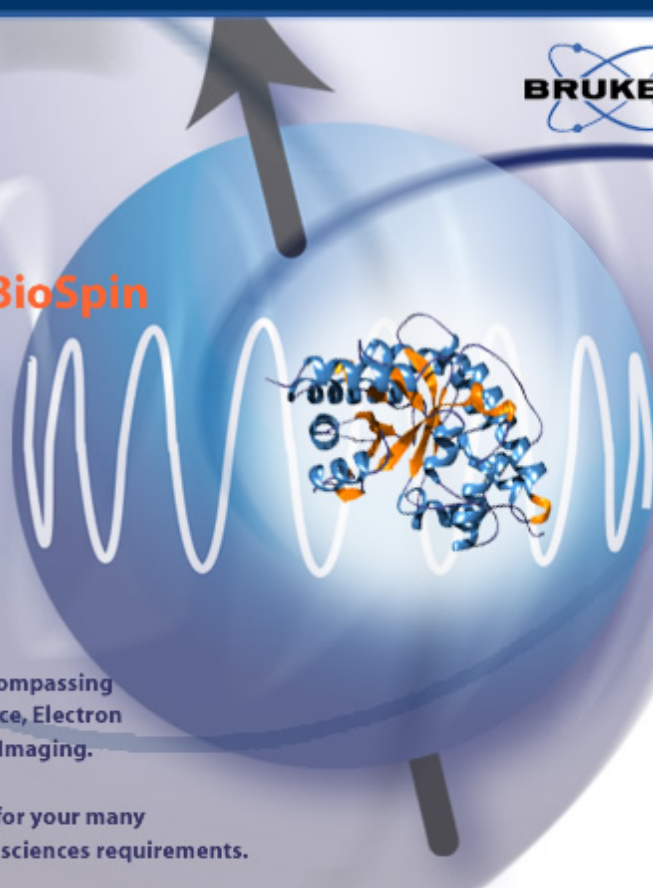




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B – E 25 V No. 409837

MAGNETICS

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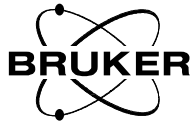


Table of contents

Customer : University
of Leuven,
Belgium

Type : B-E25V

Date : September 2004

Auftr. Nr.: SM 000304

No.: 409837

Operator : J. Avsec

Chapter	Content
1 Magnetics	1.1 Resistance R_T 1.2 Insulation test Coils/Yoke --- Coils/Thermal switches 1.3 Resistance at full load 1.4 Induction 1.5 Field distributions (field homogeneities) 1.6 Drawings, informations 1.7 Technical informations



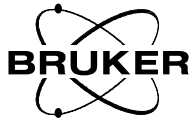
FBPRM 009
Belastungstest für Magnete

Datum :
10.06.1998

UniLeuven_B-E25vDAU

Customer : University of Leuven Belgium Auftr.Nr.: SM-000304		Type : B-E 25v No. : 409837		Operator : J. Avsec Date : 03 Sept. 2004			
<i>Ground insulation test :</i> (COIL / YOKE) Test voltage : 1.5 kV= Test duration : 1 min Leak current after t = 1 min : < 0,5 μ A => R_{ISOI} > 100 KOhm : o.k.		<i>Coolant water test:</i> Water pressure : INLET : 0.5 MPa OUTLET : ---- Mpa Water flow: 35 l/min		<i>Resistance R_(T) :</i> R_(T) : 2.93 Ω T : 25°C			
<i>Resistance at full load</i>							
t [min]	I [A]	U [V]	R [Ohms]	Temperature (°C)			
				Coolant water INLET	OUTLET	Pole caps LEFT	RIGHT
0	60	174,52	2,91	17,10	17,44	21,06	21,09
5	60	183,29	3,05	17,02	18,60	20,96	21,01
10	60	189,57	3,16	16,99	19,48	20,91	20,98
15	60	194,16	3,24	16,96	20,18	20,97	21,03
20	60	197,55	3,29	16,97	20,64	21,12	21,17
25	60	200,11	3,34	16,99	21,04	21,33	21,36
30	60	202,06	3,37	17,00	21,39	21,57	21,60
35	60	203,54	3,39	16,99	21,54	21,84	21,86
40	60	204,66	3,41	16,99	21,72	22,12	22,13
45	60	205,52	3,43	17,00	21,88	22,41	22,41
50	60	206,17	3,44	17,01	21,97	22,70	22,70
55	60	206,67	3,44	17,02	22,05	22,98	22,98
60	60	207,05	3,45	17,02	22,06	23,27	23,26
65	60	207,34	3,46	17,00	22,08	23,54	23,53
70	60	207,57	3,46	17,00	22,13	23,81	23,79
75	60	207,76	3,46	16,98	22,15	24,06	24,05
80	60	207,89	3,46	16,90	22,08	24,30	24,29
85	60	207,98	3,47	16,84	22,05	24,54	24,53
90	60	208,05	3,47	16,84	22,05	24,76	24,75

95	60	208,11	3,47	16,85	22,05	24,97	24,97
100	60	208,15	3,47	16,86	22,08	25,16	25,17
105	60	208,19	3,47	16,83	22,05	25,36	25,37
110	60	208,22	3,47	16,80	22,03	25,54	25,55
115	60	208,23	3,47	16,79	22,04	25,70	25,73
120	60	208,25	3,47	16,78	22,04	25,87	25,90
Remark :	Power Supply : BTSPS MON 1 200/60C5U No. W1213138/00/0.00/0001 + B-EC1						
Insulation test COILS / THERMAL SWITCHES (75°C-type) (U=1.5kV =): o.k. (leak current < 0.5 µA)							



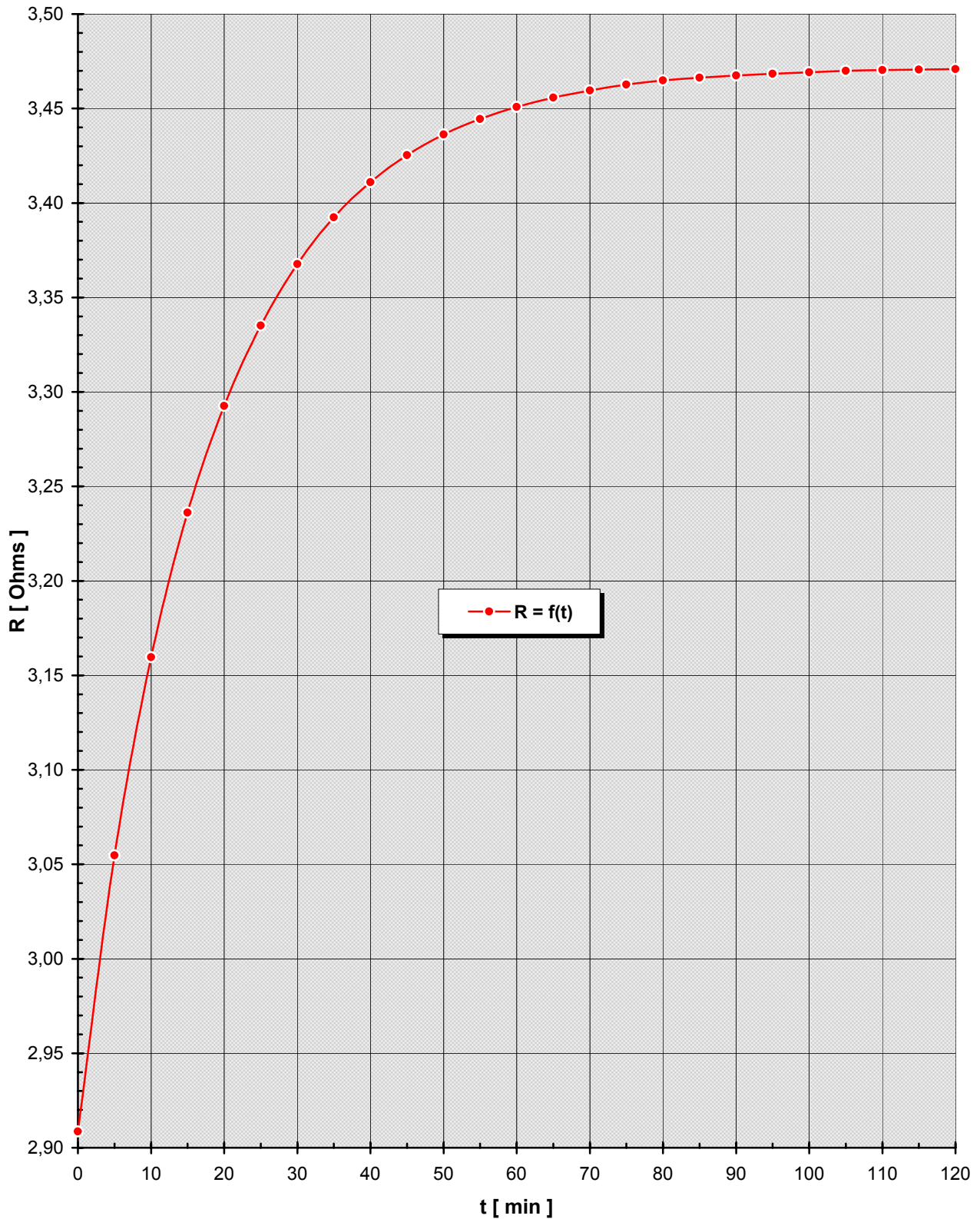
FBPRM 009
Belastungstest für Magnete

Datum :
10.06.1998

UniLeuven_B-E25vDAU

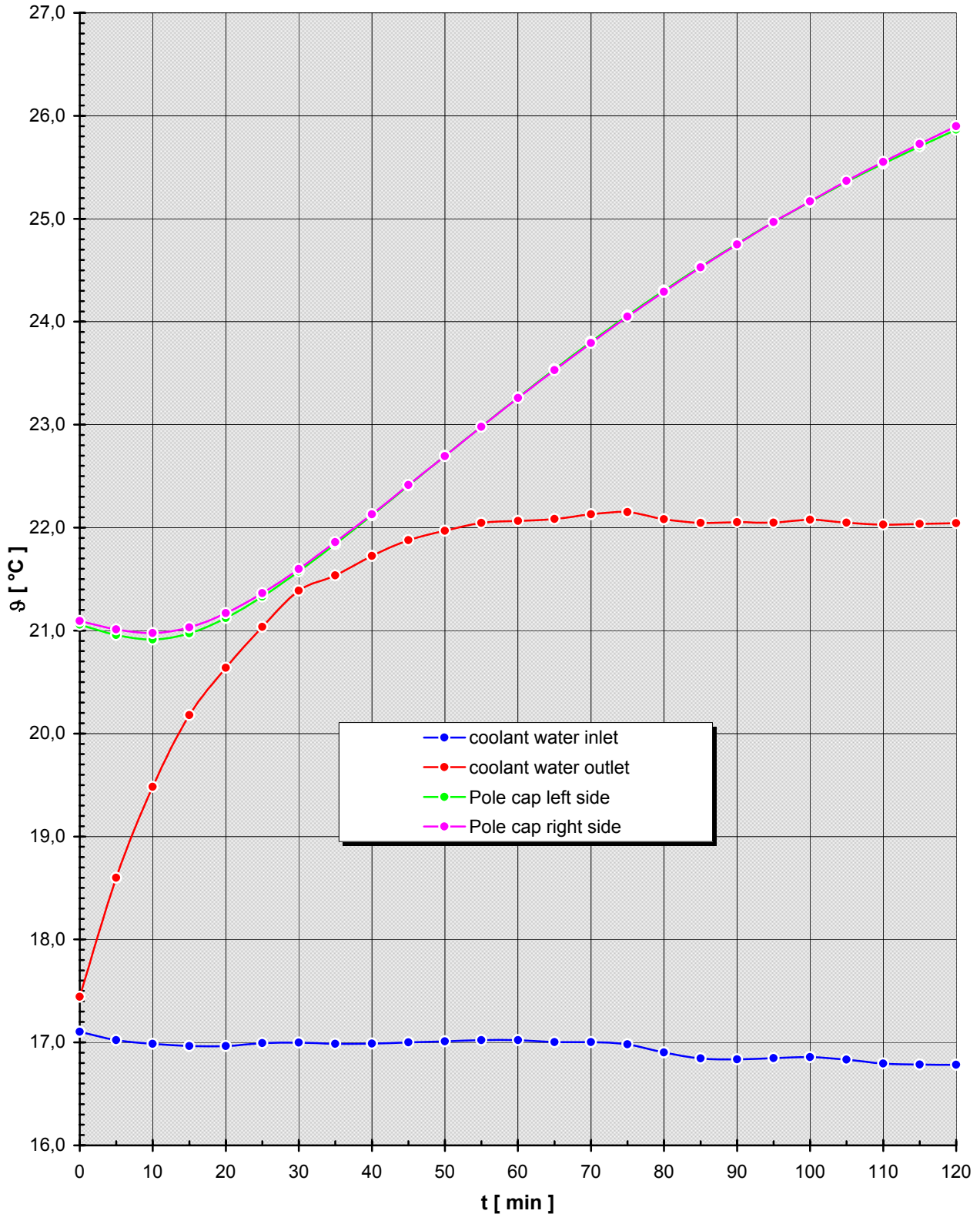
B-E 25v Nr. 409837
(03.Sep.2004)

Resistance at full load
(I = 60A; T_{AMBIENT} = 25°C)



B-E 25v No. 409837
(03.Sep.2004)

Temperature rise at full load
(I = 60A; T_{AMBIENT} = 25°C; air gap = 40mm)





**FBPRM 036
Induktion**

Revisionsdatum :
16.06.1998

UniLeuven_B-E25vIND

TYPE : B-E25V

DATE : September 06 2004

No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven,
Belgium

Auftr.Nr.: SM 000304

Induction with tapered pole caps

I up from 0

I down from 60A

I [A]	B [mT]
0	0,84
5	301,92
10	603,89
15	901,44
20	1195,10
25	1479,68
30	1696,07
35	1843,13
40	1954,47
45	2042,97
50	2106,35
55	2148,71
60	2180,57

I [A]	B [mT]
60	2180,57
55	2149,10
50	2107,23
45	2044,74
40	1957,78
35	1848,03
30	1703,92
25	1488,15
20	1200,81
15	906,25
10	607,05
5	304,91
0	1,72
-1	-22,58

REMARKS :

Probe location:

X=Y=Z=0

(magnet center)

Z : main field direction

Power Supply:

BTSPS MON 1 200/60C5U

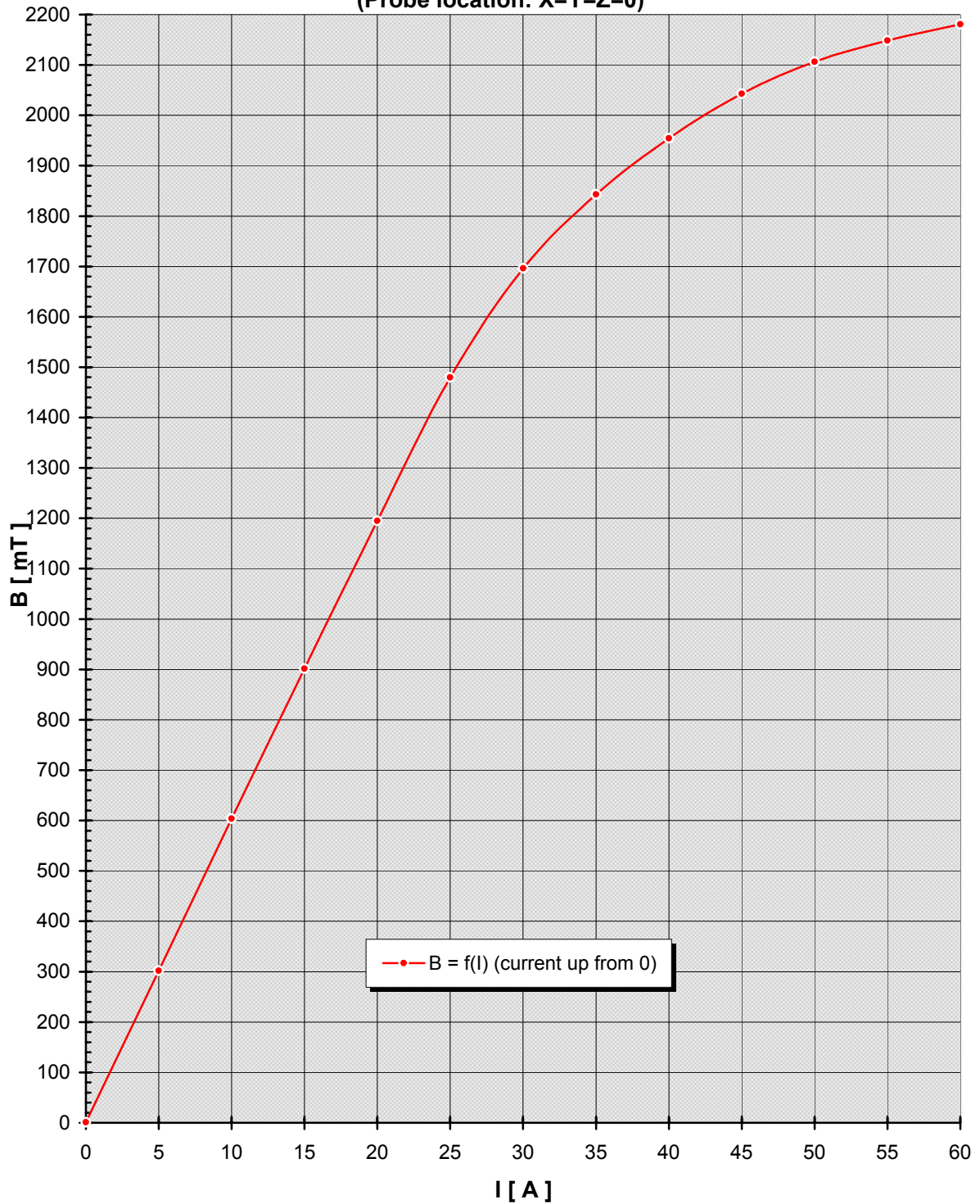
No. W12113138/00/0.00/0001

air gap : 40mm



B-E25V No. 409837
(September 06 2004)

Induction with tapered pole caps Z11K (air gap 40mm)
(Probe location: X=Y=Z=0)

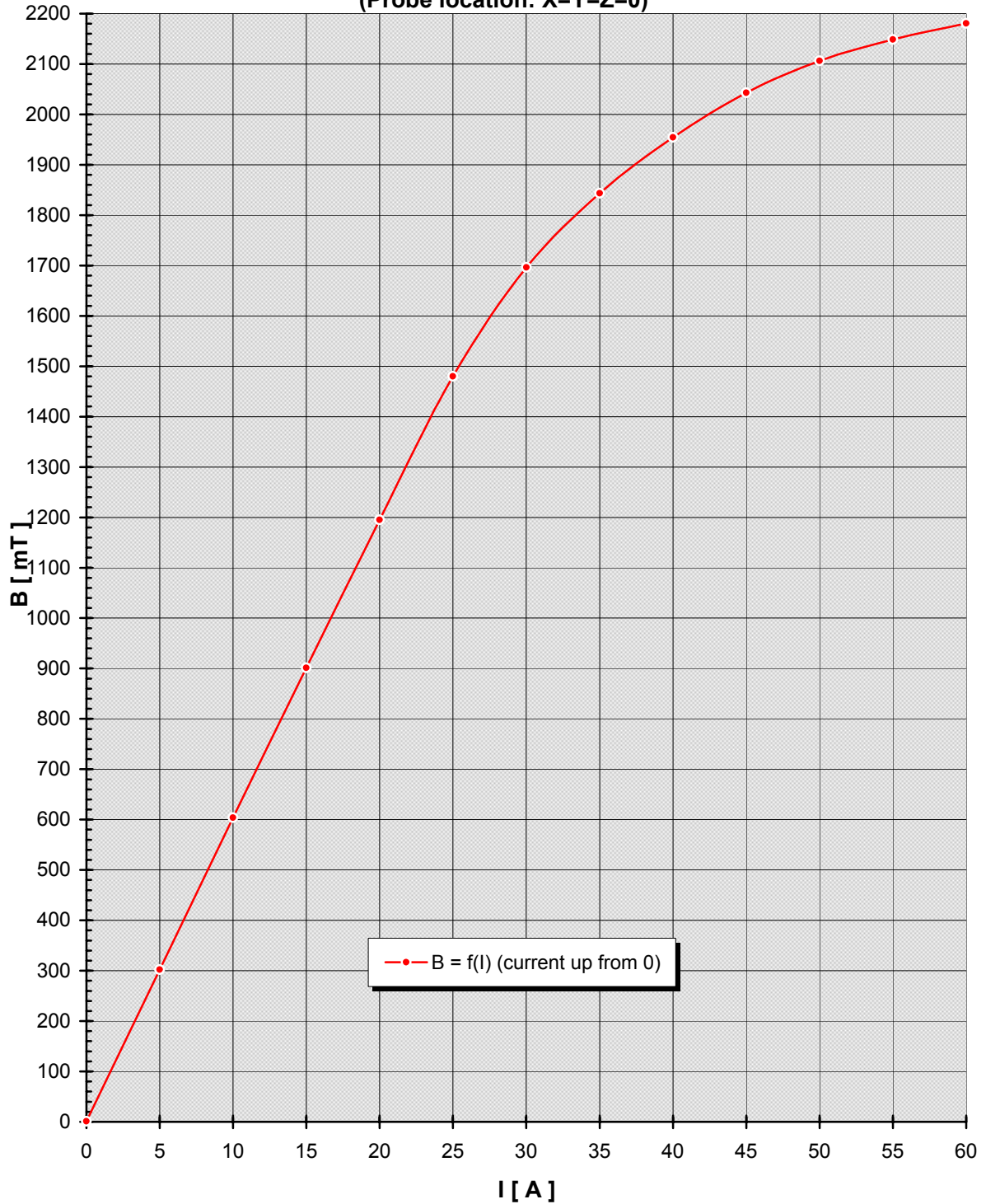


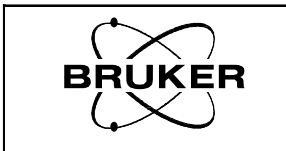


B-E25V No. 409837
(September 06 2004)

Induction with tapered pole caps Z11K (air gap 40mm)

(Probe location: X=Y=Z=0)





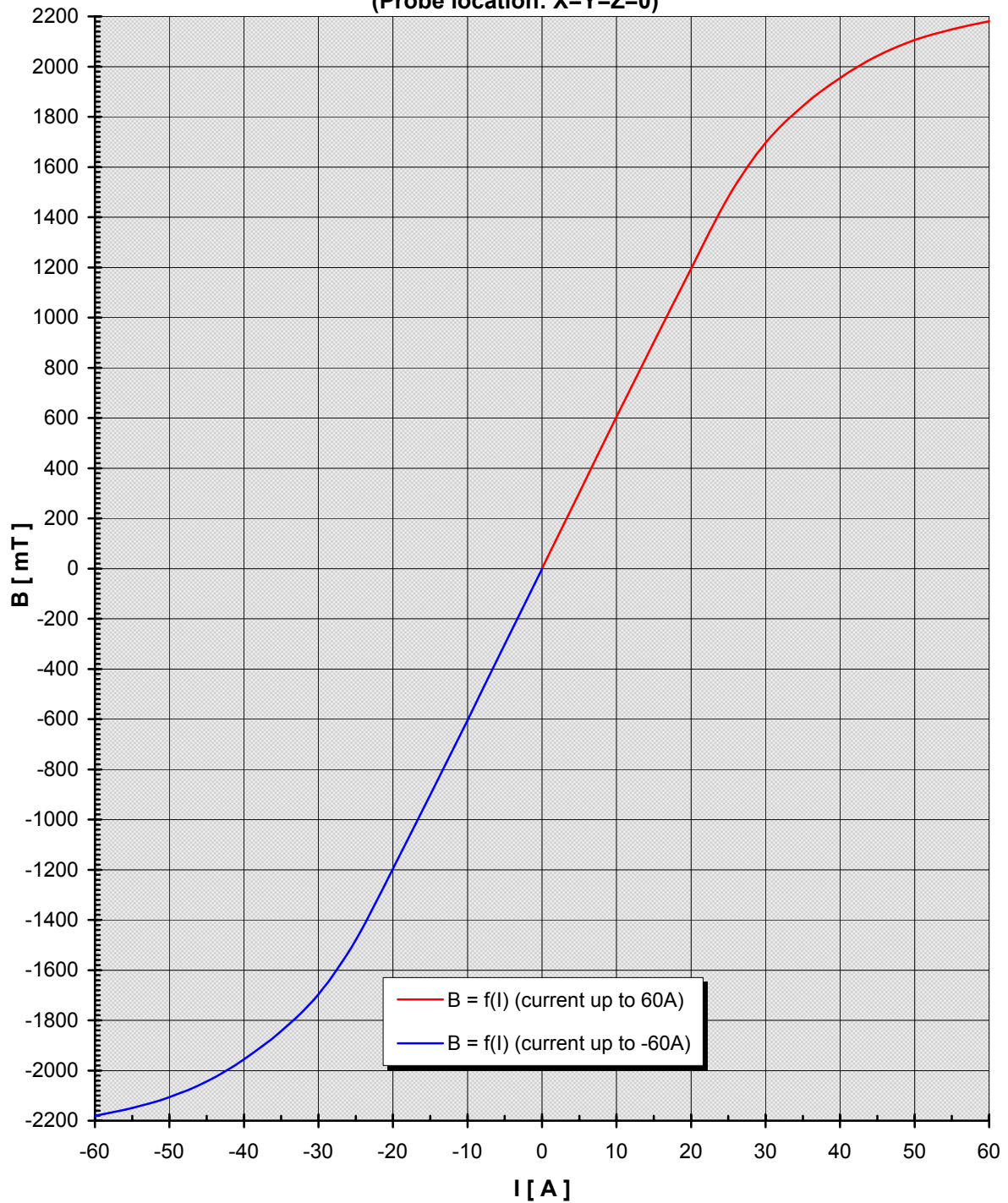
B-E25V No. 409837

UniLeuven_B-E25vIND-N

(September 06 2004)

Induction with tapered pole caps Z11K (air gap 40mm)

(Probe location: X=Y=Z=0)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

UniLeuven_B-E25vHO1x

TYPE : B-E 25V

DATE : September 07 2004

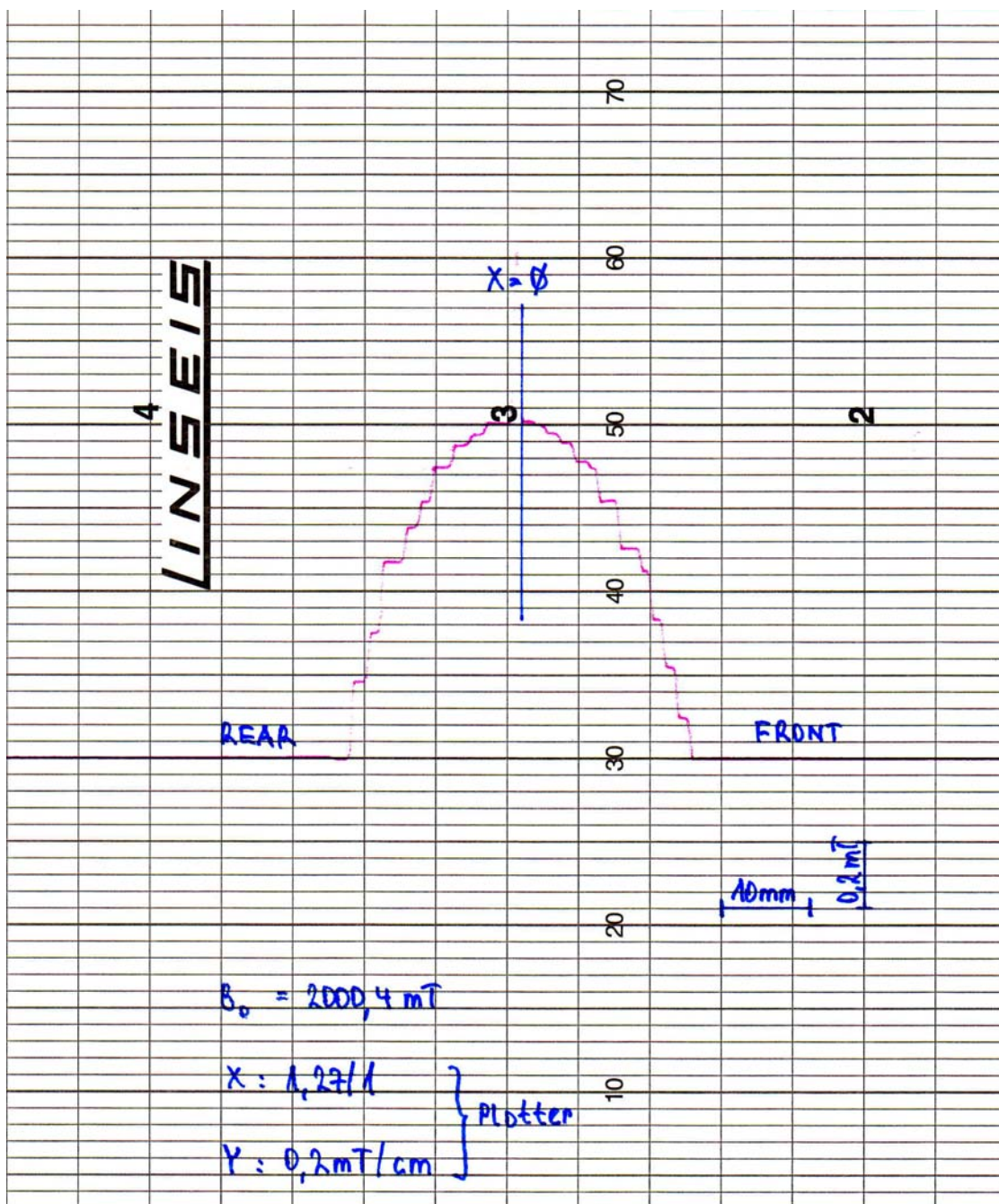
No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven

Auftr.Nr.: SM 000304

Field distribution in X-direction (Y=Z=0)
with tapered pole caps Z11k (air gap 40mm)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

UniLeuven_B-E25vHO2x

TYPE : B-E 25V

DATE : September 07 2004

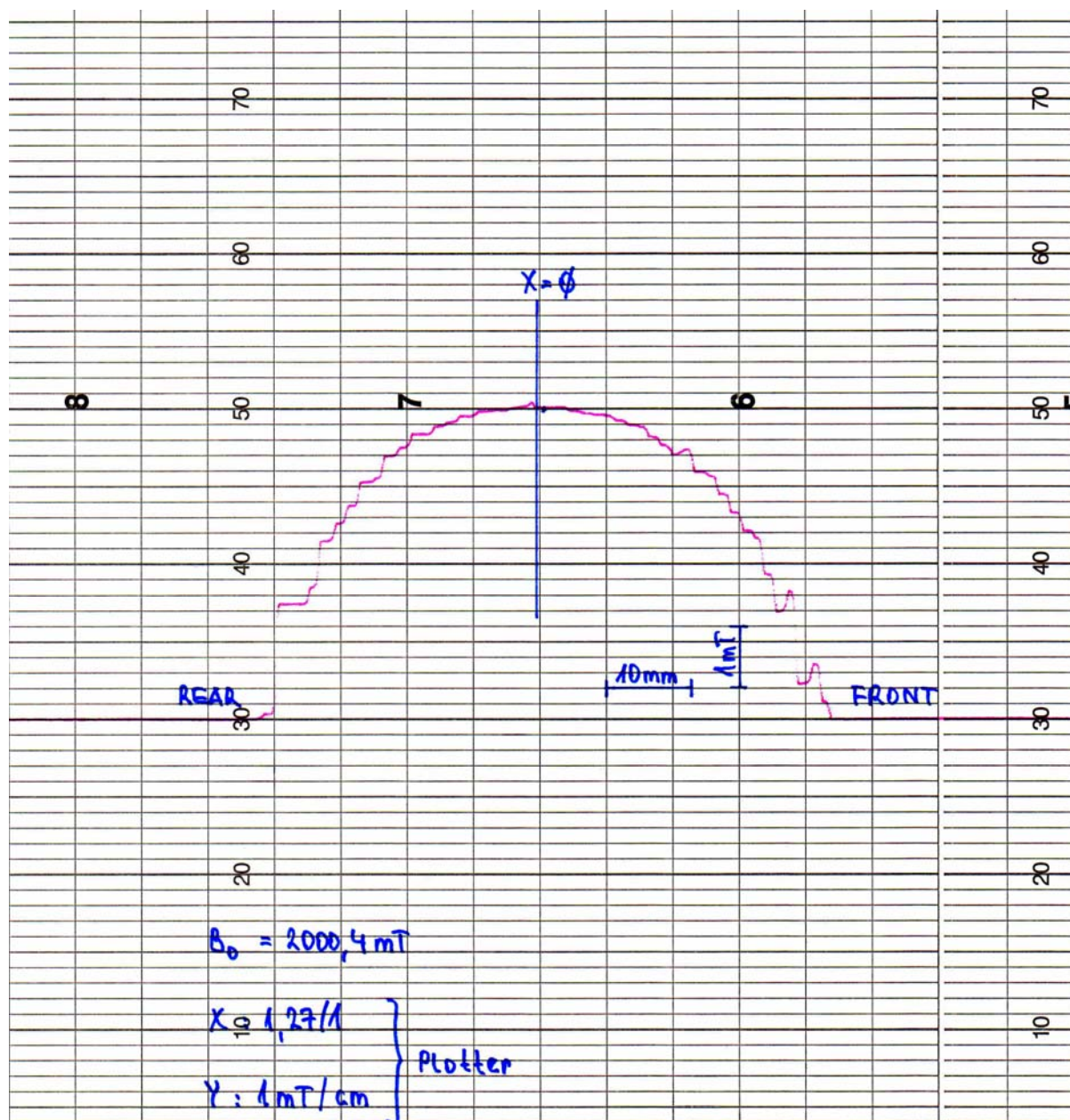
No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven

Auftr.Nr.: SM 000304

Field distribution in X-direction (Y=Z=0)
with tapered pole caps Z11k (air gap 40mm)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

UniLeuven_B-E25vHO3x

TYPE : B-E 25V

DATE : September 07 2004

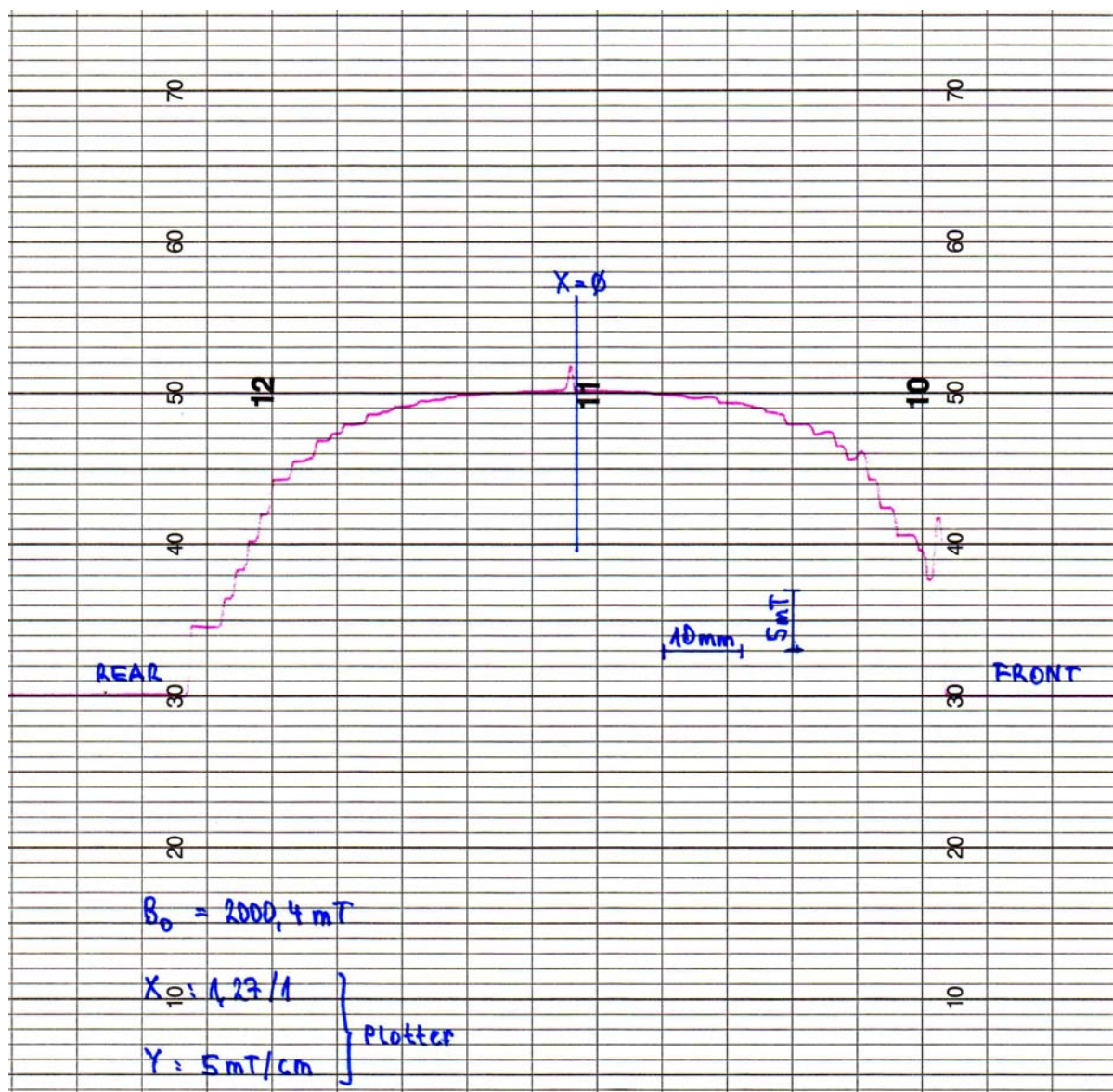
No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven

Auftr.Nr.: SM 000304

Field distribution in X-direction (Y=Z=0)
with tapered pole caps Z11k (air gap 40mm)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

UniLeuven_B-E25vHO4x

TYPE : B-E 25V

DATE : September 07 2004

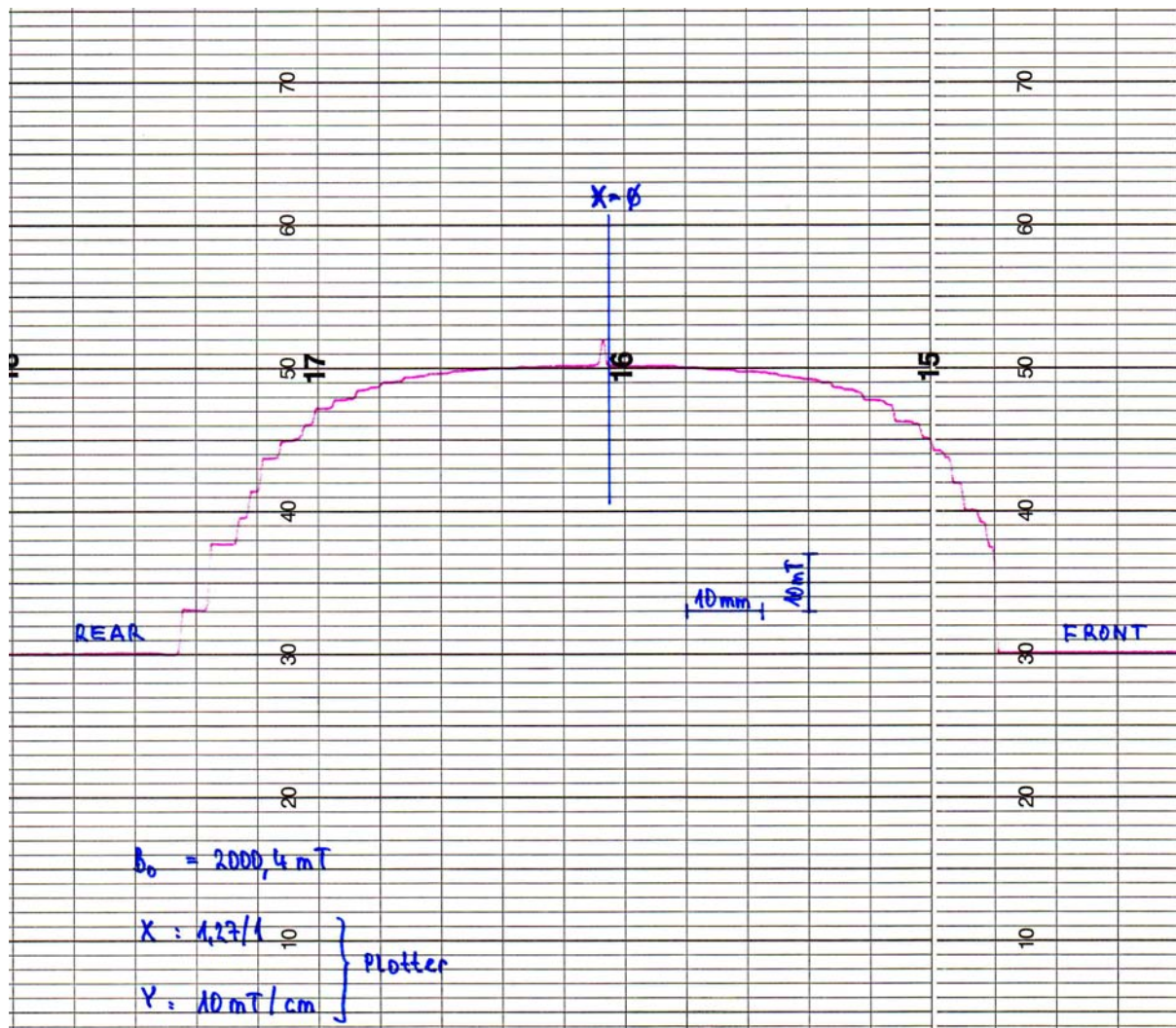
No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven

Auftr.Nr.: SM 000304

Field distribution in X-direction (Y=Z=0)
with tapered pole caps Z11k (air gap 40mm)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

UniLeuven_B-E25vHO1y

TYPE : B-E 25V

DATE : September 07 2004

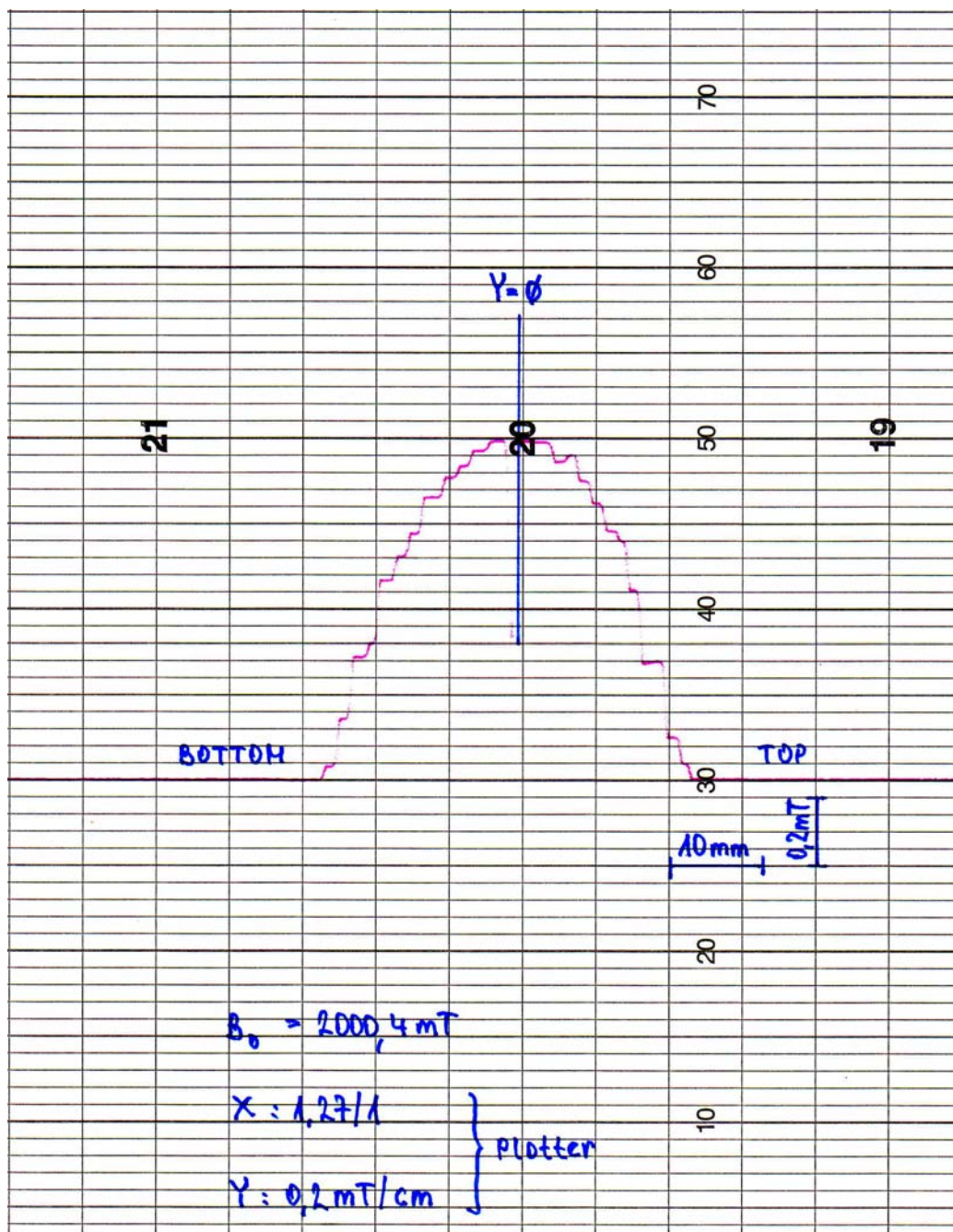
No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven

Auftr.Nr.: SM 000304

Field distribution in Y-direction (X=Z=0)
with tapered pole caps Z11k (air gap 40mm)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

UniLeuven_B-E25vHO2y

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DATE : September 07 2004

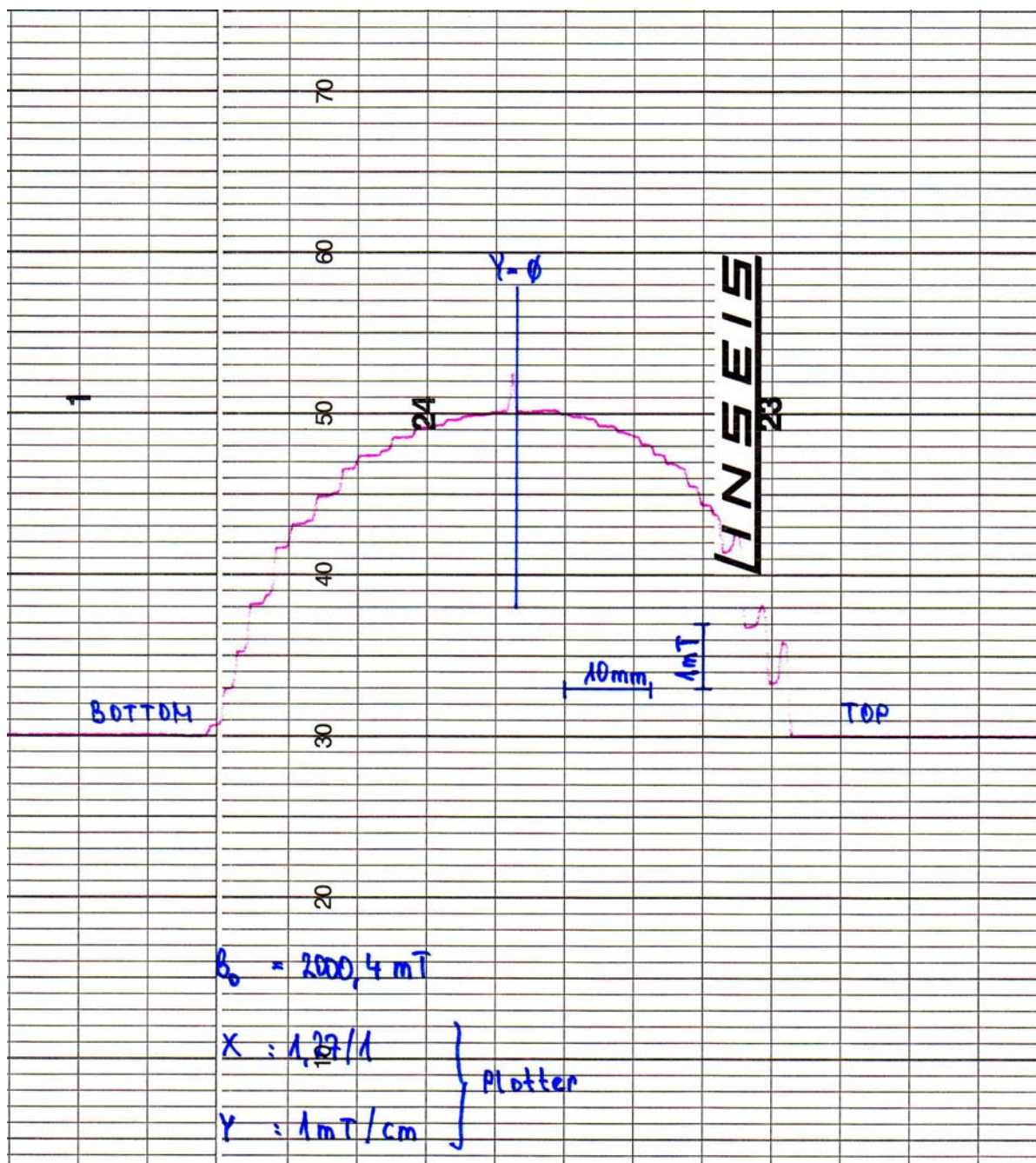
No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven

Auftr.Nr.: SM 000304

Field distribution in Y-direction (X=Z=0)
with tapered pole caps Z11k (air gap 40mm)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

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TYPE : B-E 25V

DATE : September 07 2004

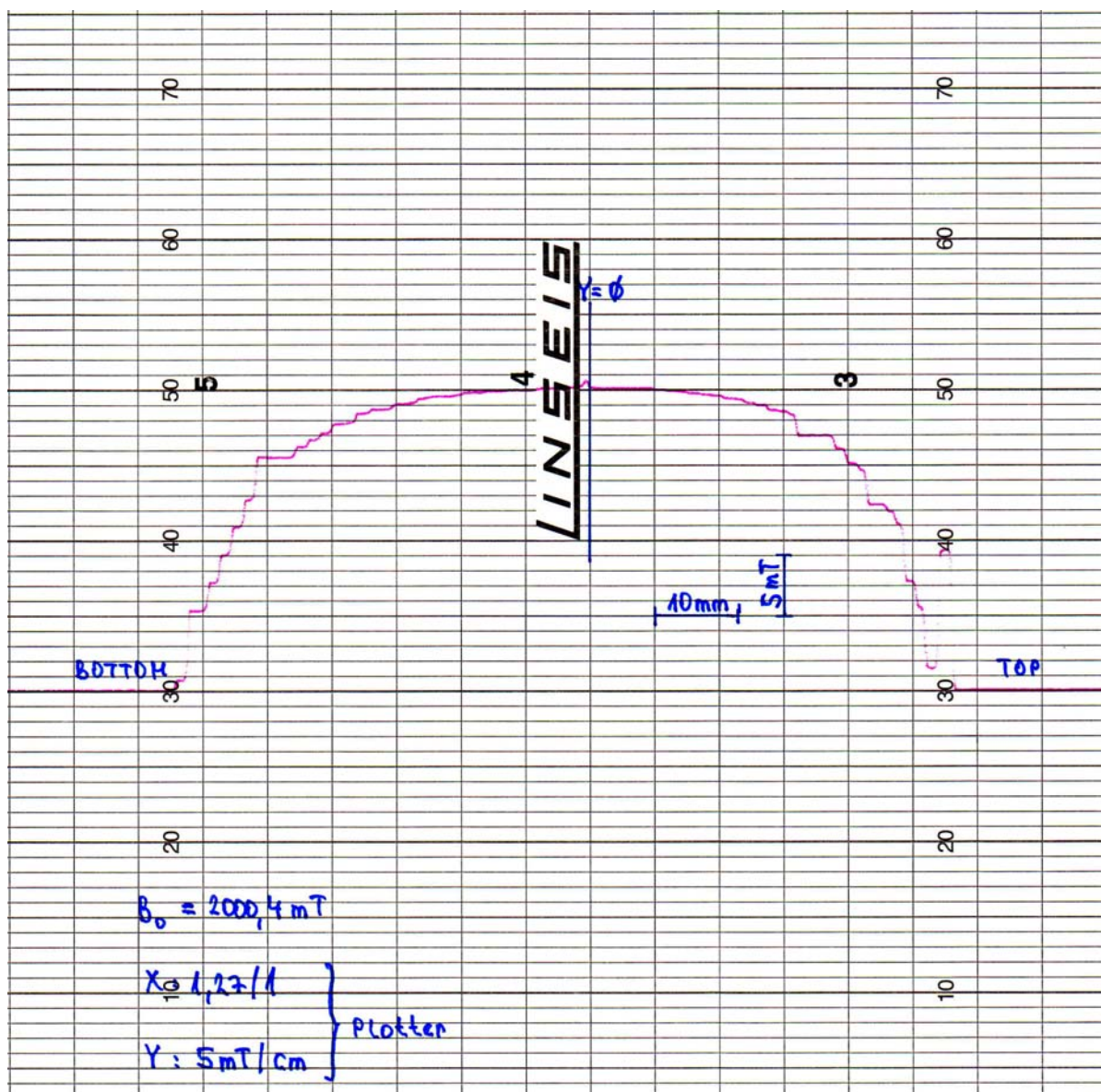
No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven

Auftr.Nr.: SM 000304

Field distribution in Y-direction (X=Z=0)
with tapered pole caps Z11k (air gap 40mm)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

UniLeuven_B-E25vHO4y

TYPE : B-E 25V

DATE : September 07 2004

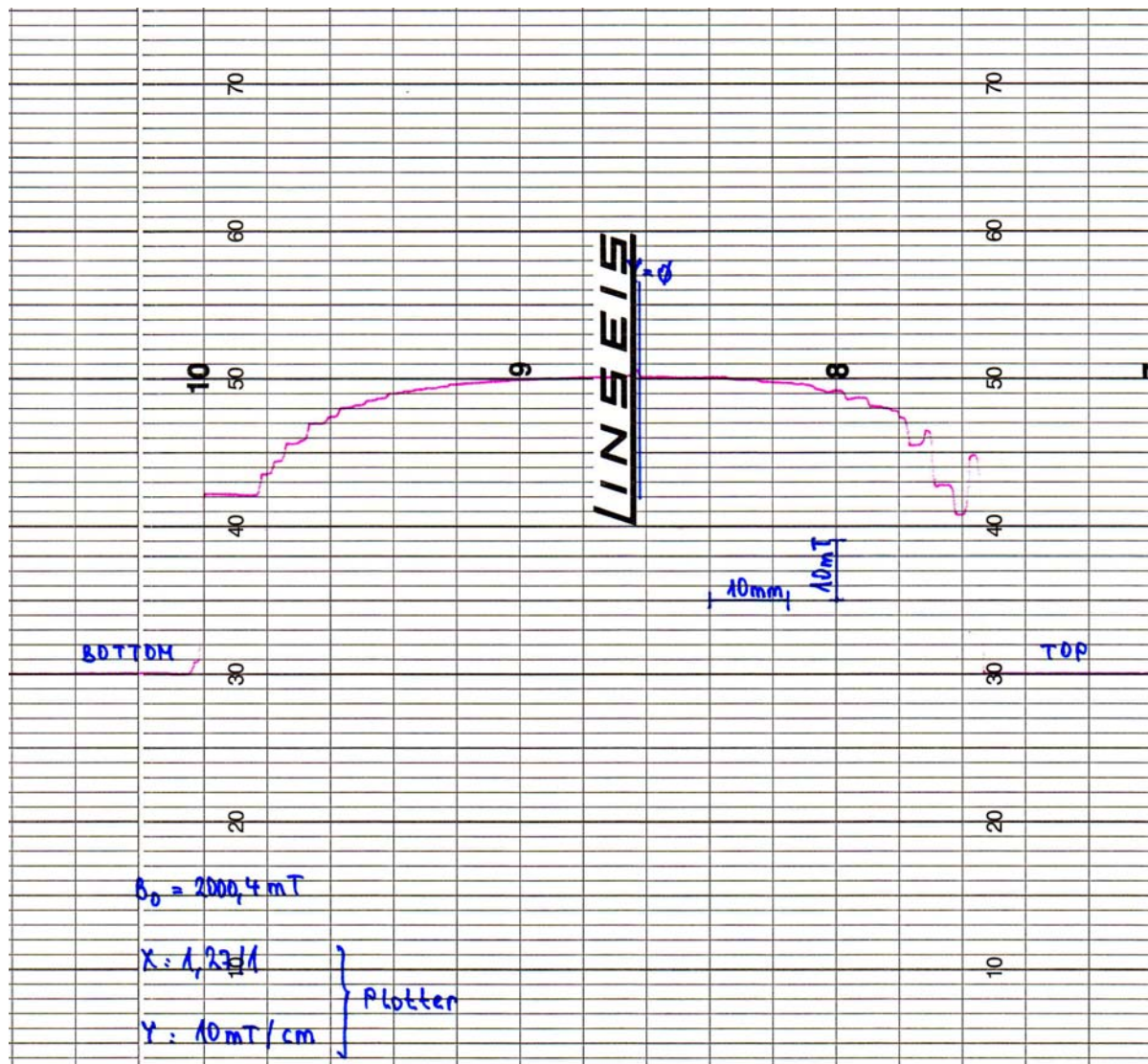
No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven

Auftr.Nr.: SM 000304

Field distribution in Y-direction (X=Z=0)
with tapered pole caps Z11k (air gap 40mm)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

UniLeuven_B-E25vHO1z

TYPE : B-E 25V

DATE : September 07 2004

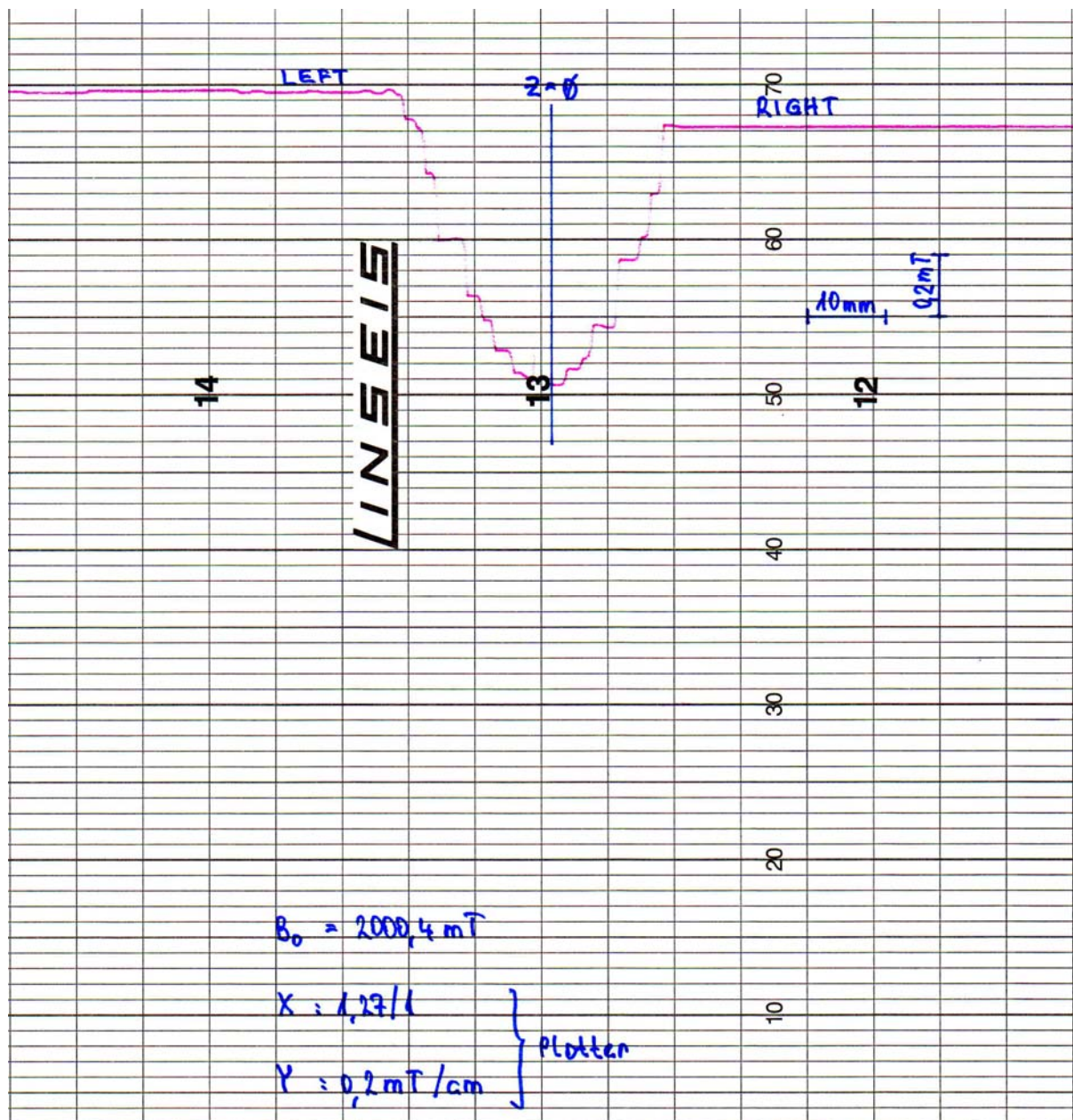
No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven

Auftr.Nr.: SM 000304

Field distribution in Z-direction (X=Y=0)
with tapered pole caps Z11k (air gap 40mm)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

UniLeuven_B-E25vHO2z

TYPE : B-E 25V

DATE : September 07 2004

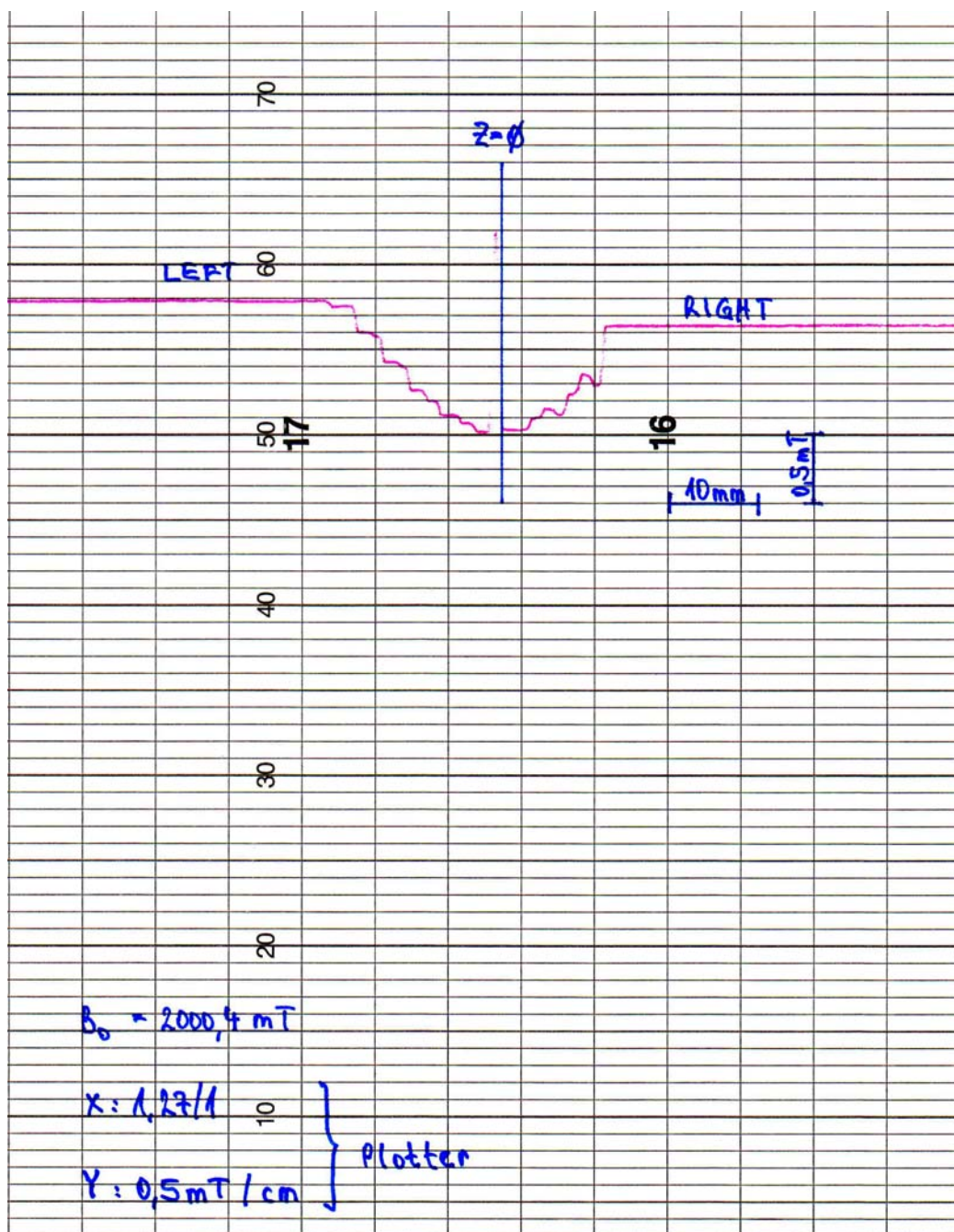
No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven

Auftr.Nr.: SM 000304

Field distribution in Z-direction (X=Y=0)
with tapered pole caps Z11k (air gap 40mm)

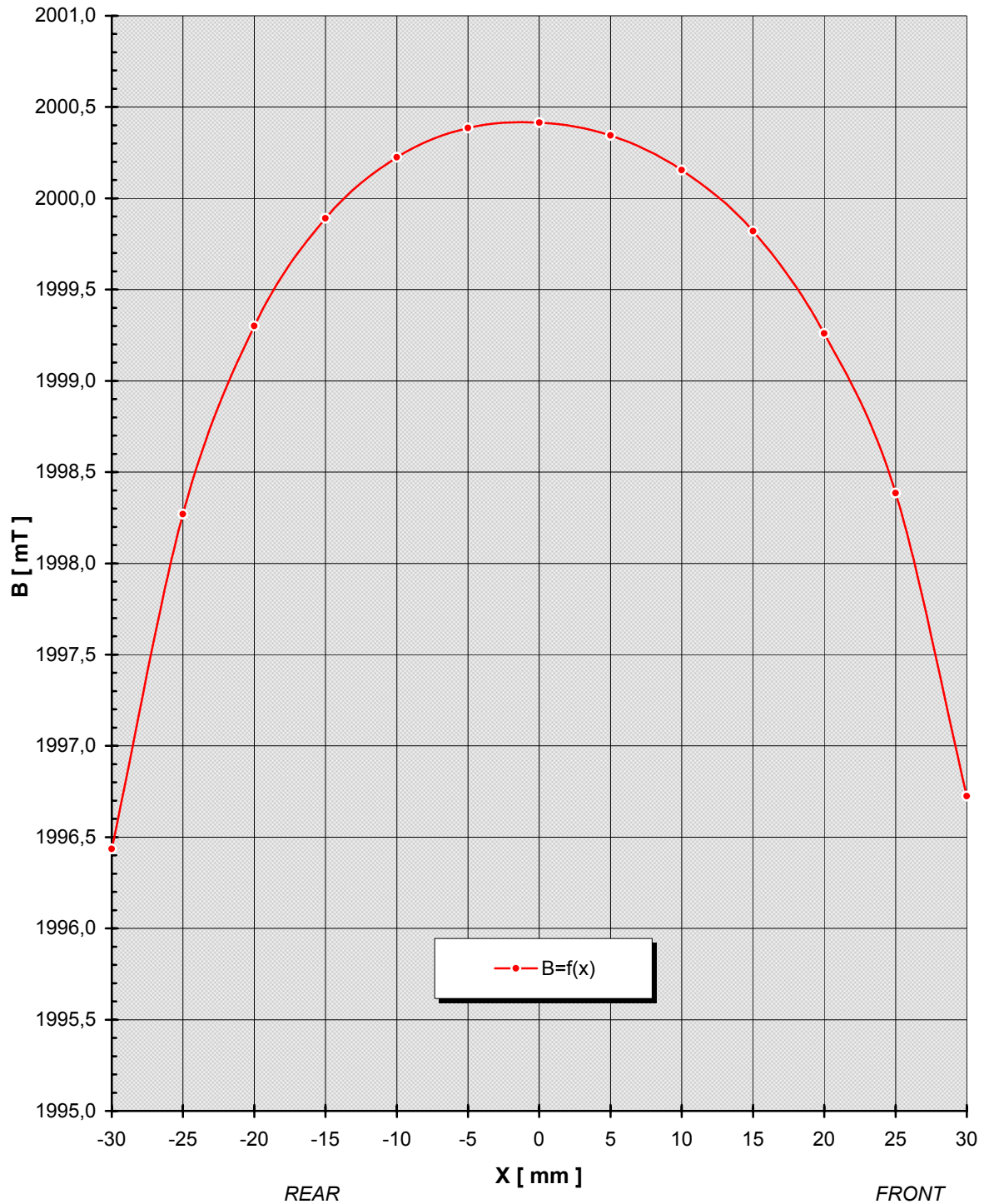




B-E 25v No. 409837
(September 07-2004)

Axial field distribution in X-direction with tapered pole caps

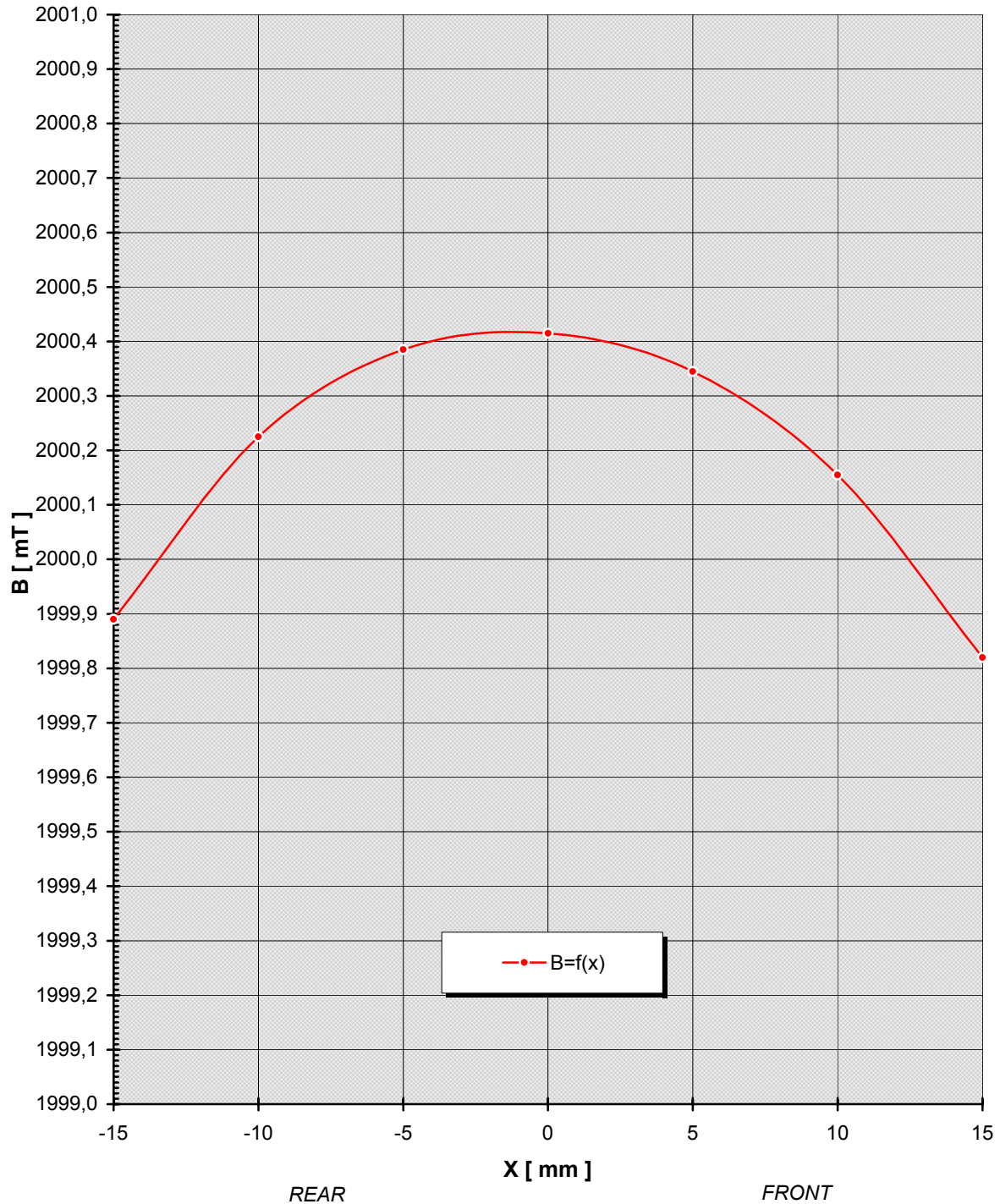
(air gap =40mm)





B-E 25v No. 409837
(September 07-2004)

Axial field distribution in X-direction with tapered pole caps
(air gap =40mm)



	FBPRM 098 Feldverteilung	Revisionsdatum : 04.12.1998
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UniLeuven_B-E25vHOY

TYPE : B-E 25v	DATE : <u>September-07-2004</u>
No. : 409837	OPERATOR : <u>J. Avsec</u>
CUSTOMER : University of Leuven, Belgium	Auftr.Nr.: SM 000304

Axial field distribution in Y-direction

(with tapered pole caps Z11k, air gap 40mm)

Y [mm]	B [mT]		
30	1997,450		
25	1998,685		
20	1999,425		
15	1999,900		
10	2000,190		
5	2000,360		
0	2000,425		
-5	2000,380		
-10	2000,195		
-15	1999,815		
-20	1999,100		
-25	1997,835		
-30	1995,585		
Hall-probe location: Z = X = 0 Y = 0 ==> Magnet center Y > 0 ==> top			

REMARK :

Hall-probe location:

X=Y=Z=0

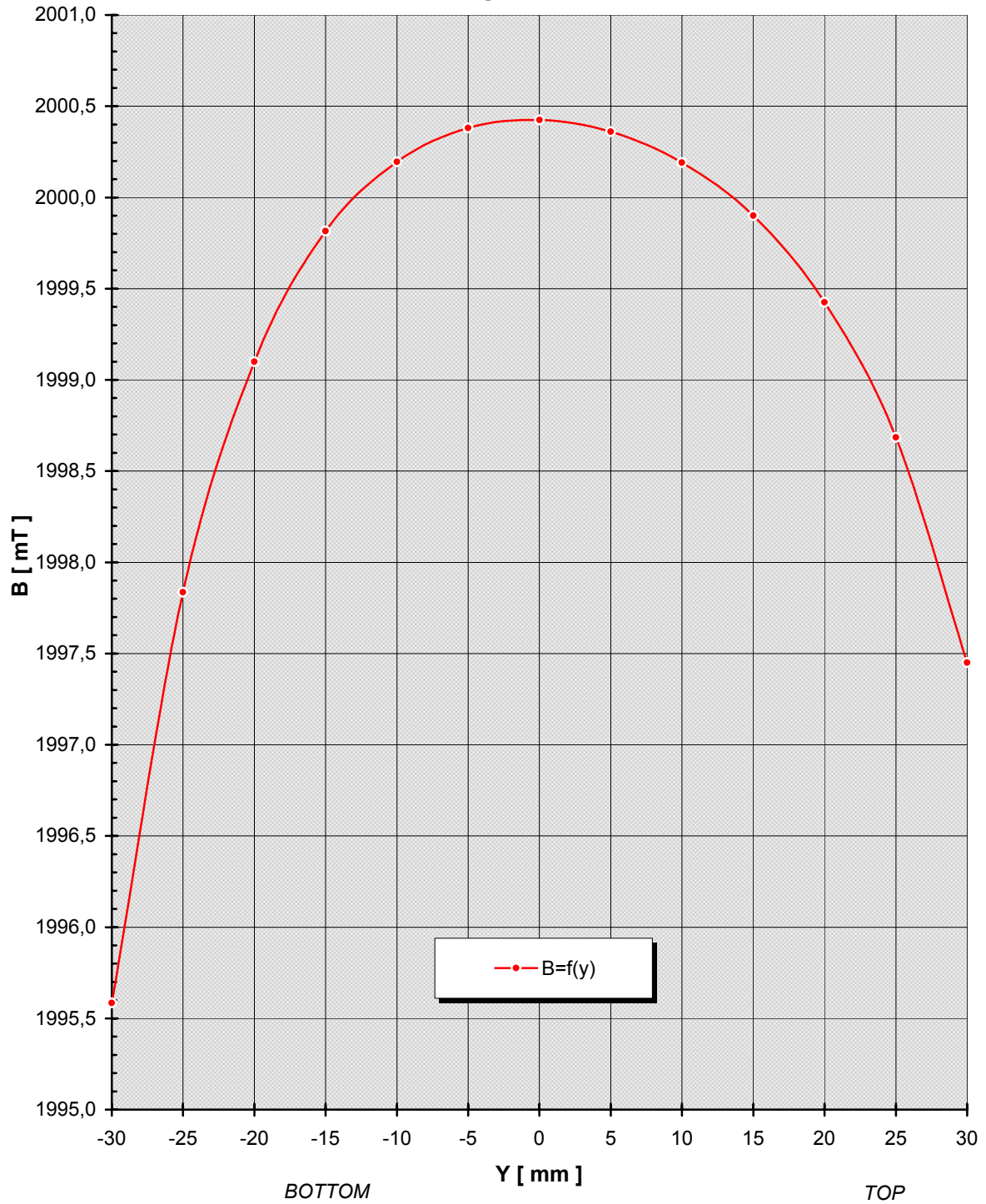
(magnet center)

Z : main field direction



B-E 25v No. 409837
(September 07-2004)

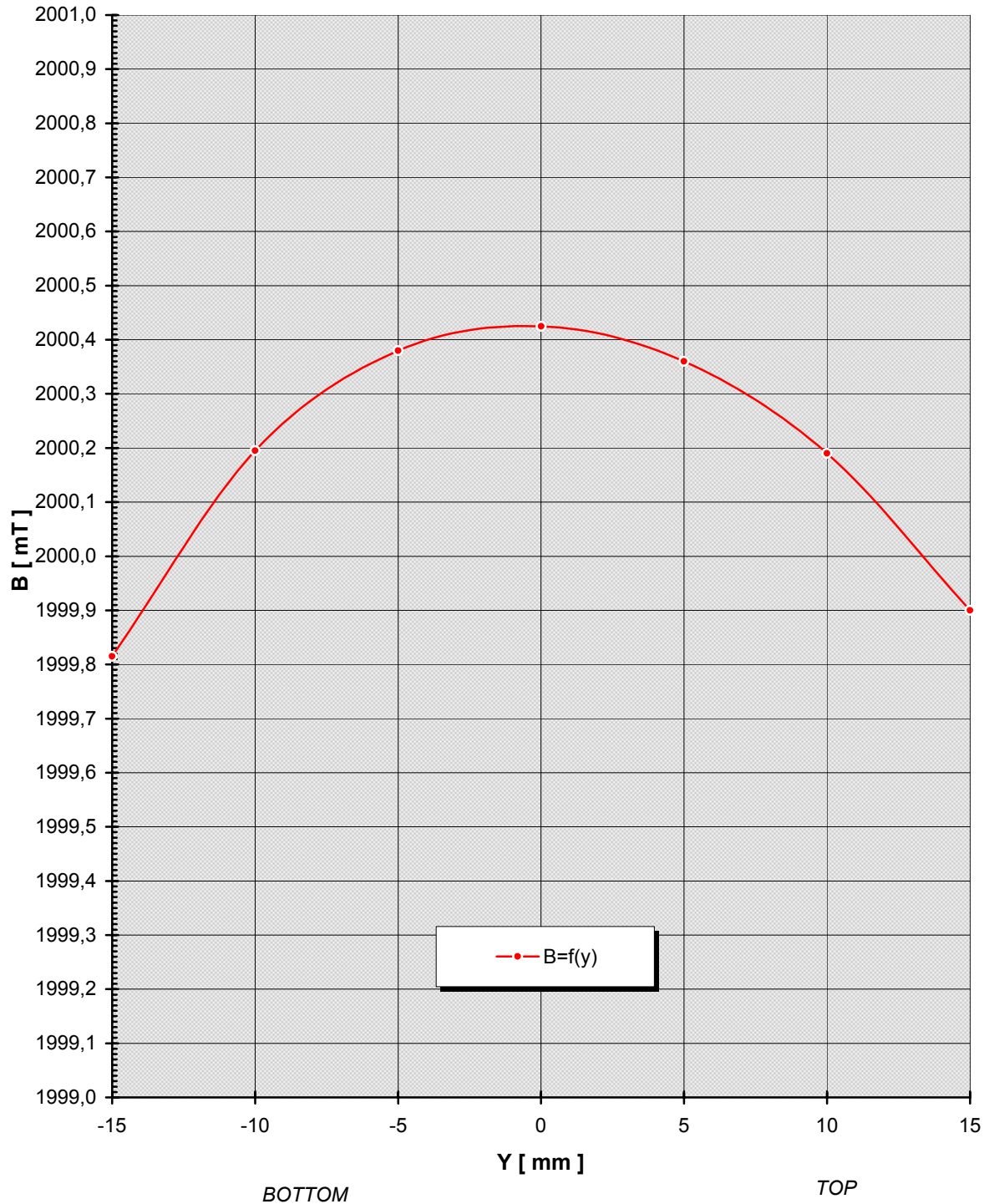
Axial field distribution in Y-direction with tapered pole caps
(air gap =40mm)





B-E 25v No. 409837
(September 07-2004)

Axial field distribution in Y-direction with tapered pole caps
(air gap =40mm)





FBPRM 098
Feldverteilung

Revisionsdatum :
04.12.1998

UniLeuven_B-E25vHOZ

TYPE : B-E 25v

DATE : September-07-2004

No. : 409837

OPERATOR : J. Avsec

CUSTOMER : University of Leuven, Belgium

Auftr.Nr.: SM 000304

Axial field distribution in Z-direction

(with tapered pole caps Z11k, air gap 40mm)

Z [mm]	B [mT]		
15	2001,270		
10	2000,860		
5	2000,540		
0	2000,470		
-5	2000,510		
-10	2000,800		
-15	2001,180		

REMARK :

Hall-probe location:

X=Y=Z=0

(magnet center)

Z : main field direction

Hall-probe location:

X = Y = 0

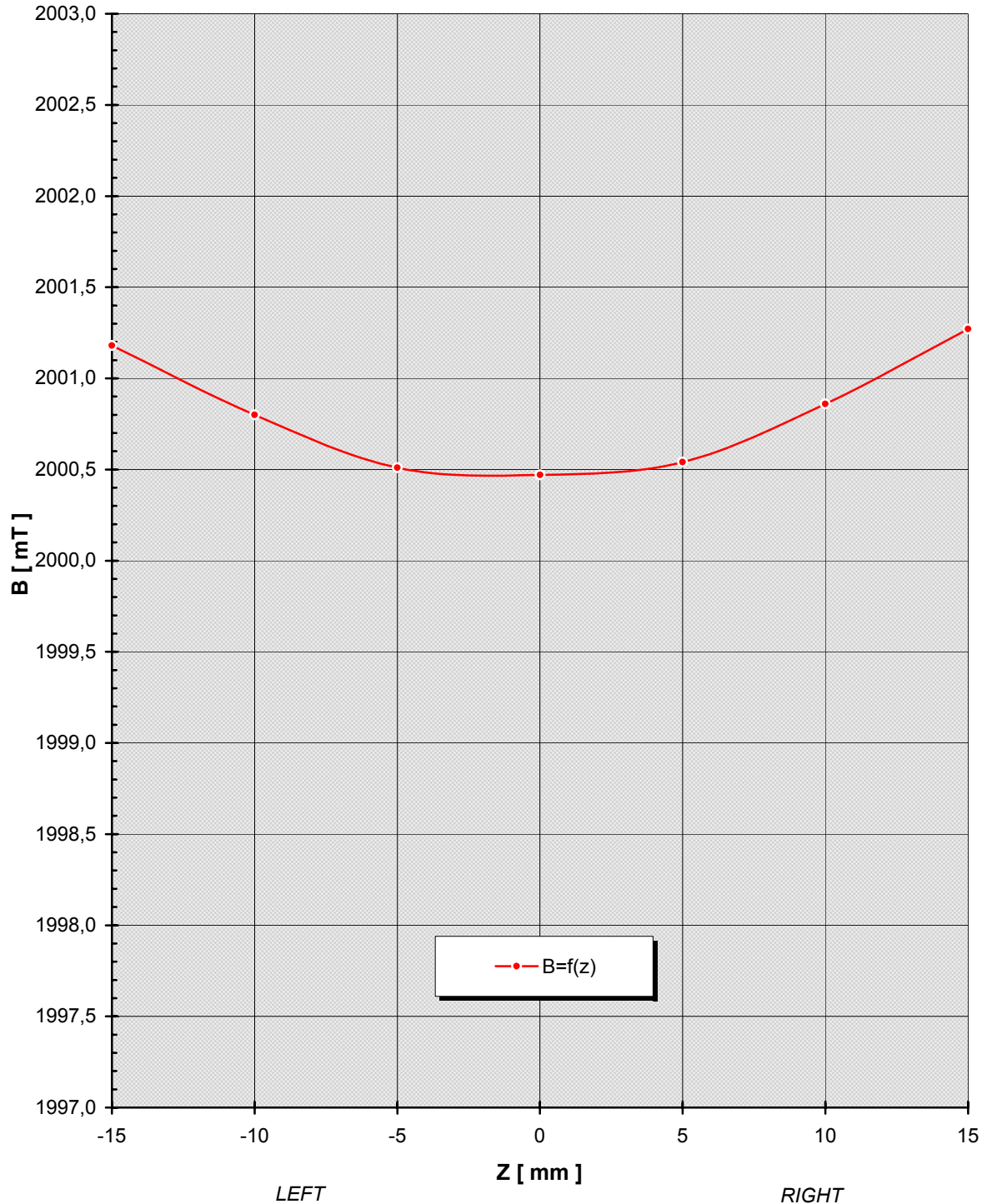
Z = 0 ==> Magnet center

Z > 0 ==> Right



B-E 25v No. 409837
(September 07-2004)

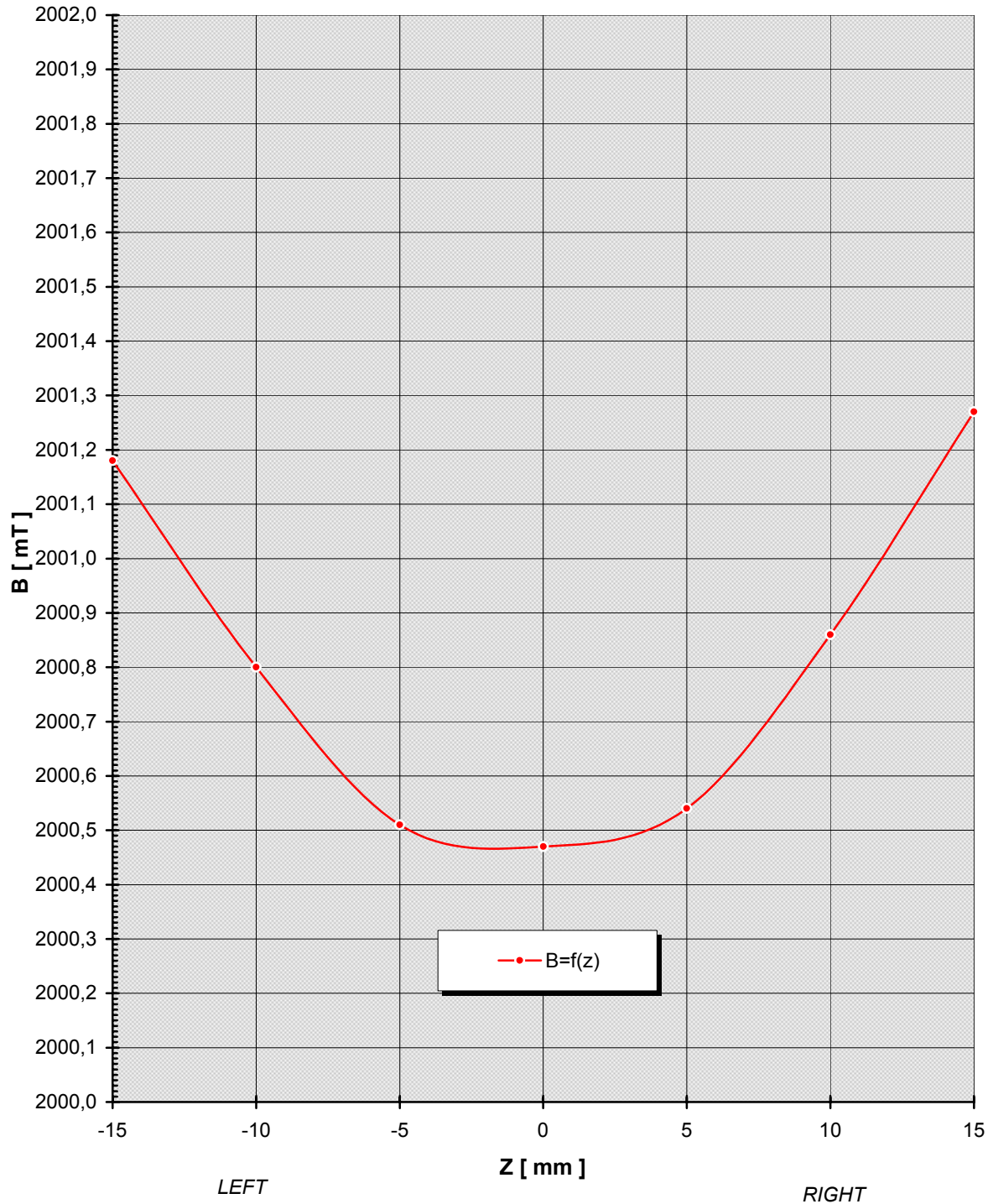
Axial field distribution in Z-direction with tapered pole caps
(air gap =40mm)





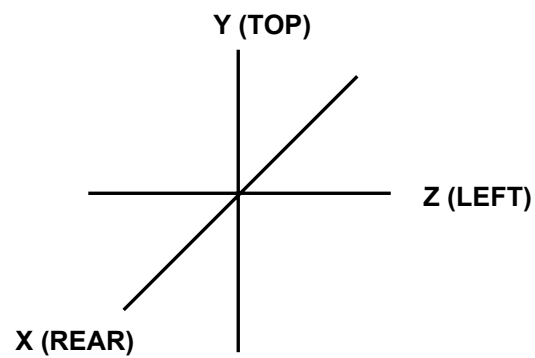
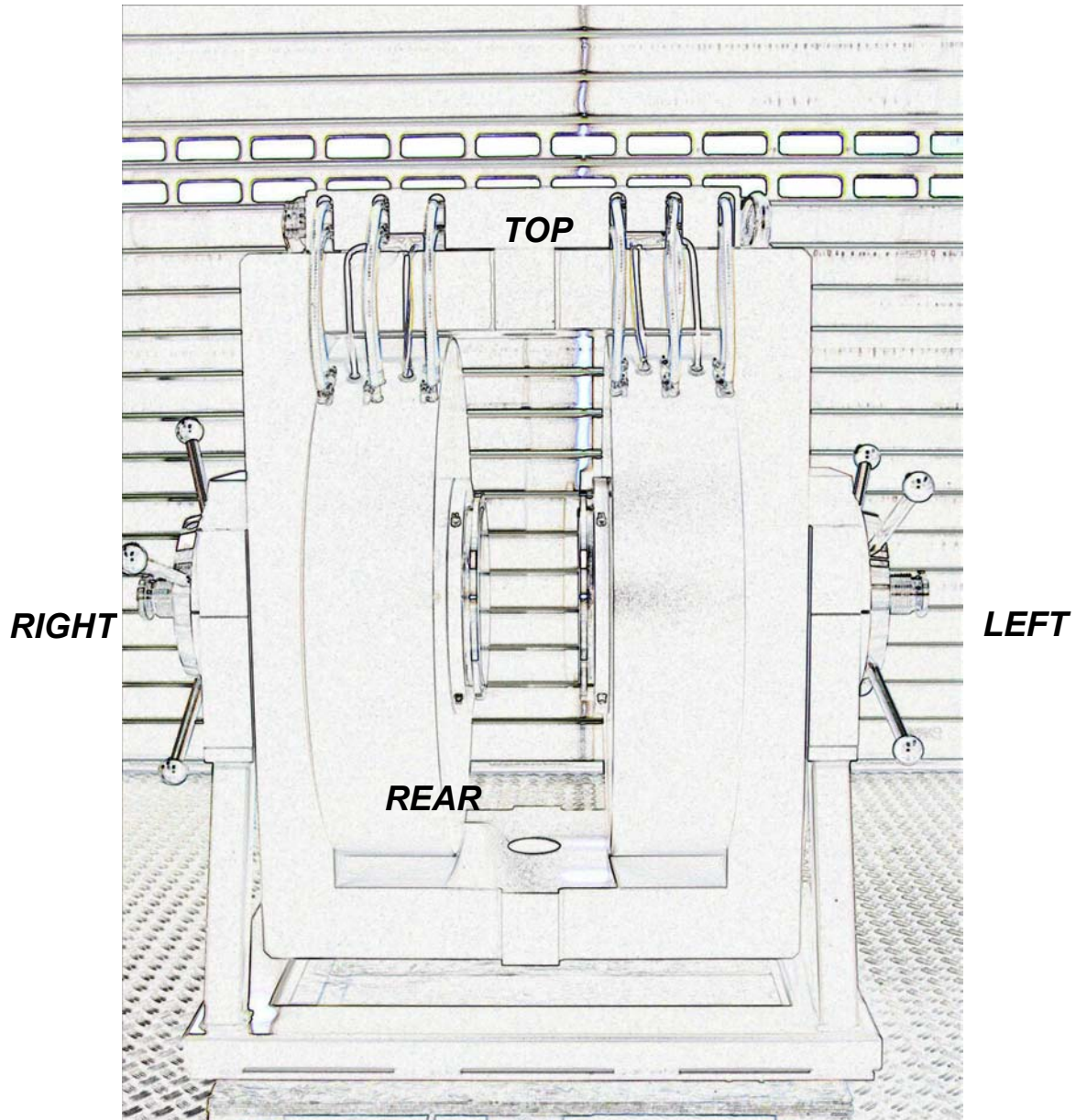
B-E 25v No. 409837
(September 07-2004)

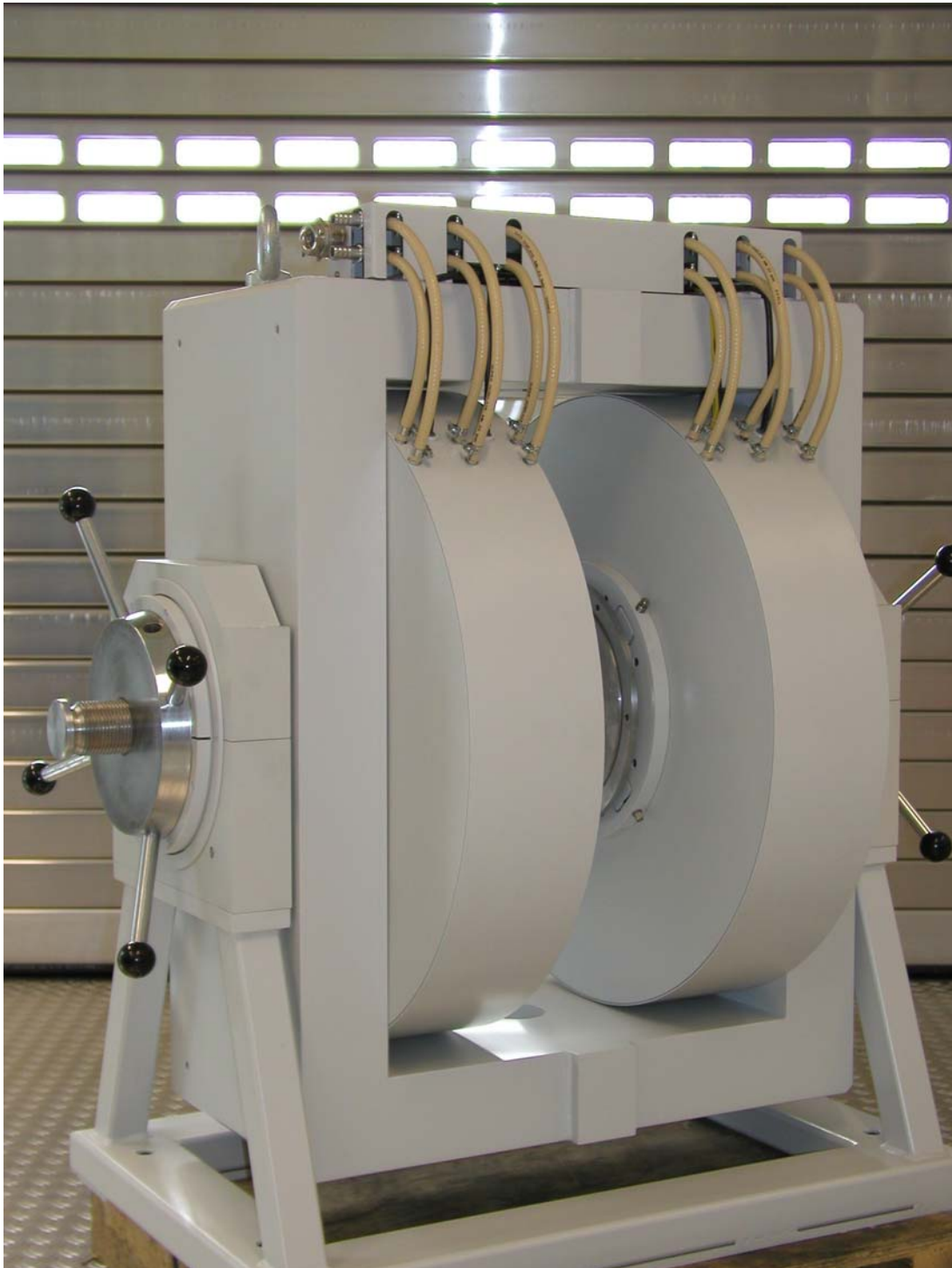
Axial field distribution in Z-direction with tapered pole caps
(air gap =40mm)

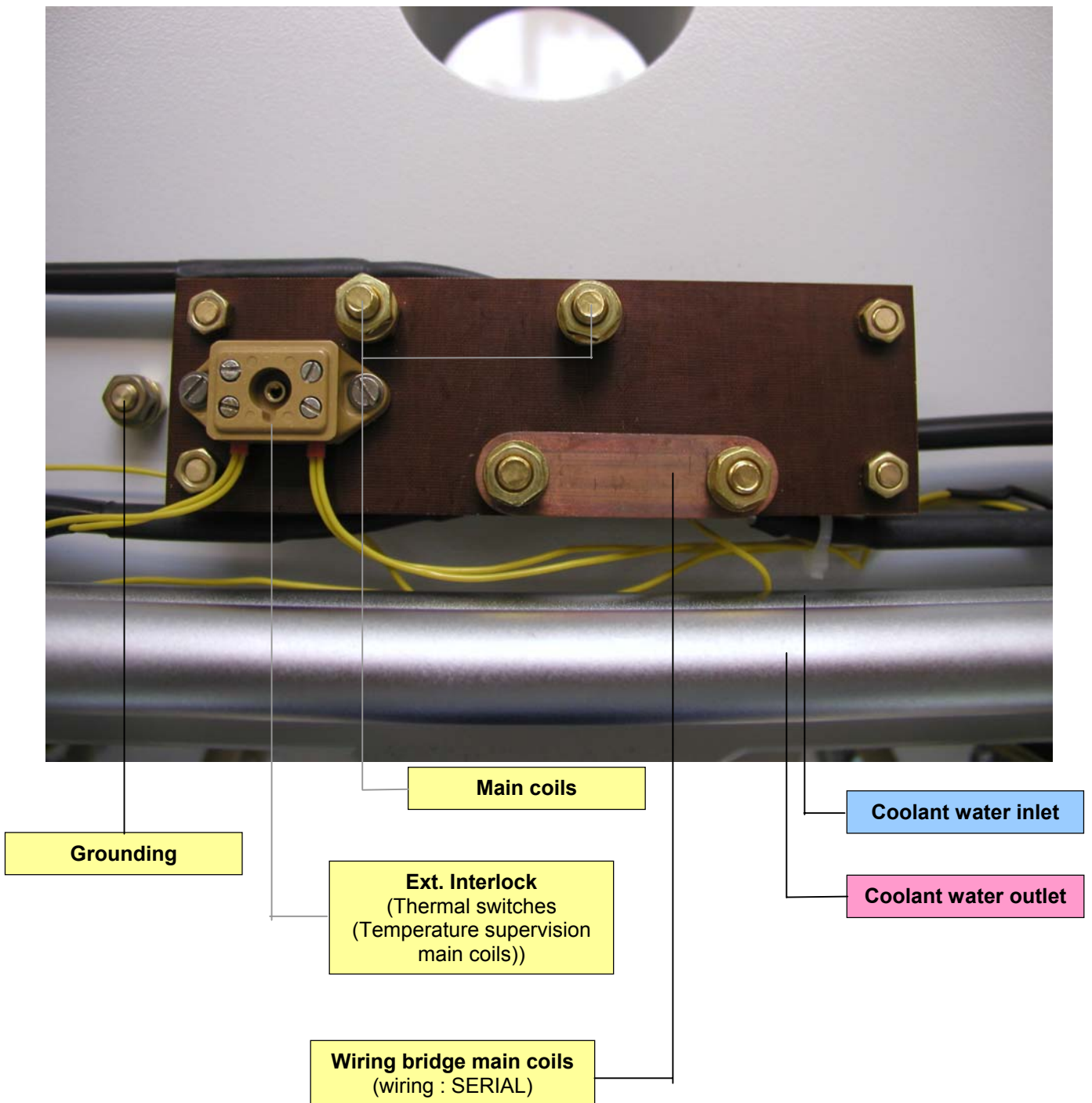


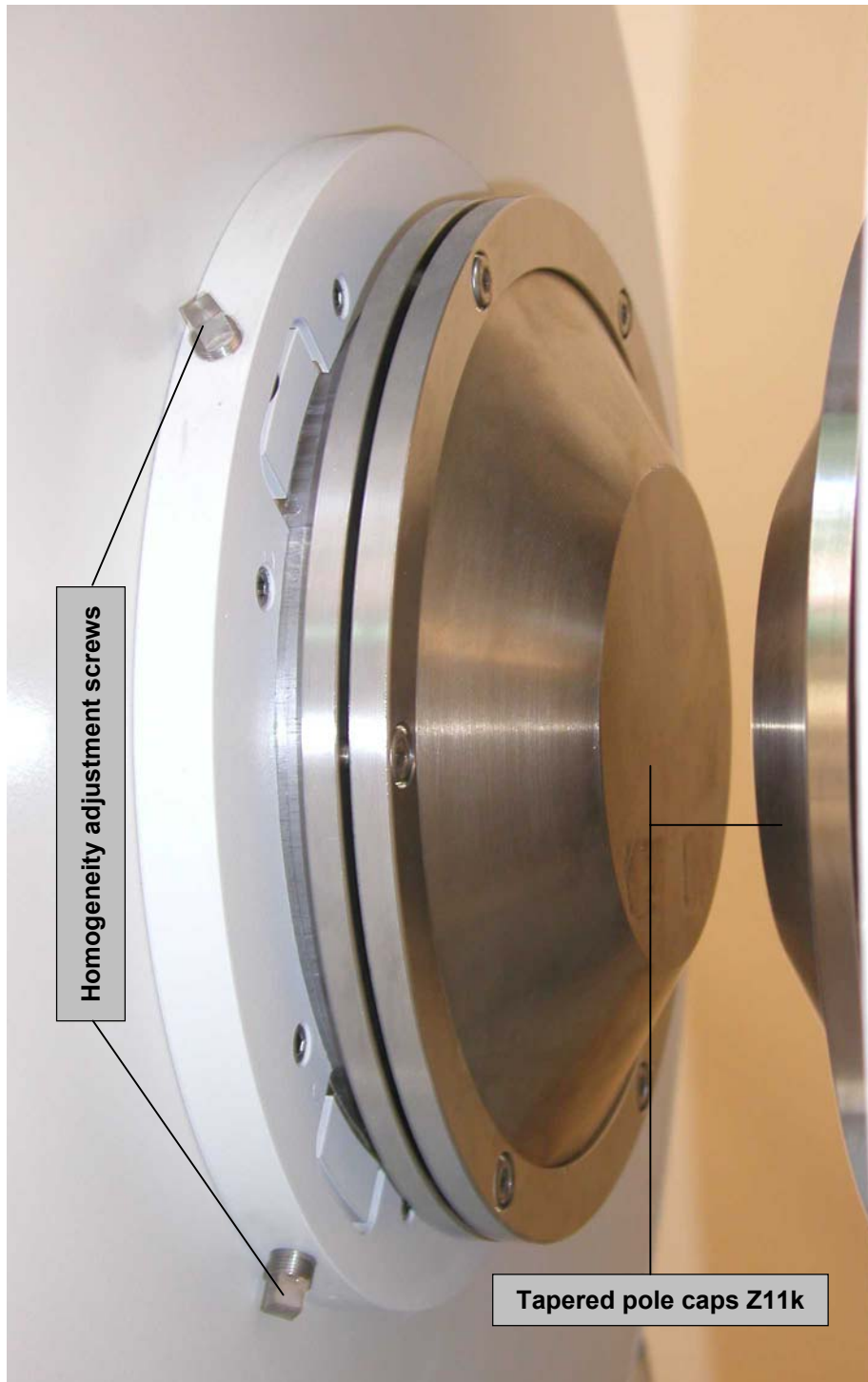
Informations about the field measurements

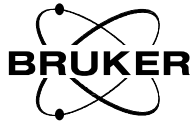
September 2004











FBPRM111
Kurzinformation

Datum
12.06.97

UniLeuven_B-E25vTECINFO

Technical information

Customer : University of
Leuven

Type : B-E 25V

Date : September 2004

Auftr. Nr.: SM 000304

No.: 409837

Operator : J. Avsec

Technical information

Description:

Type : B-E 25V

Part No. : M20011

Serial No. : 409837

Year : 2004

Mechanics:

Length ... : 720mm

Breadth ... : 1200mm

Height : 1280mm

Weight ... : 1874kg

Electrics:

I_{max} : 60A series

U_{max} : 200V

P_{max} : 12kW

B : 2.15T with tapered pole caps Z11k
(air gap 40mm)

Flow rate : 35 l/min }
Δp : 0.5MPa } coolant water