Init:

```
clear all
clc
```

Messung (PM 6303 RCL meter):

```
f_Mess = 1e3*2*pi
```

```
f_Mess = 6.2832e+03
```

Modell aufstellen:

```
R = 4.98
```

```
R = 4.9800
```

```
L = 509.8e-6
```

```
L = 5.0980e-04
```

```
syms f
assume(f,'real')
Z_K(f)=1j*f*2*pi*L+R
```

```
Z_K(f) =
```

$$\frac{249}{50}+\frac{4702075064388565\,\pi\,f\,\mathrm{i}}{4611686018427387904}$$

```
% Kontrolle mit Messgerät:
double(abs(Z_K(f_Mess)))
```

```
ans = 20.7331
```

```
% Kontrolle ist ok!
```

Anpassnetzwerk:

```
f_x = 3000
```

```
f_x = 3000
```

```
R_ext_ser = 0
```

```
R_ext_ser = 0
```

```
C_ext_ser = 1/(L*(f_x*2*pi)^2)
```

```
C_ext_ser = 5.5207e-06
```

```
L_ext_par = inf
```

```
L_ext_par = Inf
```

```
Z_K_neu(f) = 1/(1/(Z_K(f))+1/(1j*2*pi*f*L_ext_par))+R_ext_ser+1/(1j*2*pi*f*C_ext_ser)
```

```
Z_K_neu(f) =
```

$$\frac{249}{50} - \frac{5902958103587056517 12\,\mathrm{i}}{6517748812677849\,f\,\pi} + \frac{4702075064388565\,\pi\,f\,\mathrm{i}}{4611686018427387904}$$

Modell analysieren:

```
clf
f_u = 2000
```

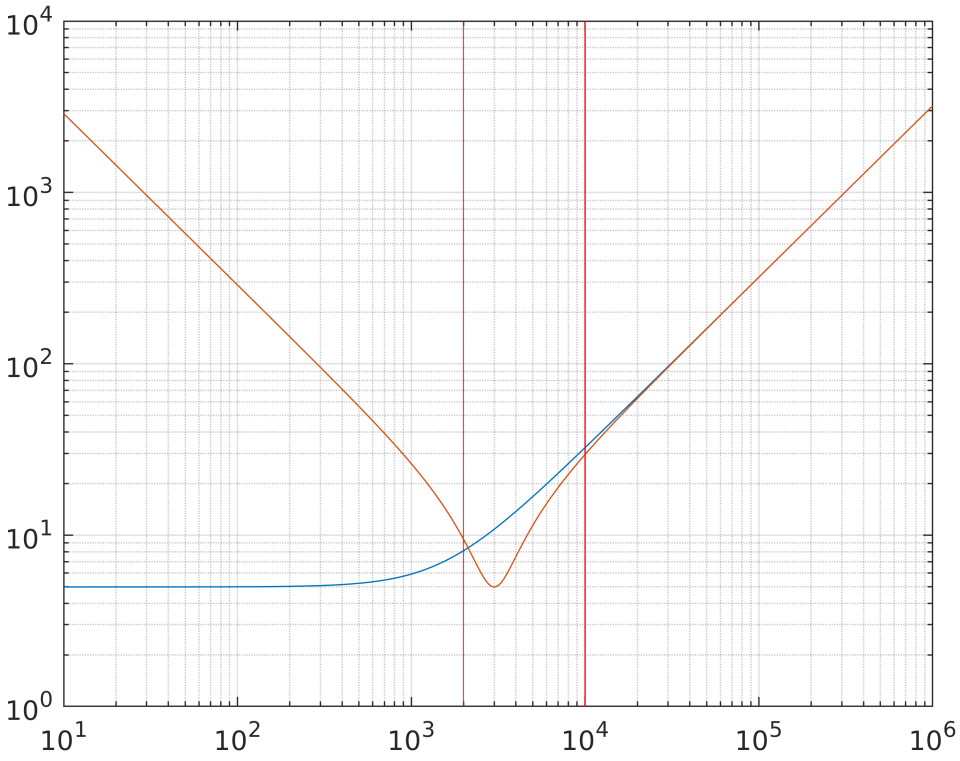
```
f_u = 2000
```

```
f_o = 10000
```

```
f_o = 10000
```

```
f_bode = logspace(1,6,7*100);
Z_K_bode = Z_K(f_bode);
loglog(f_bode,abs(Z_K_bode));
hold on
Z_K_neu_bode = Z_K_neu(f_bode);
loglog(f_bode,abs(Z_K_neu_bode));
line ([f_u f_u],[1 10^4],'Color','red')
line ([f_o f_o],[1 10^4],'Color','red')

grid on
```


10^4
10^3
10^2
10^1
10^0
10^1
10^2
10^3
10^4
10^5
10^6