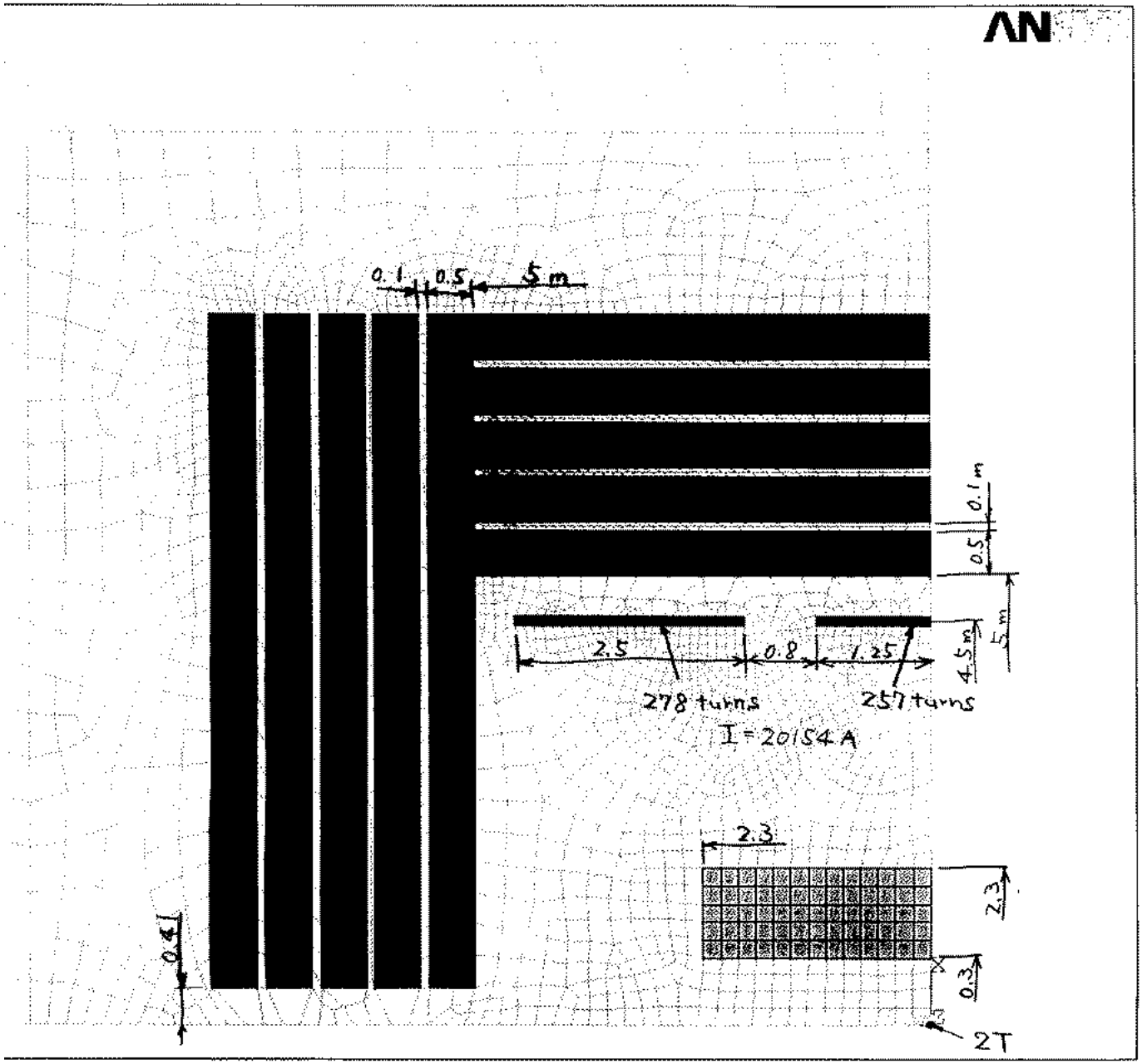
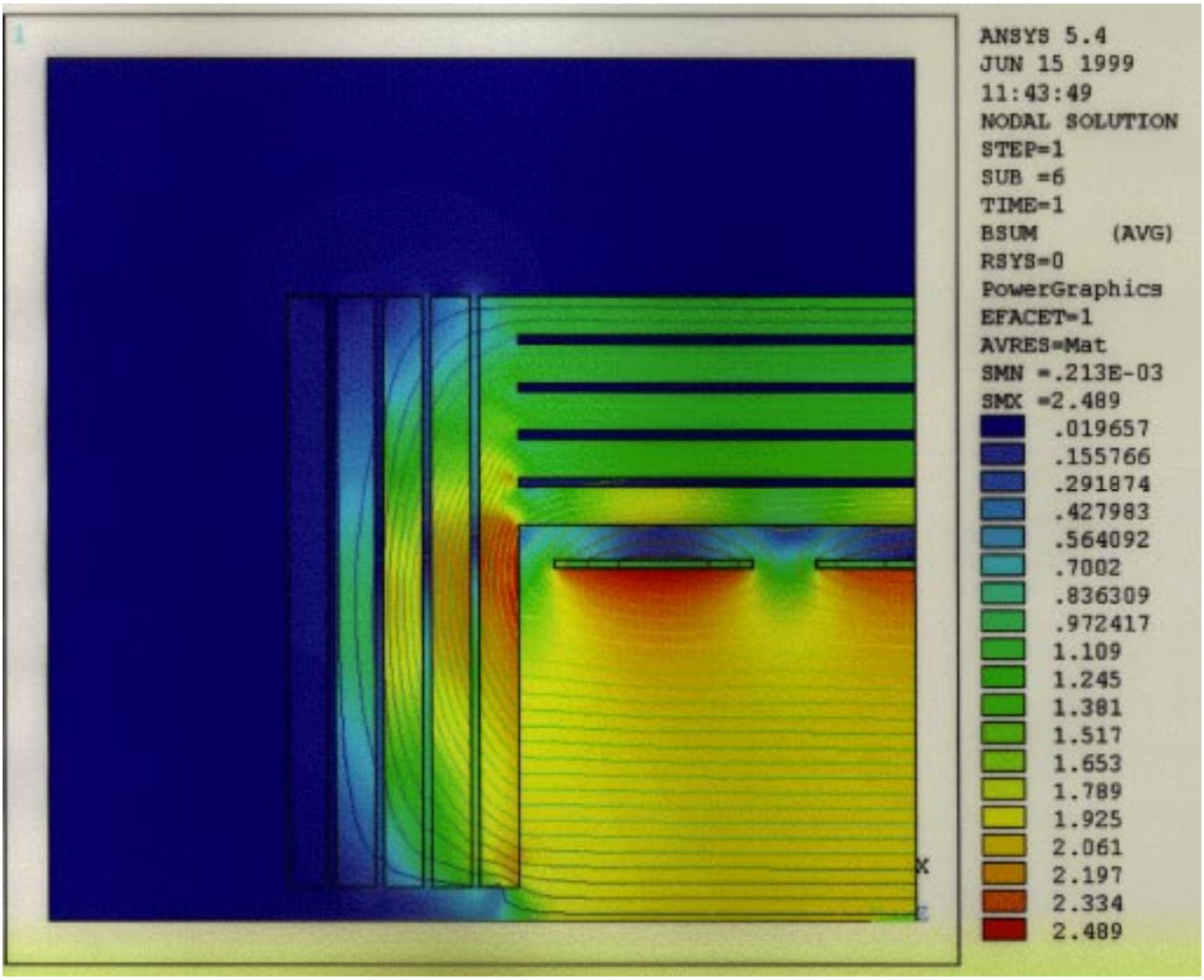
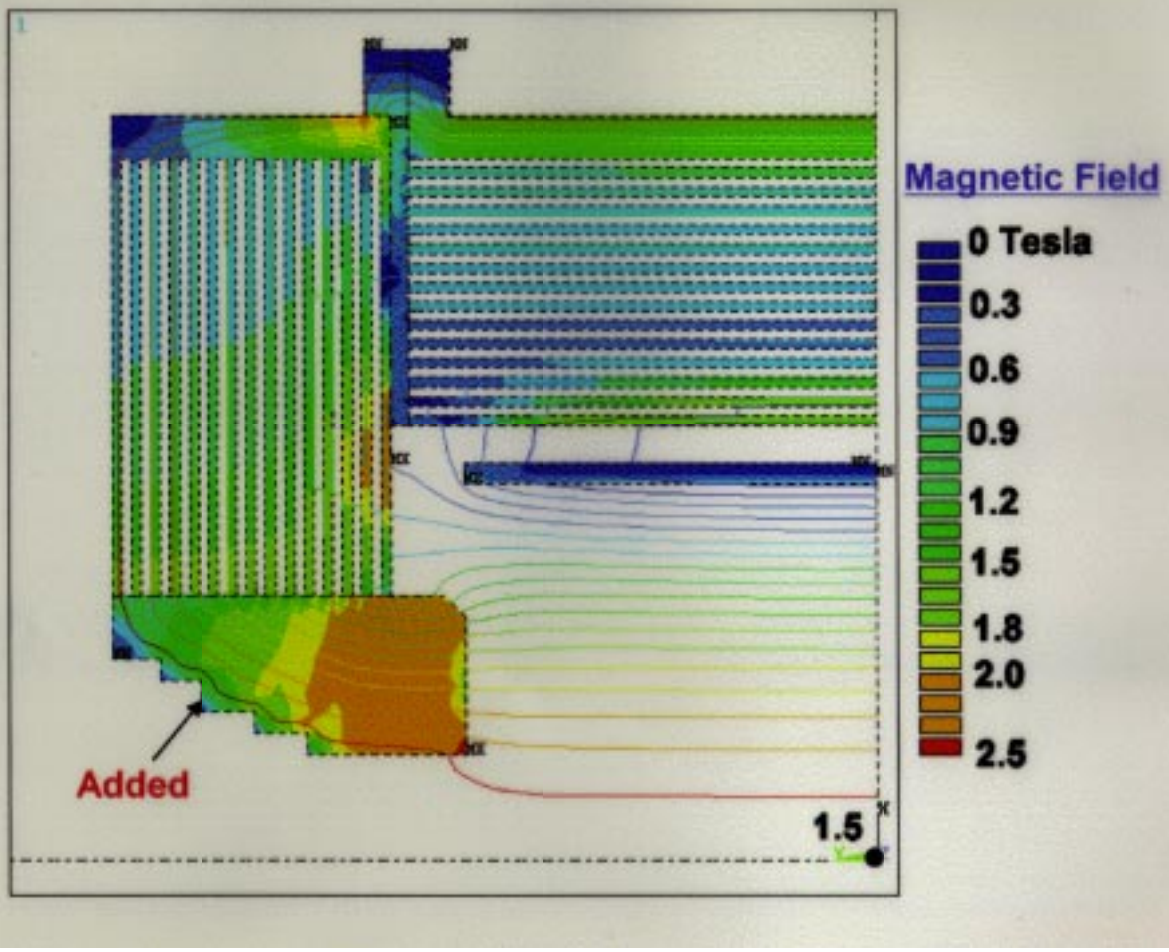
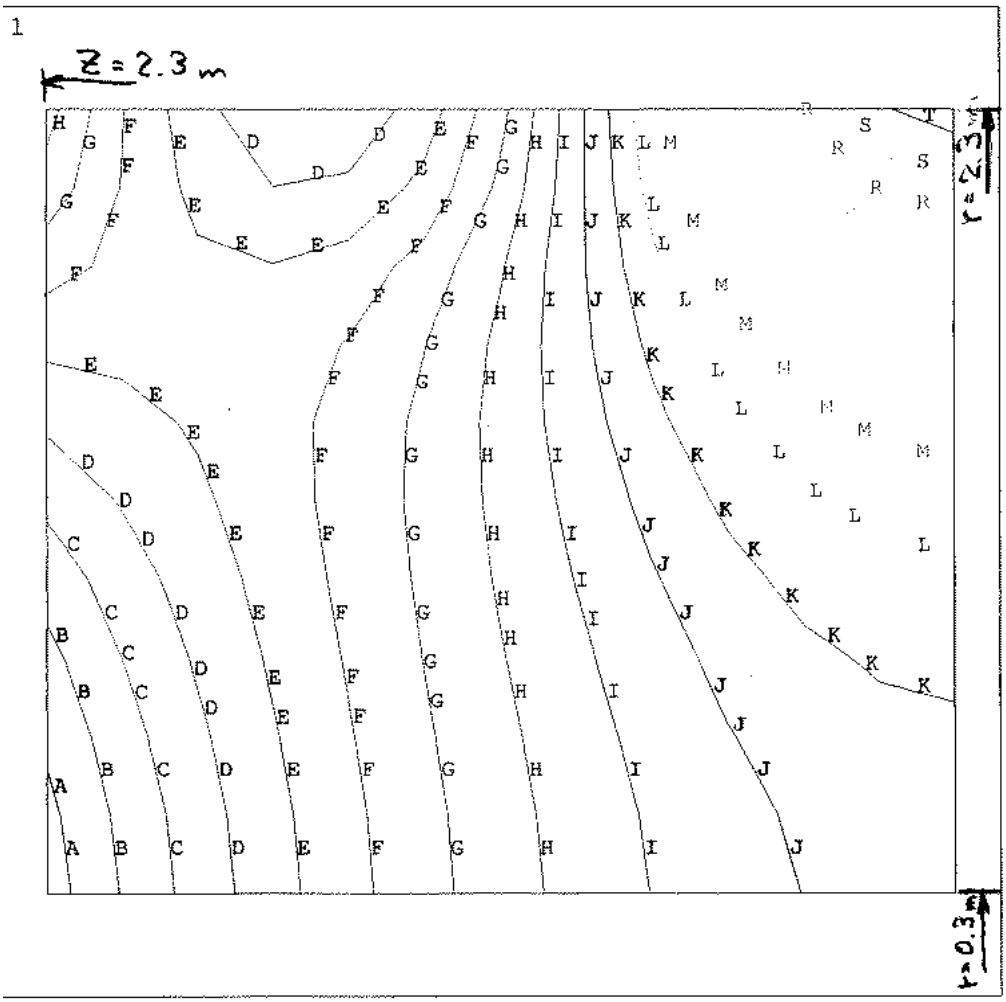

0.1
0.5
5 m
0.1 m
0.5
5 m
4.5 m
2.5
0.8
1.25
278 turns
257 turns
I = 20154 A
2.3
2.3
0.3
0.4
2T


1
ANSYS 5.4
JUN 15 1999
11:43:49
NODAL SOLUTION
STEP=1
SUB =6
TIME=1
BSUM (AVG)
RSYS=0
PowerGraphics
EFACET=1
AVRES=Mat
SMN =.213E-03
SMX =2.489
.019657
.155766
.291874
.427983
.564092
.7002
.836309
.972417
1.109
1.245
1.381
1.517
1.653
1.789
1.925
2.061
2.197
2.334
2.489

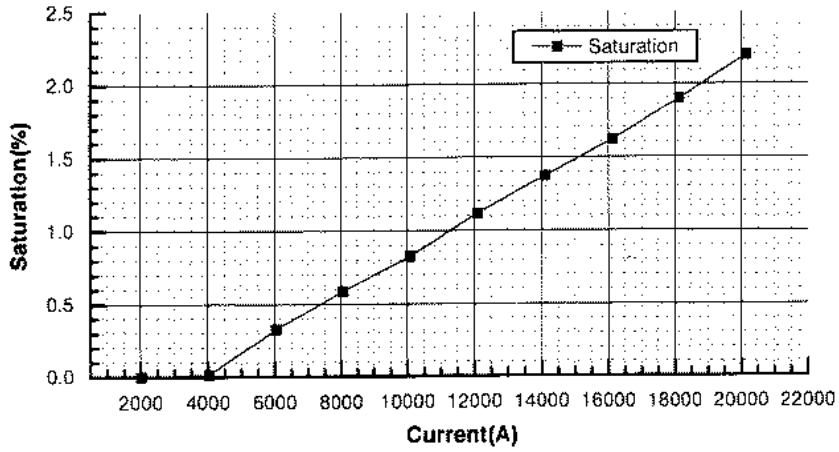
Magnetic Field Analysis

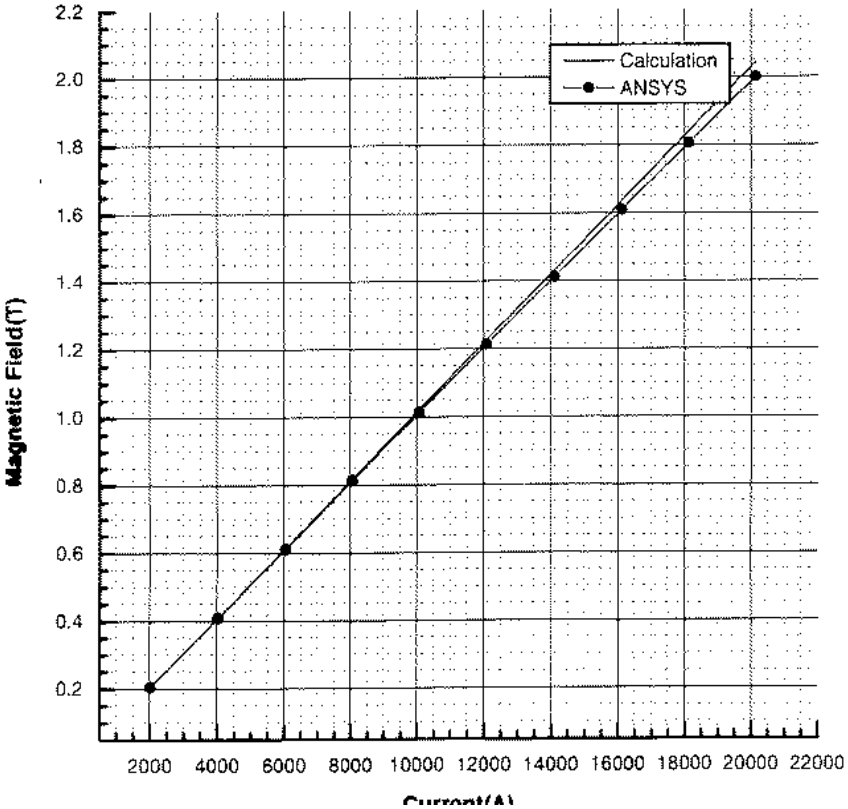


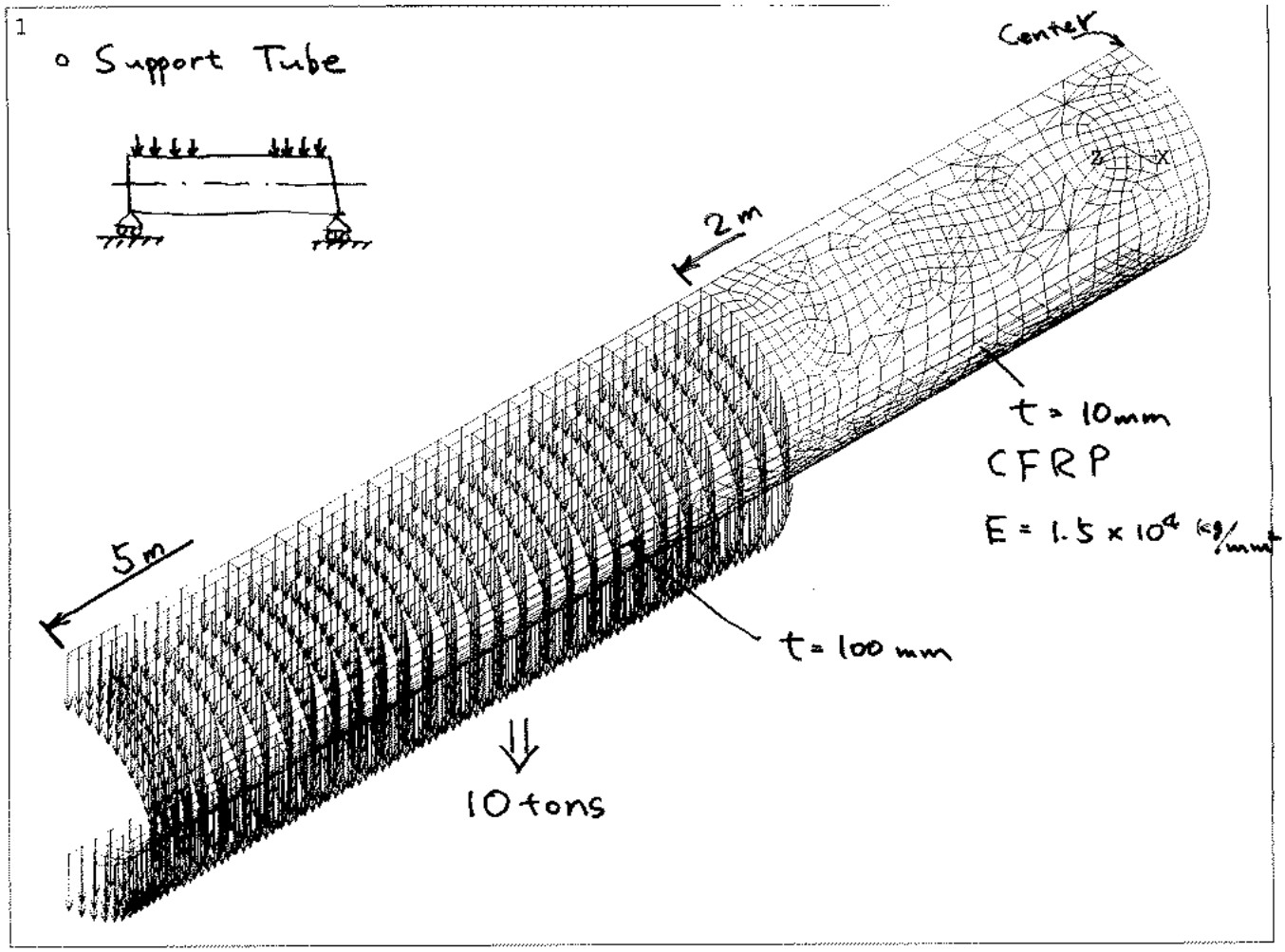


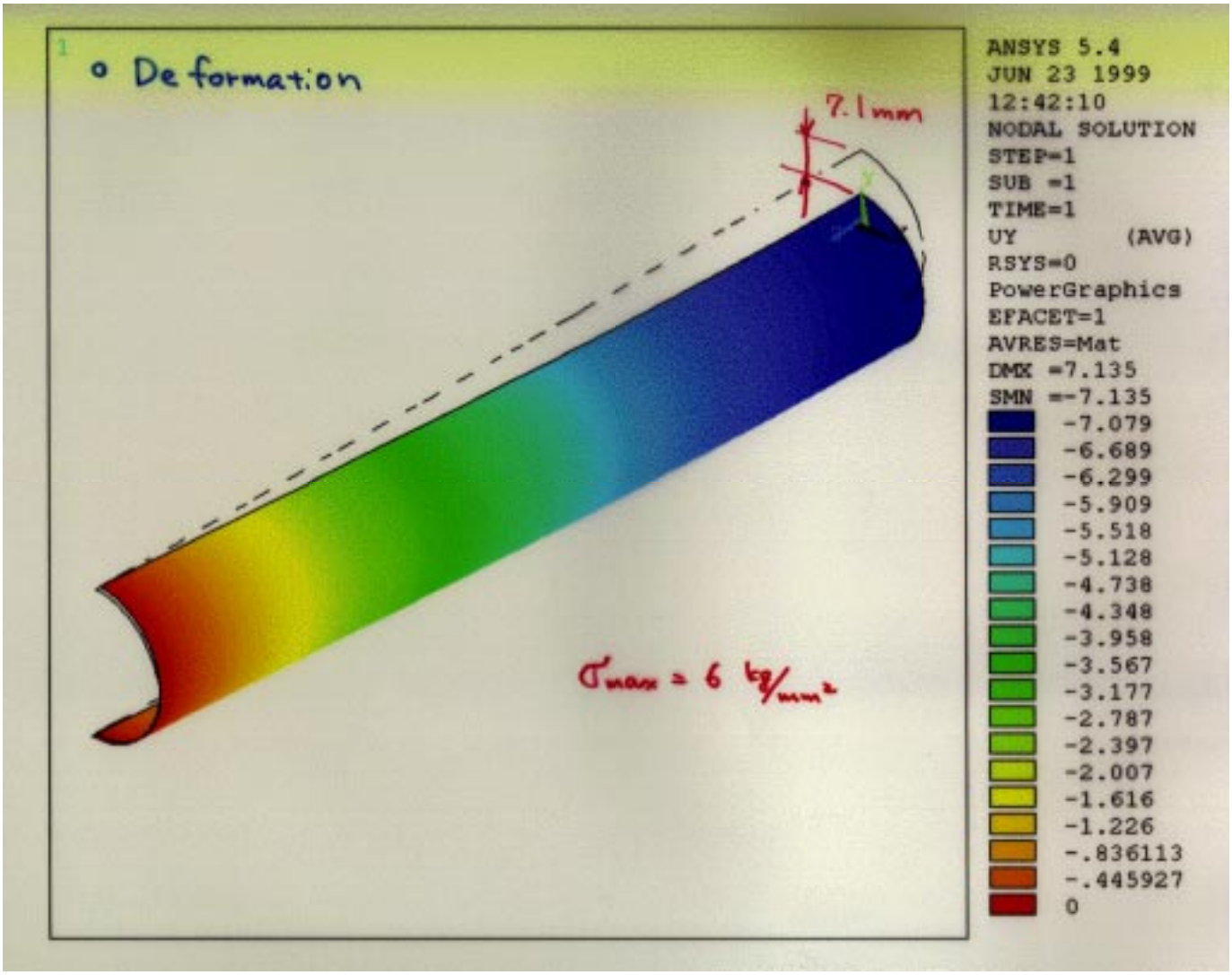
ANSYS 5.4
JUN 23 1999
10:32:36
NODAL SOLUTION
STEP=1
BSUM (AVG)
RSYS=0
PowerGraphics
EFACET=1
AVRES=Mat
SMN =1.987
SMX =2.013
A =1.988
B =1.989
C =1.99
D =1.992
E =1.993
F =1.994
G =1.996
H =1.997
I =1.998
J =1.999
K =2.001
L =2.002
M =2.003
R =2.011
S =2.011
T =2.012

Unif (%) = $1 - \frac{B_{min}}{B_{max}}$ = 1.29 %


Saturation
Saturation(%)
2.5
2.0
1.5
1.0
0.5
0.0
2000 4000 6000 8000 10000 12000 14000 16000 18000 20000 22000
Current(A)


Calculation
ANSYS
Magnetic Field(T)
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
2000 4000 6000 8000 10000 12000 14000 16000 18000 20000 22000


1
o Support Tube
Center
2
2 m
t = 10mm
CFRP
E = 1.5 × 10⁴ kg/mm²
5 m
t = 100 mm
10 tons


1
o Deformation
7.1 mm
σmax = 6 kg/mm²
ANSYS 5.4
JUN 23 1999
12:42:10
NODAL SOLUTION
STEP=1
SUB =1
TIME=1
UY (AVG)
RSYS=0
PowerGraphics
EFACET=1
AVRES=Mat
DMX =7.135
SMN =-7.135
-7.079
-6.689
-6.299
-5.909
-5.518
-5.128
-4.738
-4.348
-3.958
-3.567
-3.177
-2.787
-2.397
-2.007
-1.616
-1.226
-.836113
-.445927
0