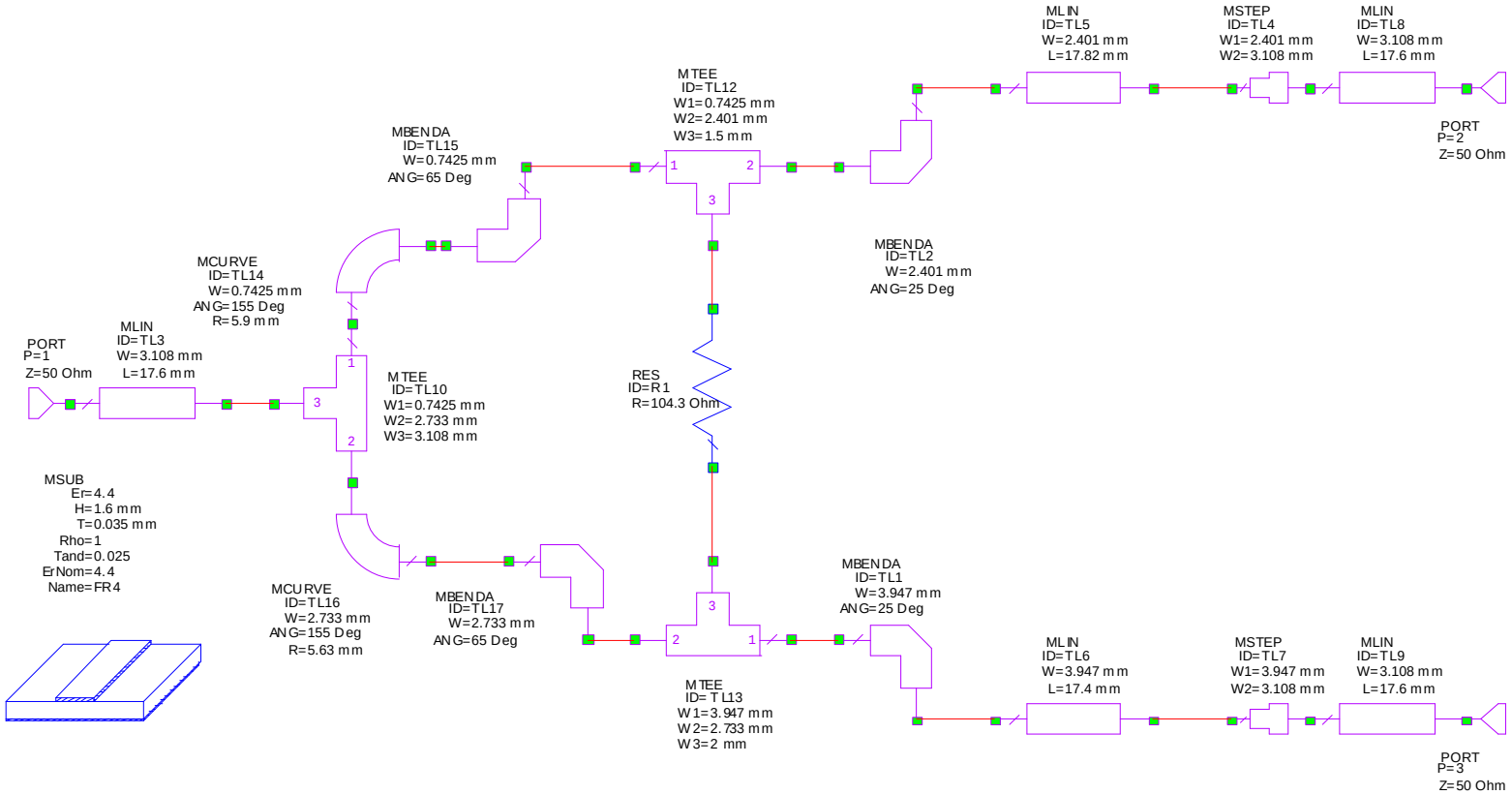
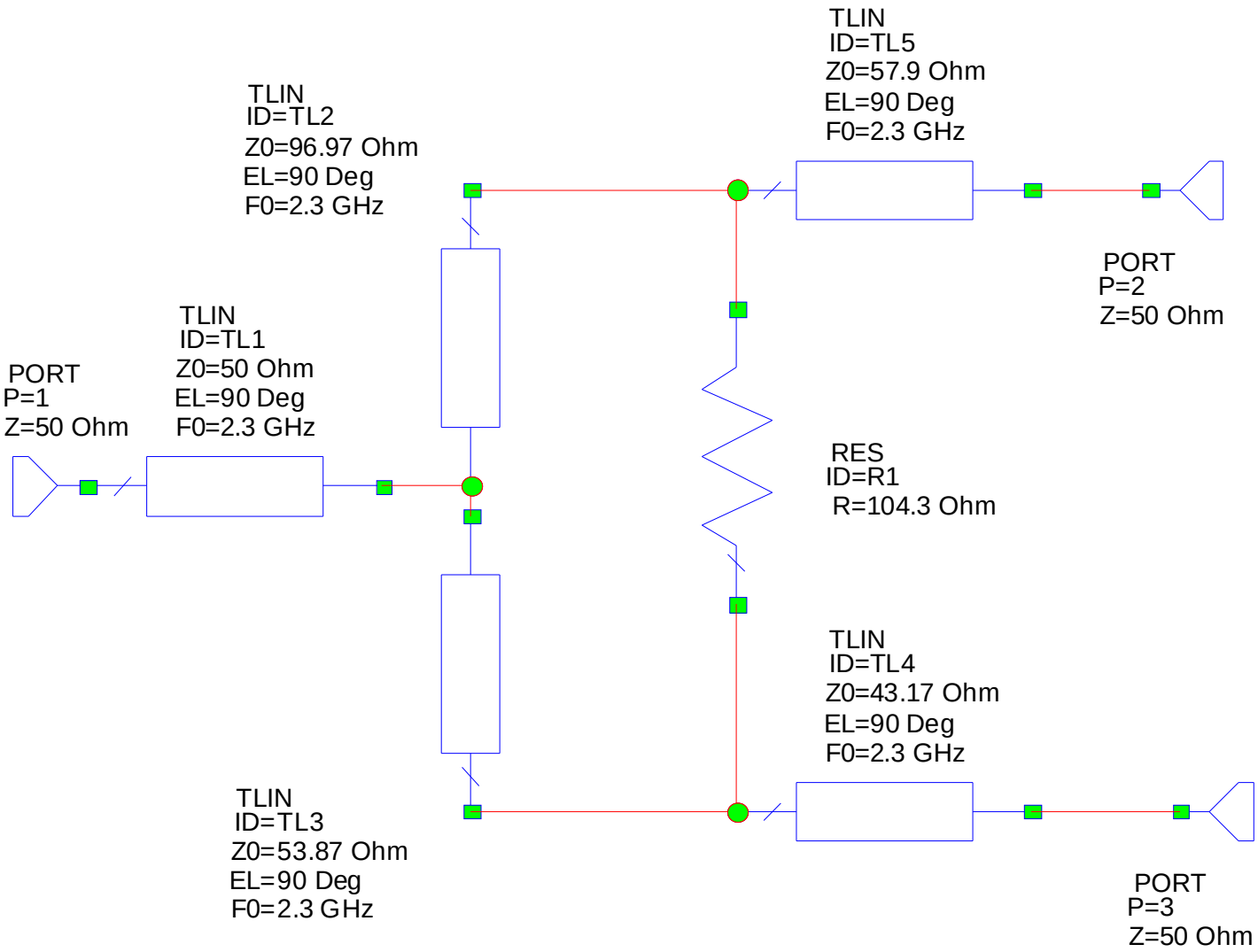
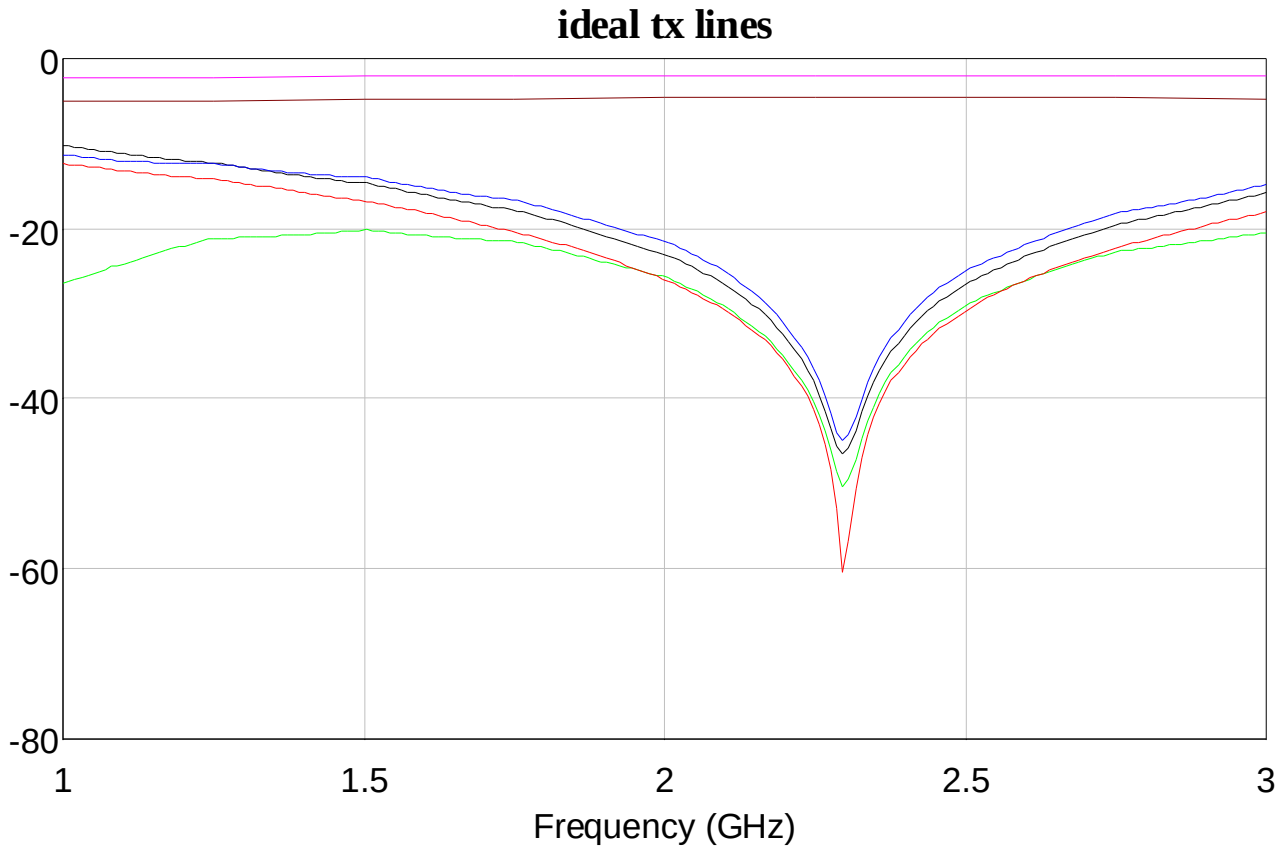
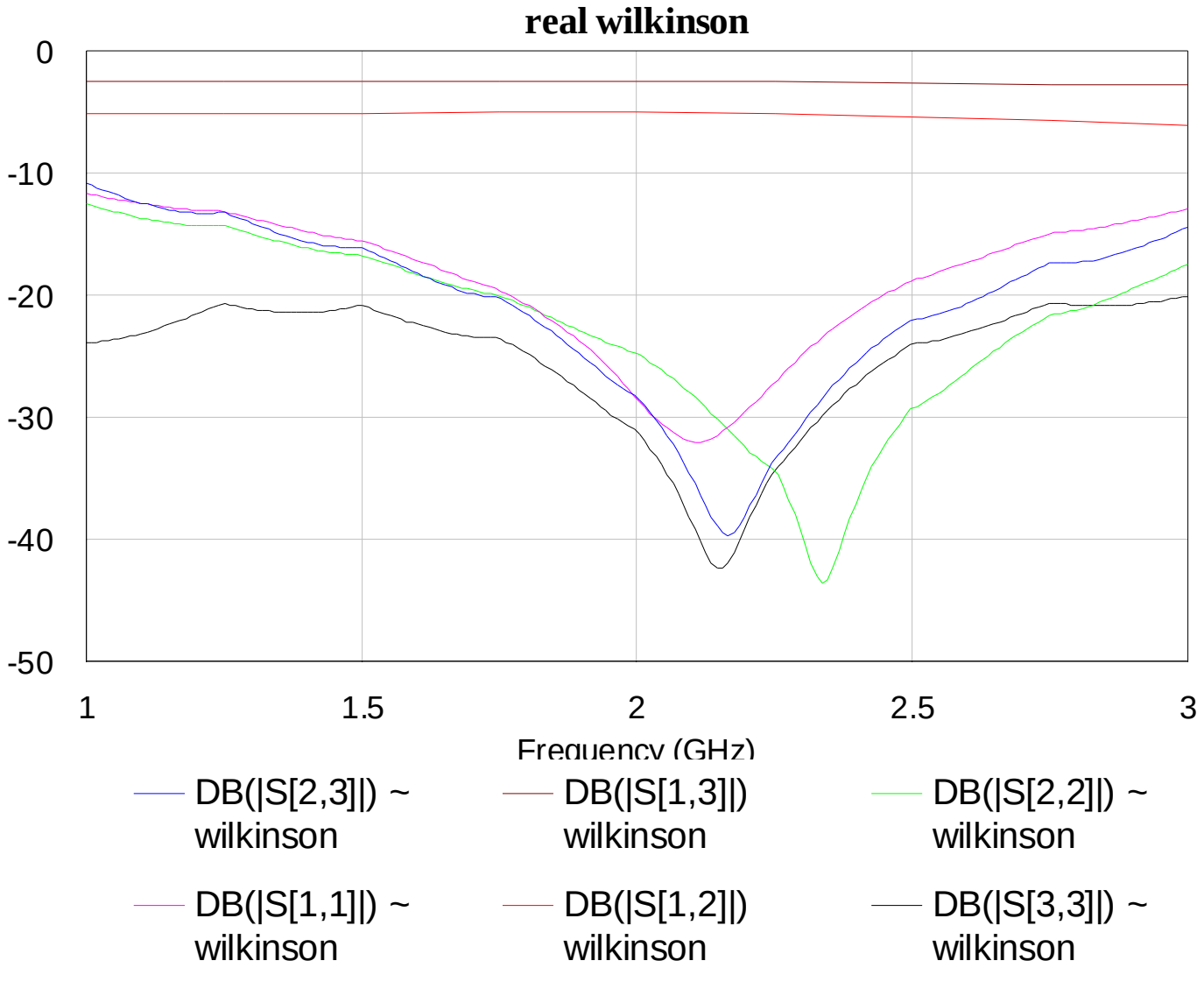
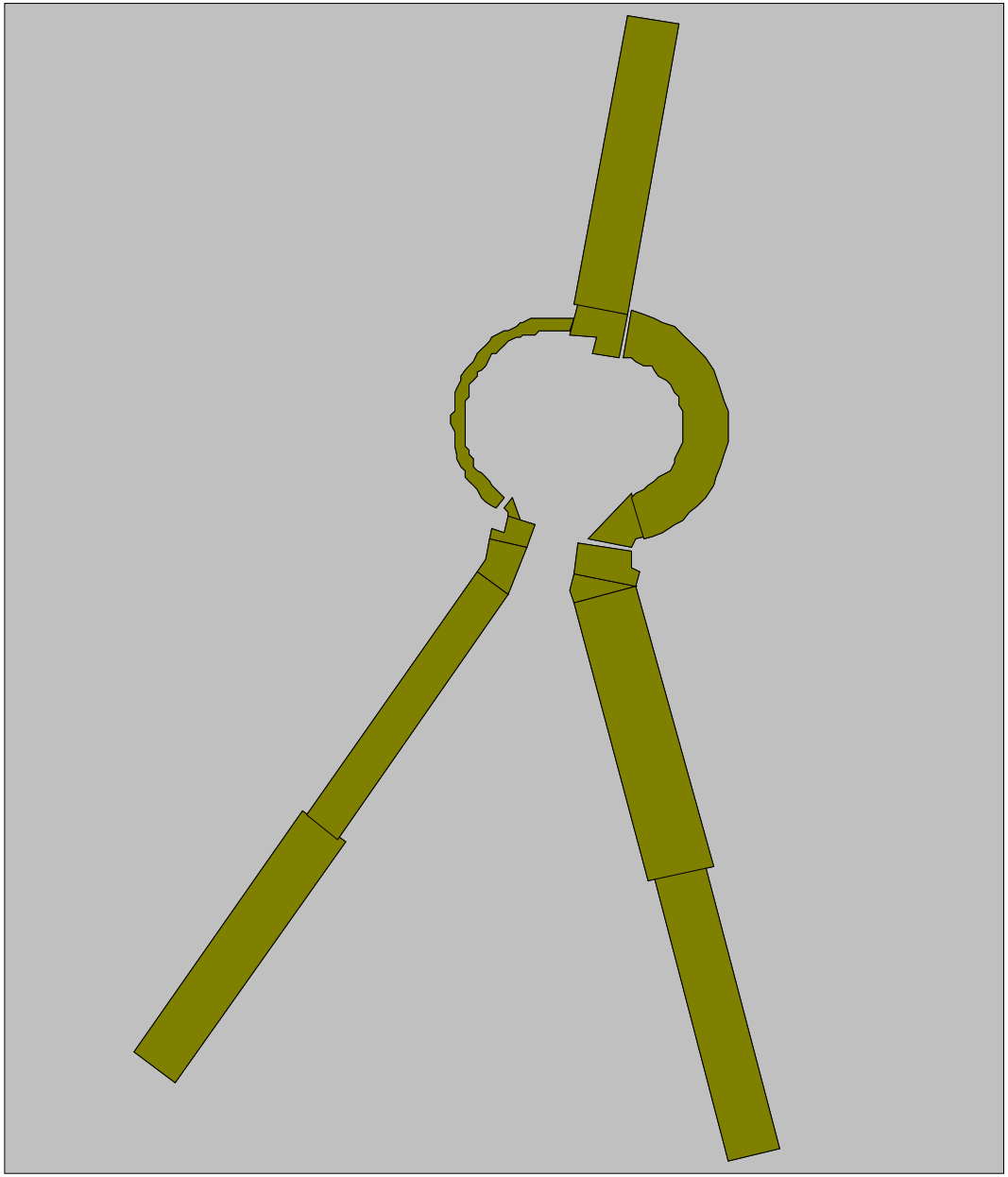
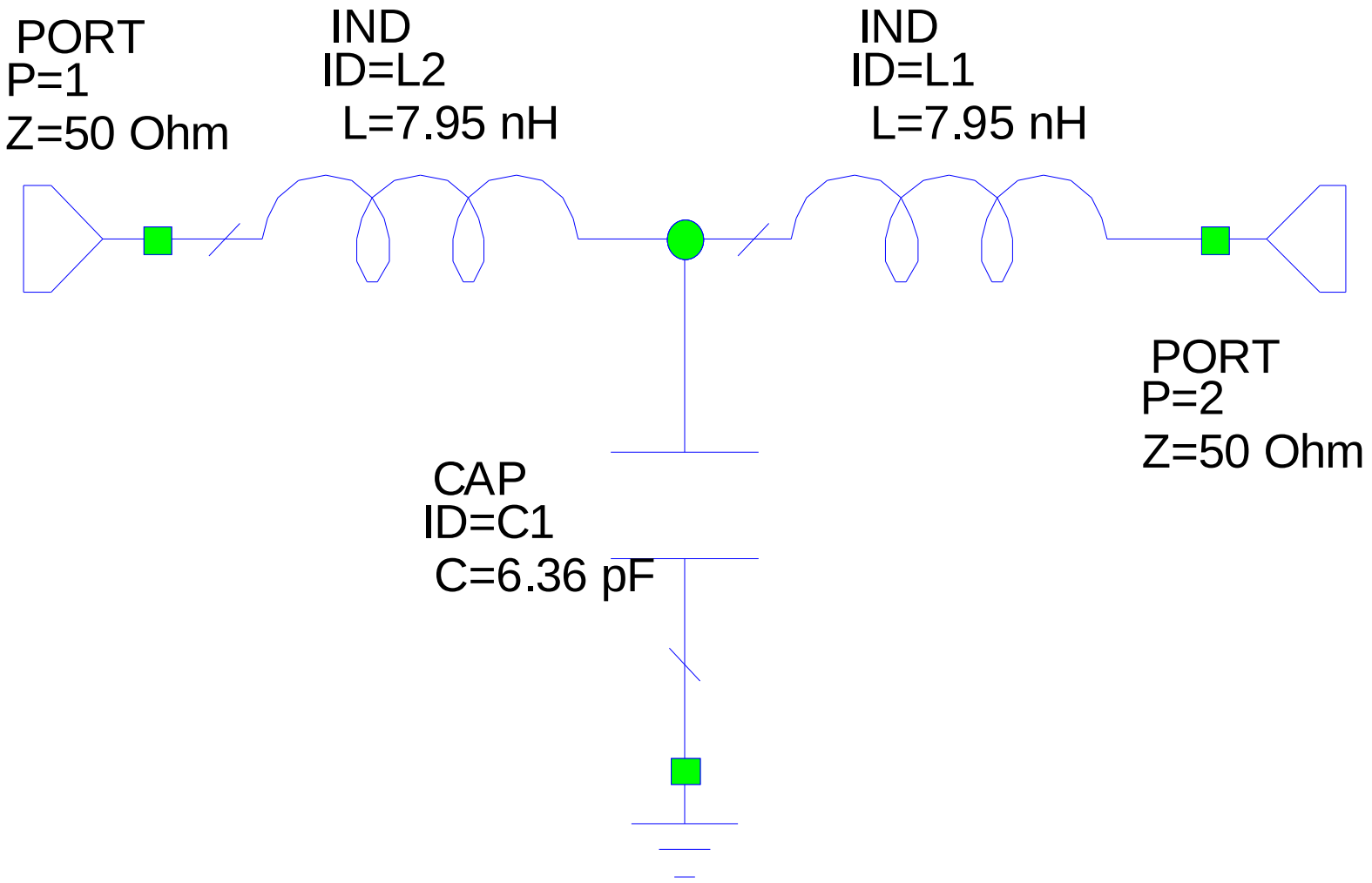

MLIN
ID=TL5
W=2.401 mm
L=17.82 mm
MSTEP
ID=TL4
W1=2.401 mm
W2=3.108 mm
MLIN
ID=TL8
W=3.108 mm
L=17.6 mm
PORT
P=2
Z=50 Ohm
MTEE
ID=TL12
W1=0.7425 mm
W2=2.401 mm
W3=1.5 mm
MBEND A
ID=TL15
W=0.7425 mm
ANG=65 Deg
MBEND A
ID=TL2
W=2.401 mm
ANG=25 Deg
MCURVE
ID=TL14
W=0.7425 mm
ANG=155 Deg
R=5.9 mm
PORT
P=1
Z=50 Ohm
MLIN
ID=TL3
W=3.108 mm
L=17.6 mm
MTEE
ID=TL10
W1=0.7425 mm
W2=2.733 mm
W3=3.108 mm
RES
ID=R1
R=104.3 Ohm
MSUB
Er=4.4
H=1.6 mm
T=0.035 mm
Rho=1
Tand=0.025
ErNom=4.4
Name=FR4
MCURVE
ID=TL16
W=2.733 mm
ANG=155 Deg
R=5.63 mm
MBEND A
ID=TL17
W=2.733 mm
ANG=65 Deg
MBEND A
ID=TL1
W=3.947 mm
ANG=25 Deg
MTEE
ID=TL13
W1=3.947 mm
W2=2.733 mm
W3=2 mm
MLIN
ID=TL6
W=3.947 mm
L=17.4 mm
MSTEP
ID=TL7
W1=3.947 mm
W2=3.108 mm
MLIN
ID=TL9
W=3.108 mm
L=17.6 mm
PORT
P=3
Z=50 Ohm


TLIN
ID=TL5
Z0=57.9 Ohm
EL=90 Deg
F0=2.3 GHz
TLIN
ID=TL2
Z0=96.97 Ohm
EL=90 Deg
F0=2.3 GHz
PORT
P=2
Z=50 Ohm
TLIN
ID=TL1
Z0=50 Ohm
EL=90 Deg
F0=2.3 GHz
PORT
P=1
Z=50 Ohm
RES
ID=R1
R=104.3 Ohm
TLIN
ID=TL4
Z0=43.17 Ohm
EL=90 Deg
F0=2.3 GHz
TLIN
ID=TL3
Z0=53.87 Ohm
EL=90 Deg
F0=2.3 GHz
PORT
P=3
Z=50 Ohm

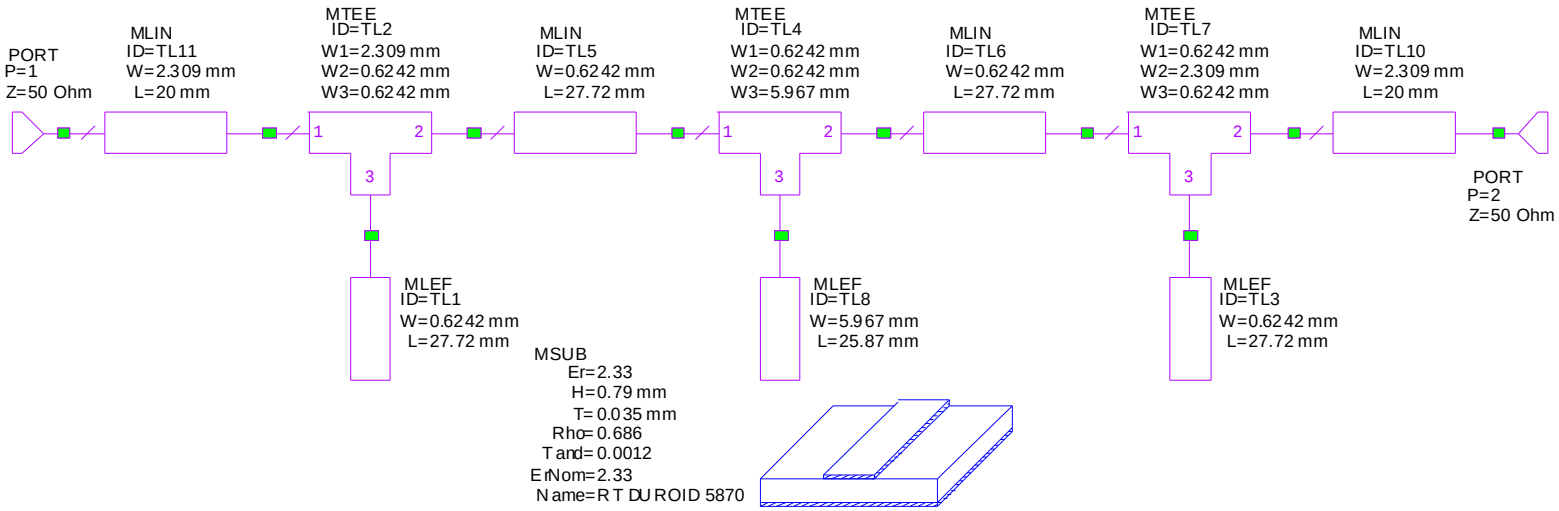

ideal tx lines
0
-20
-40
-60
-80
1
1.5
2
2.5
3
Frequency (GHz)
DB(|S[1,1]|) ~ ideal tx lines
DB(|S[1,2]|) ideal tx lines
DB(|S[3,3]|) ~ ideal tx lines
DB(|S[1,3]|) ideal tx lines
DB(|S[2,2]|) ~ ideal tx lines
DB(|S[2,3]|) ~ ideal tx lines

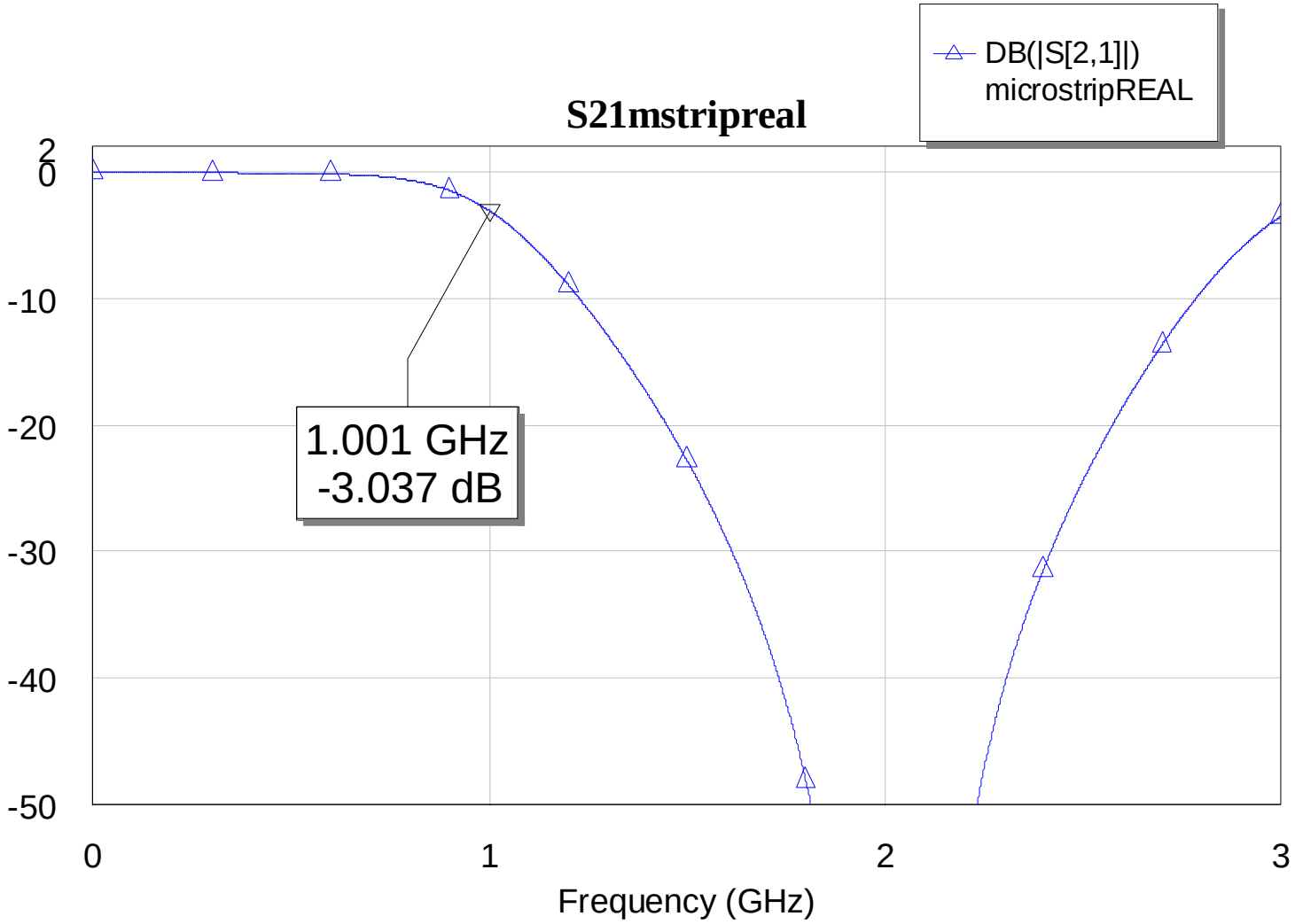

real wilkinson
0
-10
-20
-30
-40
-50
1
1.5
2
2.5
3
Frequency (GHz)
DB(|S[2,3]|) ~ wilkinson
DB(|S[1,3]|) wilkinson
DB(|S[2,2]|) ~ wilkinson
DB(|S[1,1]|) ~ wilkinson
DB(|S[1,2]|) wilkinson
DB(|S[3,3]|) ~ wilkinson




PORT
P=1
Z=50 Ohm
IND
ID=L2
L=7.95 nH
IND
ID=L1
L=7.95 nH
PORT
P=2
Z=50 Ohm
CAP
ID=C1
C=6.36 pF

Butterworth Filter using Real Microstrip Lines (fc=1Ghz)




S21mstripreal
DB(|S[2,1]|)
microstripREAL
2
0
-10
-20
-30
-40
-50
0
1
2
3
Frequency (GHz)
1.001 GHz
-3.037 dB