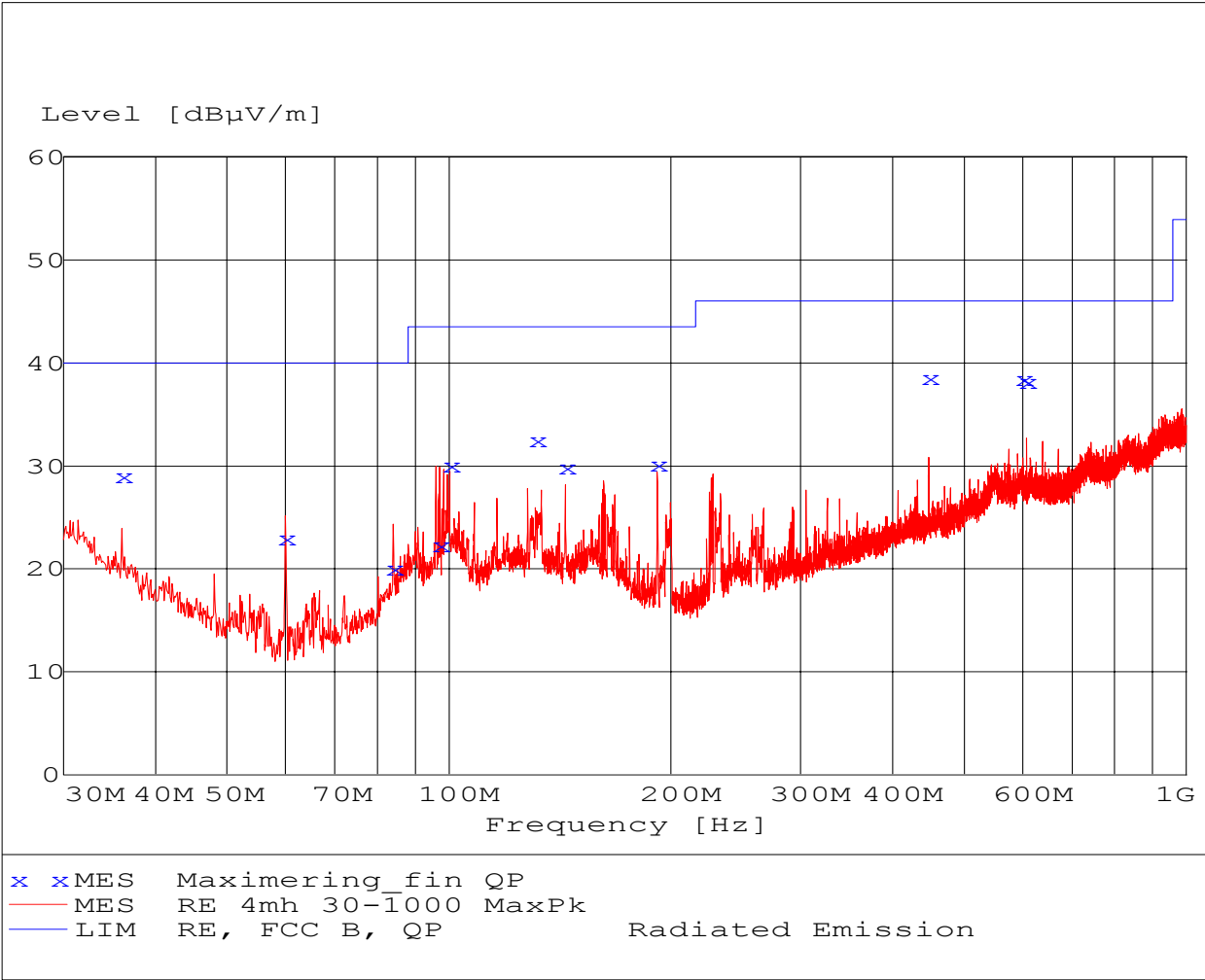


MEASUREMENT RESULT: "Maximering_fin QP"

19-05-2003 21:31

Frequency MHz	Level dBµV/m	Transd. dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg.	Polarisation
36.00	29.00	16.00	40.00	11.00	112.00	242.00	Vertical
60.00	23.00	7.50	40.00	17.00	340.00	166.00	Horizontal
84.00	20.00	10.10	40.00	20.00	204.00	181.00	Horizontal
97.10	22.30	12.20	43.50	21.20	112.00	179.00	Vertical
100.17	30.10	13.10	43.50	13.40	183.00	127.00	Horizontal
131.30	32.50	15.10	43.50	11.00	111.00	357.00	Vertical
143.79	29.80	14.30	43.50	13.70	138.00	190.00	Horizontal
191.72	30.20	12.10	43.50	13.30	182.00	334.00	Horizontal
447.40	38.50	20.60	46.00	7.50	101.00	332.00	Horizontal
600.20	38.40	24.40	46.00	7.60	112.00	351.00	Vertical
607.13	38.10	24.60	46.00	7.90	165.00	193.00	Horizontal

EUT: Precise 100AX (type no: MS 010074 R1A)
Manufacturer: Precise Biometrics AB
Operating Condition: Ant. 4 meter horizontal. 115 VAC
Test Site: EMC-5
Operator: JN - E501178-1
Test Specification: FCC Class B
Comment: Sheet 4
Start of Test: 2003-05-19



MEASUREMENT RESULT: "Maximering_fin QP"

19-05-2003 21:31

Frequency MHz	Level dBµV/m	Transd. dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg.	Polarisation
36.00	29.00	16.00	40.00	11.00	112.00	242.00	Vertical
60.00	23.00	7.50	40.00	17.00	340.00	166.00	Horizontal
84.00	20.00	10.10	40.00	20.00	204.00	181.00	Horizontal
97.10	22.30	12.20	43.50	21.20	112.00	179.00	Vertical
100.17	30.10	13.10	43.50	13.40	183.00	127.00	Horizontal
131.30	32.50	15.10	43.50	11.00	111.00	357.00	Vertical
143.79	29.80	14.30	43.50	13.70	138.00	190.00	Horizontal
191.72	30.20	12.10	43.50	13.30	182.00	334.00	Horizontal
447.40	38.50	20.60	46.00	7.50	101.00	332.00	Horizontal
600.20	38.40	24.40	46.00	7.60	112.00	351.00	Vertical
607.13	38.10	24.60	46.00	7.90	165.00	193.00	Horizontal



Photo A3.1 Radiated electromagnetic field measurement.



Photo A3.2 Radiated electromagnetic field measurement.



Photo A3.3 Radiated electromagnetic field measurement.

Annex 4

Photo of test object

(1 page)

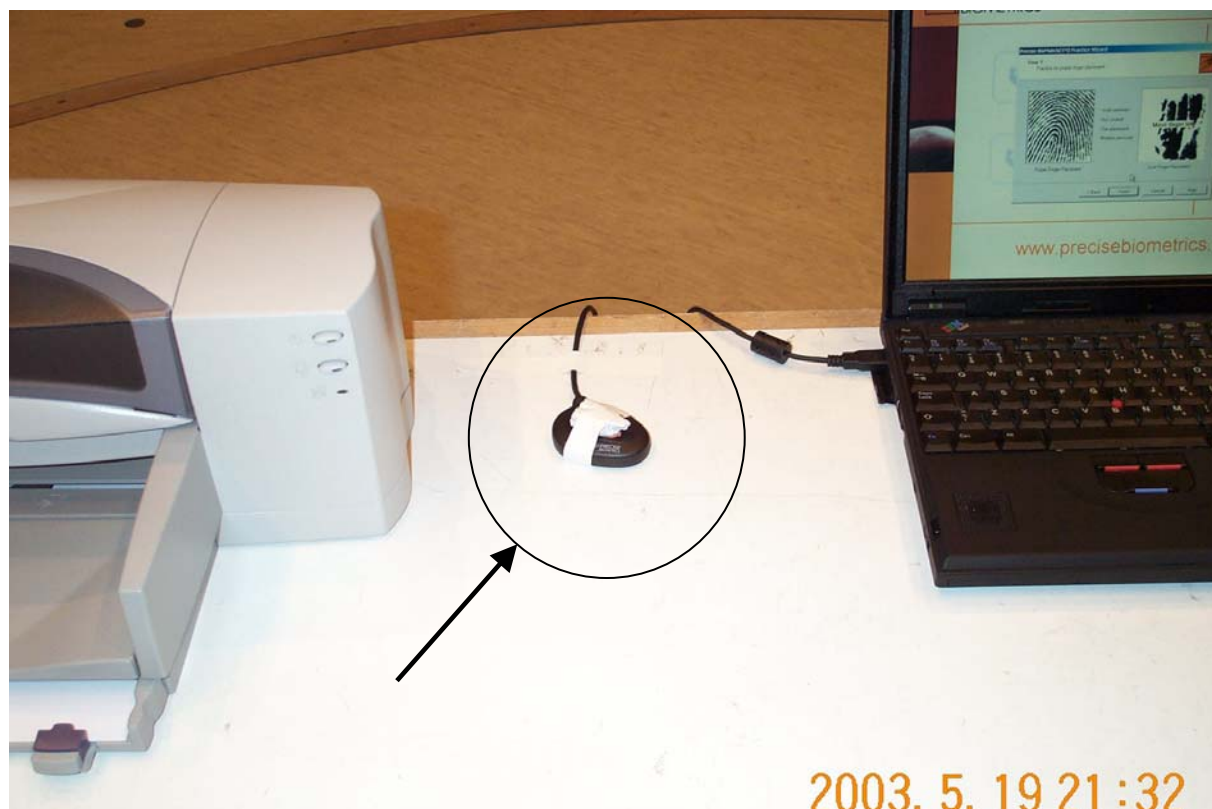


Photo A4.1 Test object.