Capacitação em Circuitos Fotônicos em Silício.

Ring Resonator

VIRTUS CC

Centro de Competência Embrapii em Hardware Inteligente para a Indústria

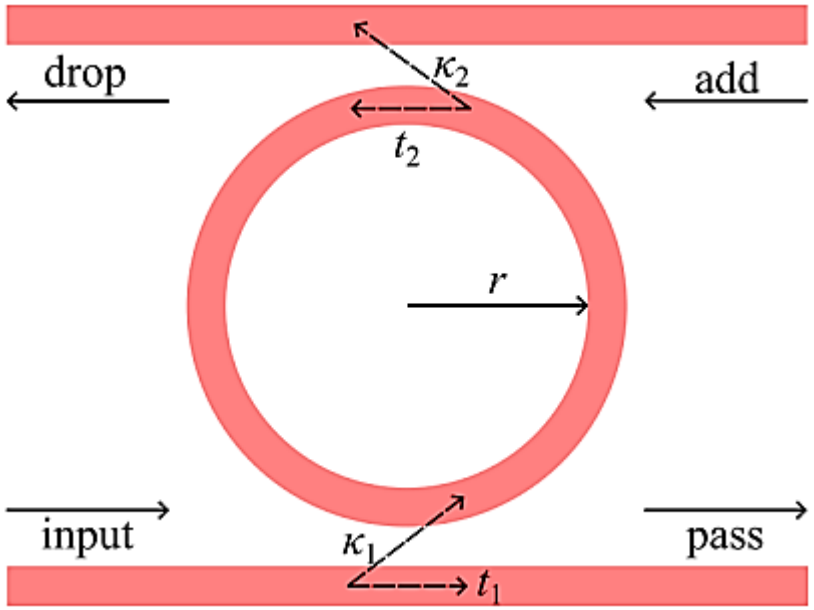
CURSOS, CAPACITAÇÃO E TREINAMENTOS

EMBRAPII

Empresa Brasileira de Pesquisa e Inovação Industrial

Edilberto Elias Xavier Junior

Geometria



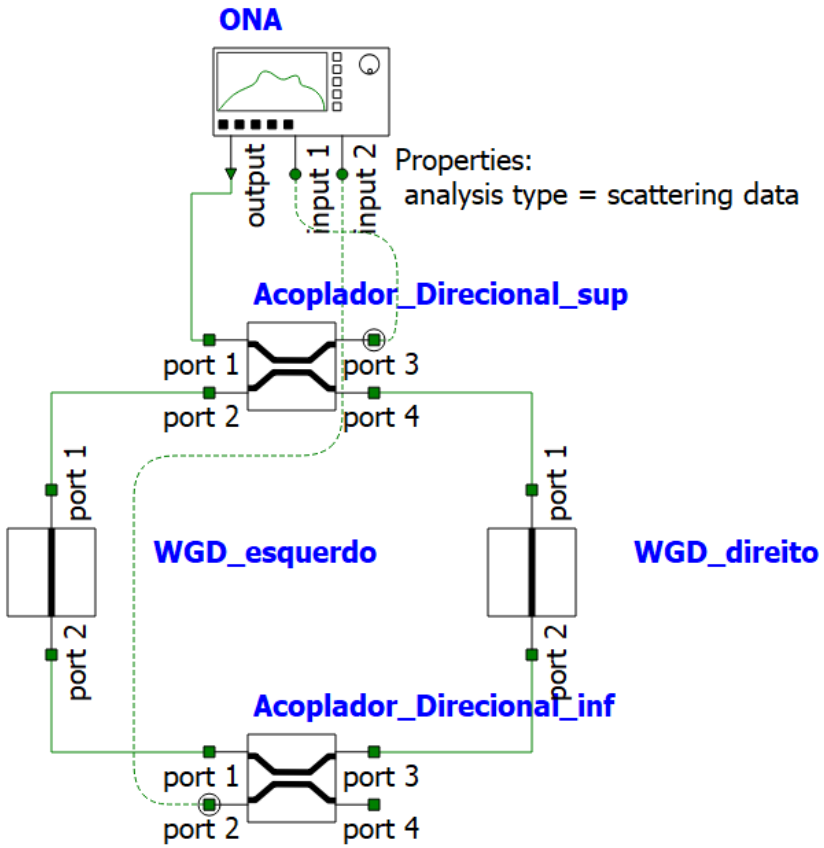
Dimensão Importantes:
Altura = 0.22μm
Largura = 0.5μm
Raio de abertura = 5μm
Comprimento do Acoplador = 14μm

FSR = 1nm:
Lr = 552.82μm
Lc = 662.82μm
Lc_wg = 110.00μm

FSR = 10nm:
Lr = 552.82μm
Lc = 662.82μm
Lc_wg = 110.00μm

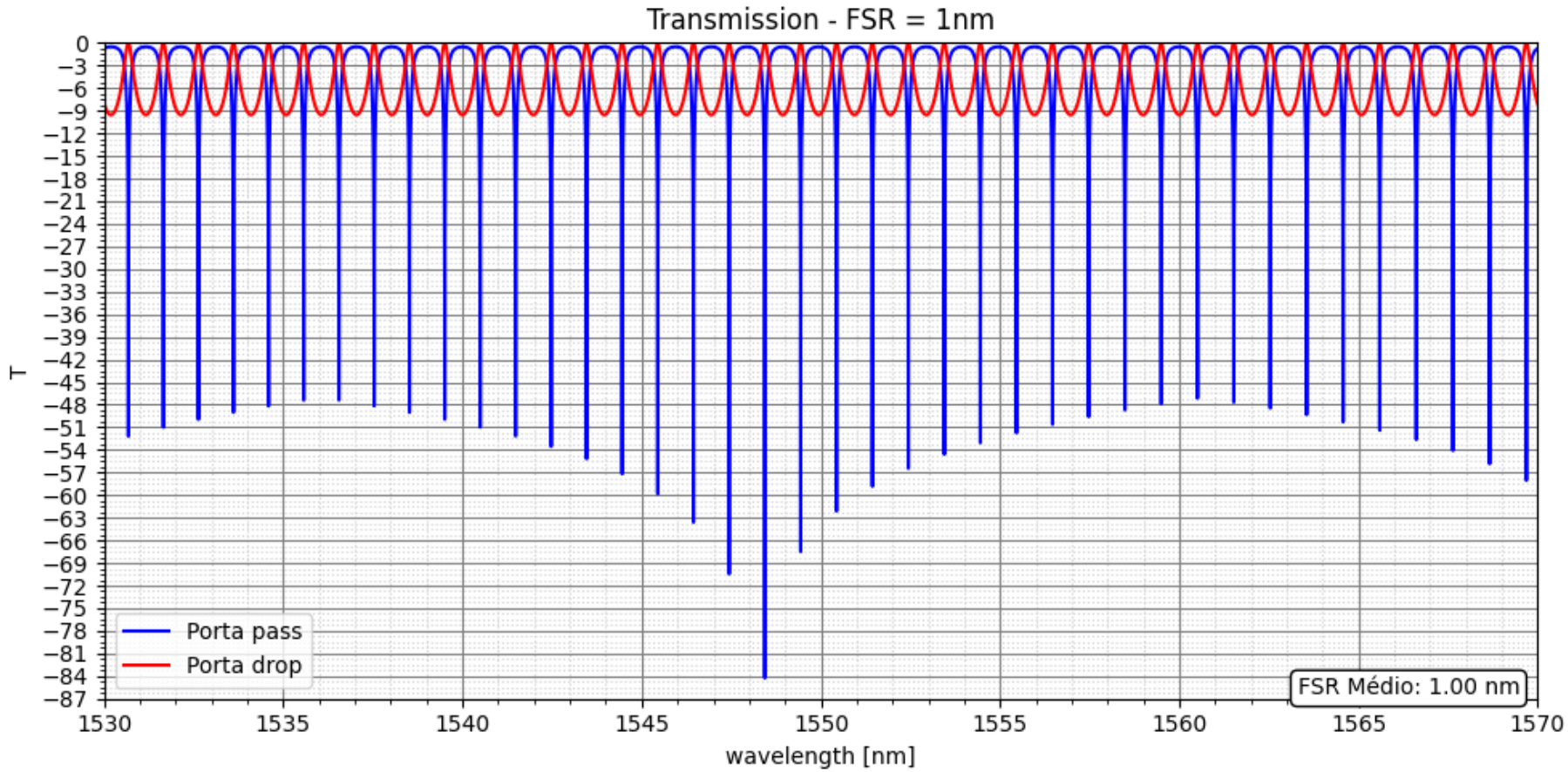
FSR = 20nm:
Lr = 552.82μm
Lc = 662.82μm
Lc_wg = 110.00μm

Geometria


ONA
output
input 1
input 2
Properties:
analysis type = scattering data
Acoplador_Direcional_sup
port 1
port 2
port 3
port 4
port 1
port 2
WGD_esquerdo
port 1
port 2
WGD_direito
Acoplador_Direcional_inf
port 1
port 2
port 3
port 4

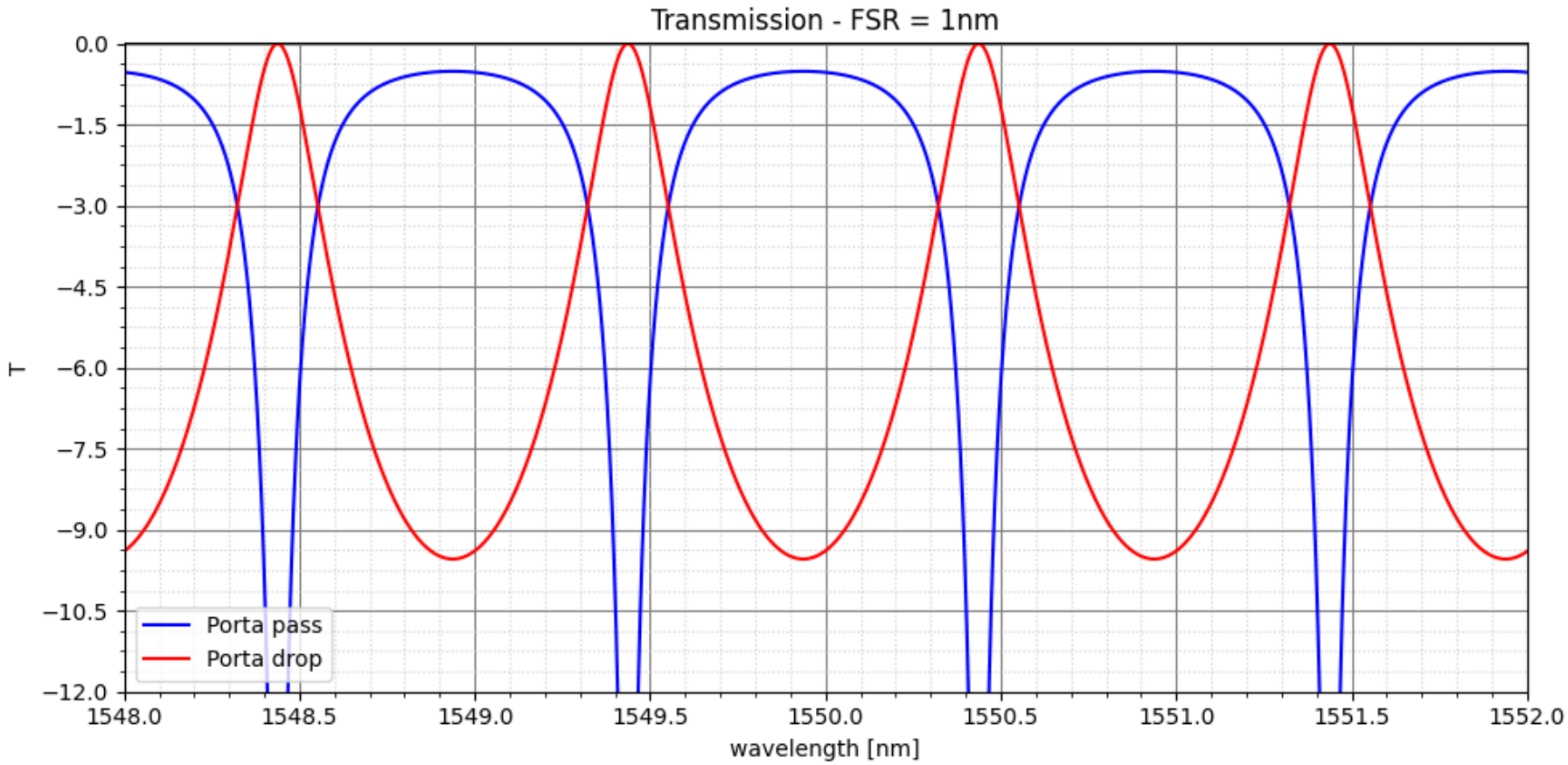
1. Transmissão

2.1 Transmissão x Comprimento de onda



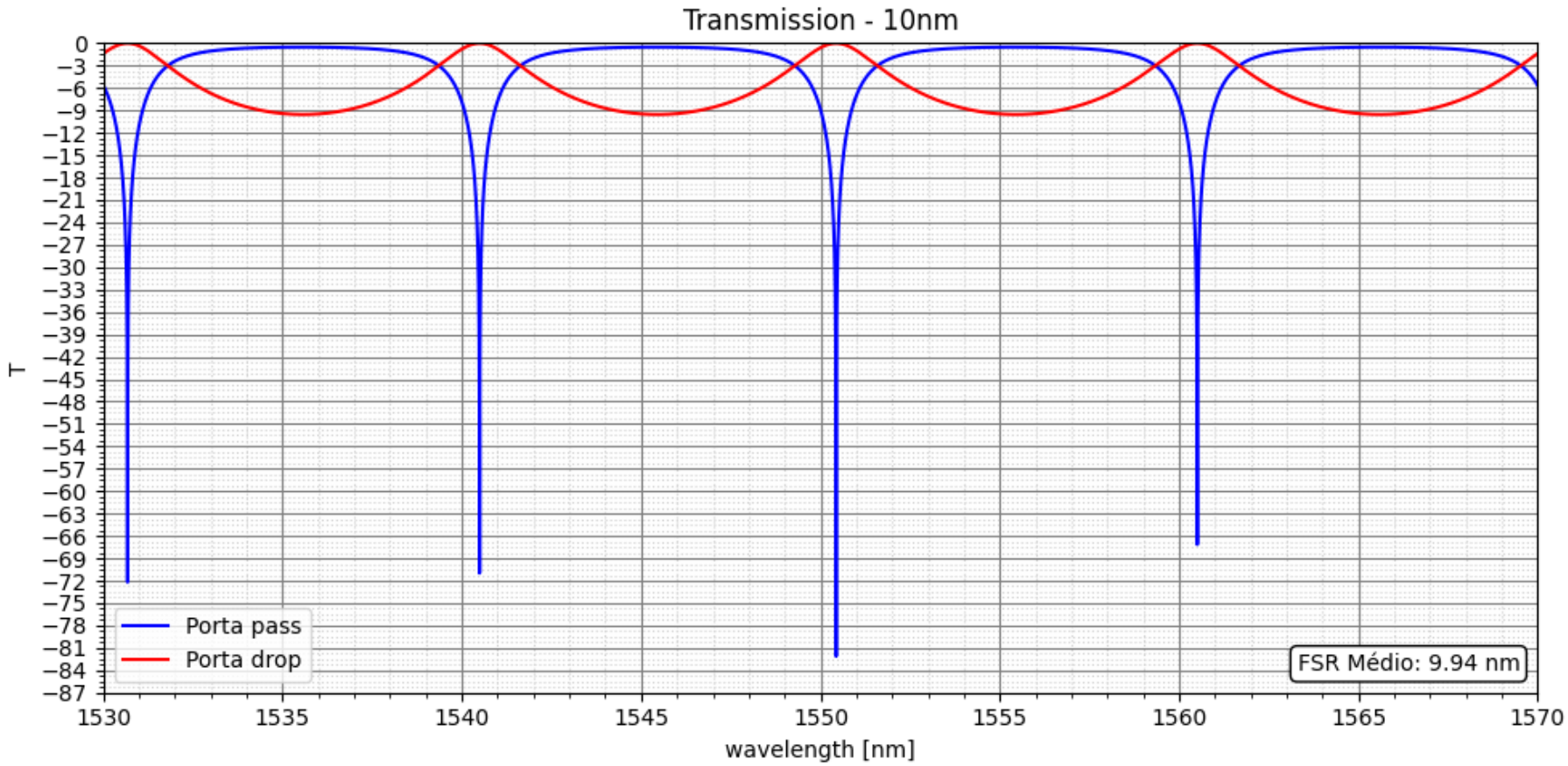
Dispositivos Ideais

2.1 Transmissão x Comprimento de onda



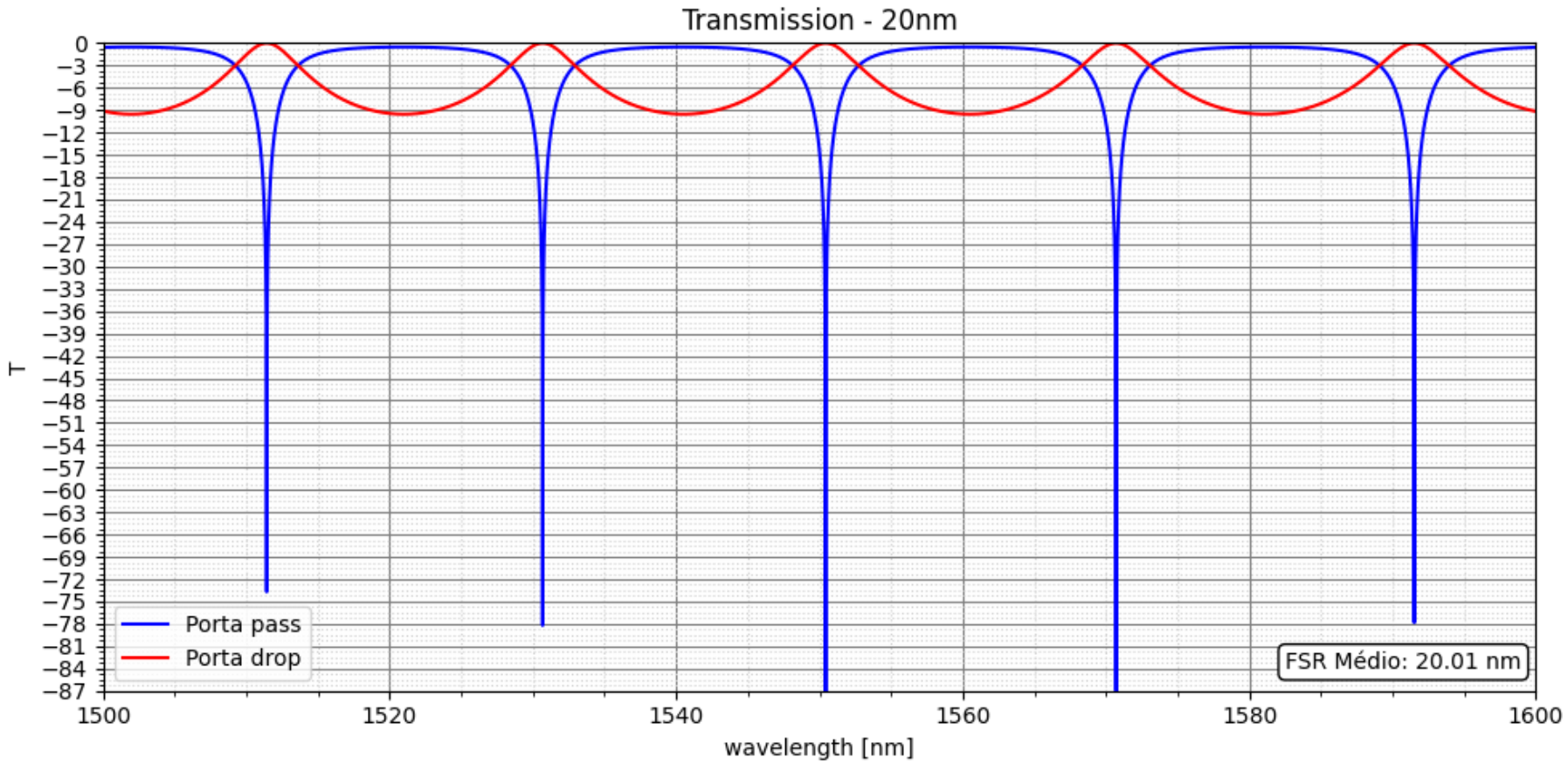
Dispositivos Ideais

2.1 Transmissão x Comprimento de onda



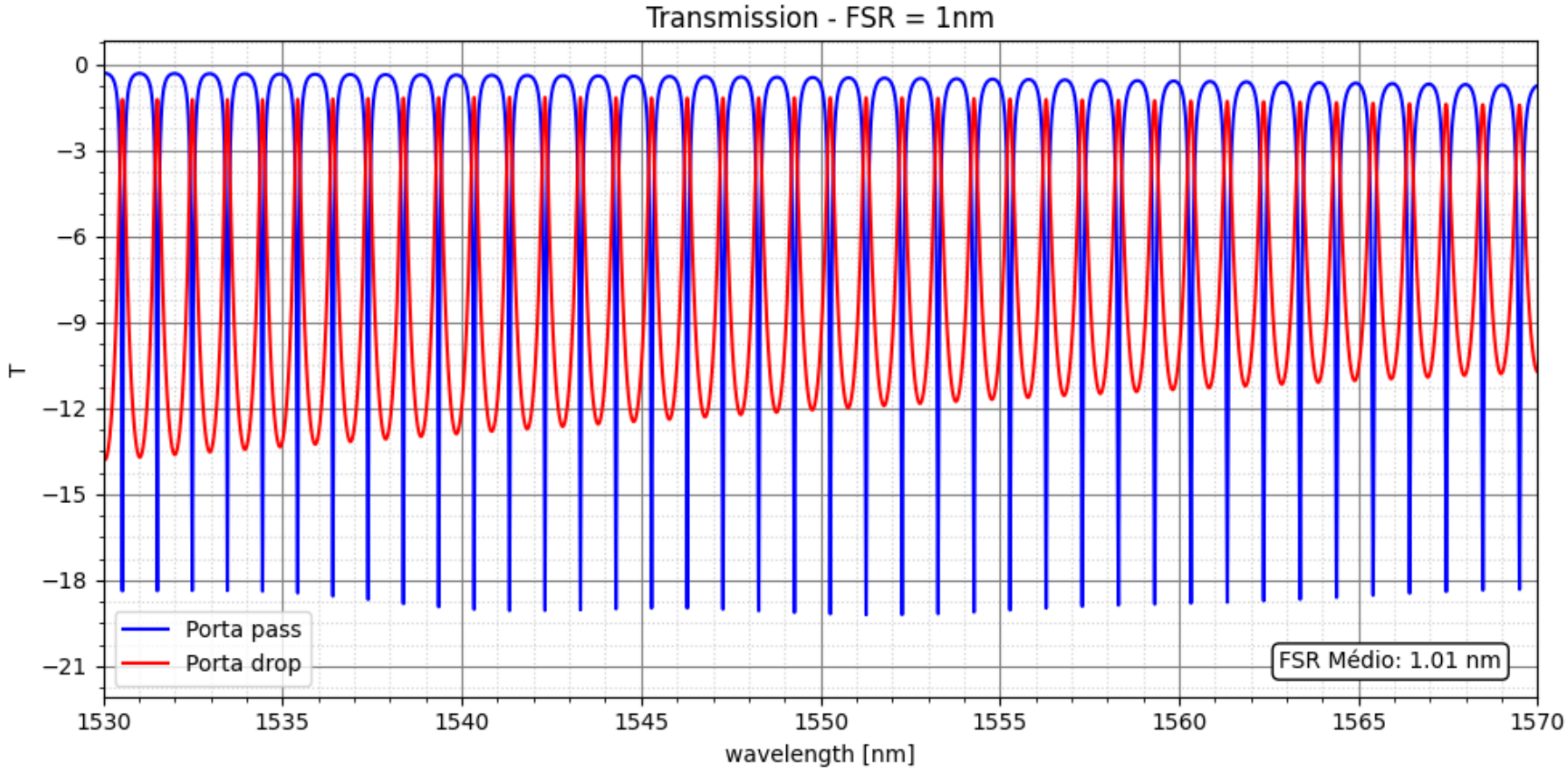
Dispositivos Ideais

2.1 Transmissão x Comprimento de onda



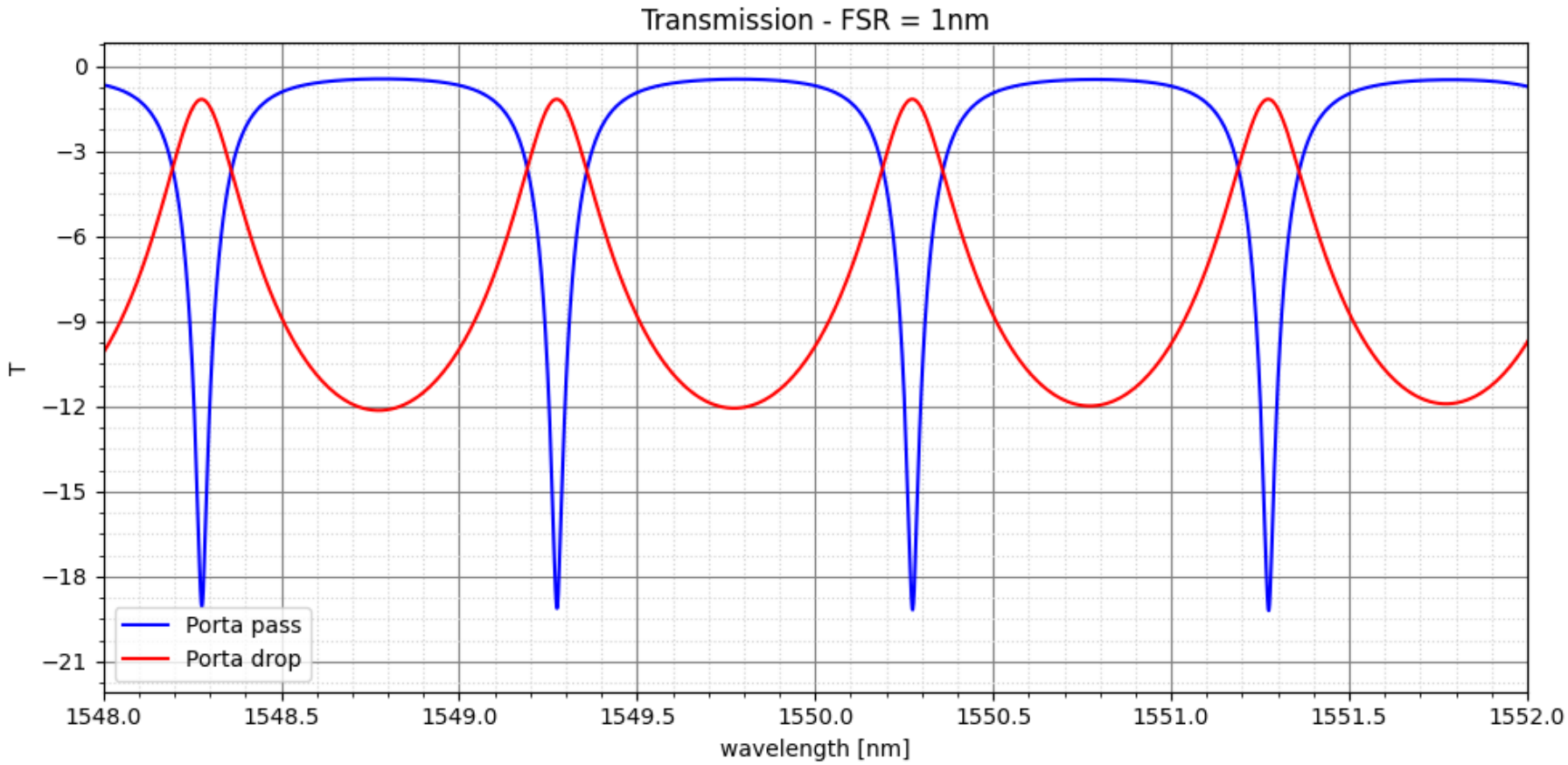
Dispositivos Ideais

2.1 Transmissão x Comprimento de onda



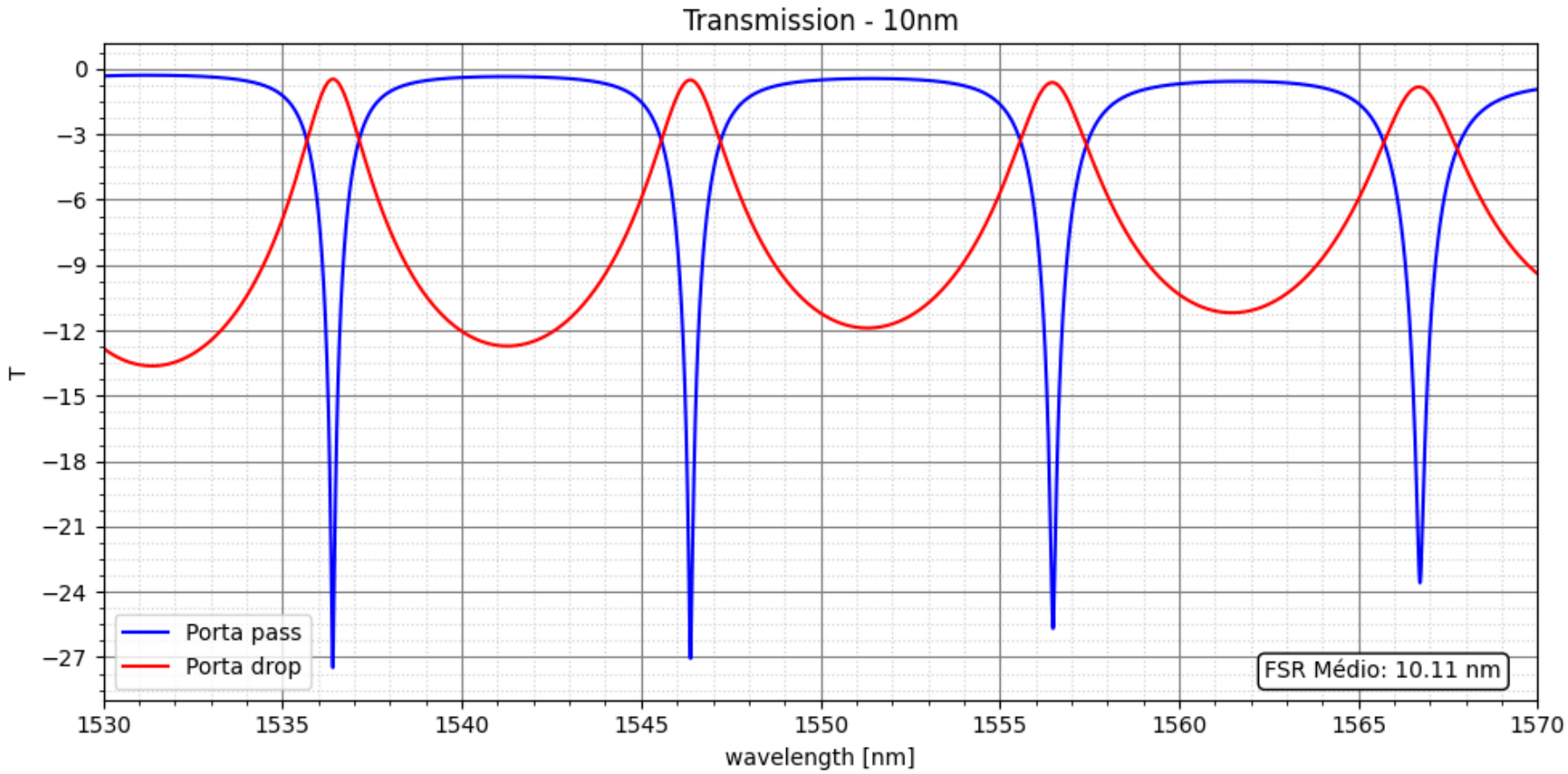
Dispositivos PDK SiePic

2.1 Transmissão x Comprimento de onda



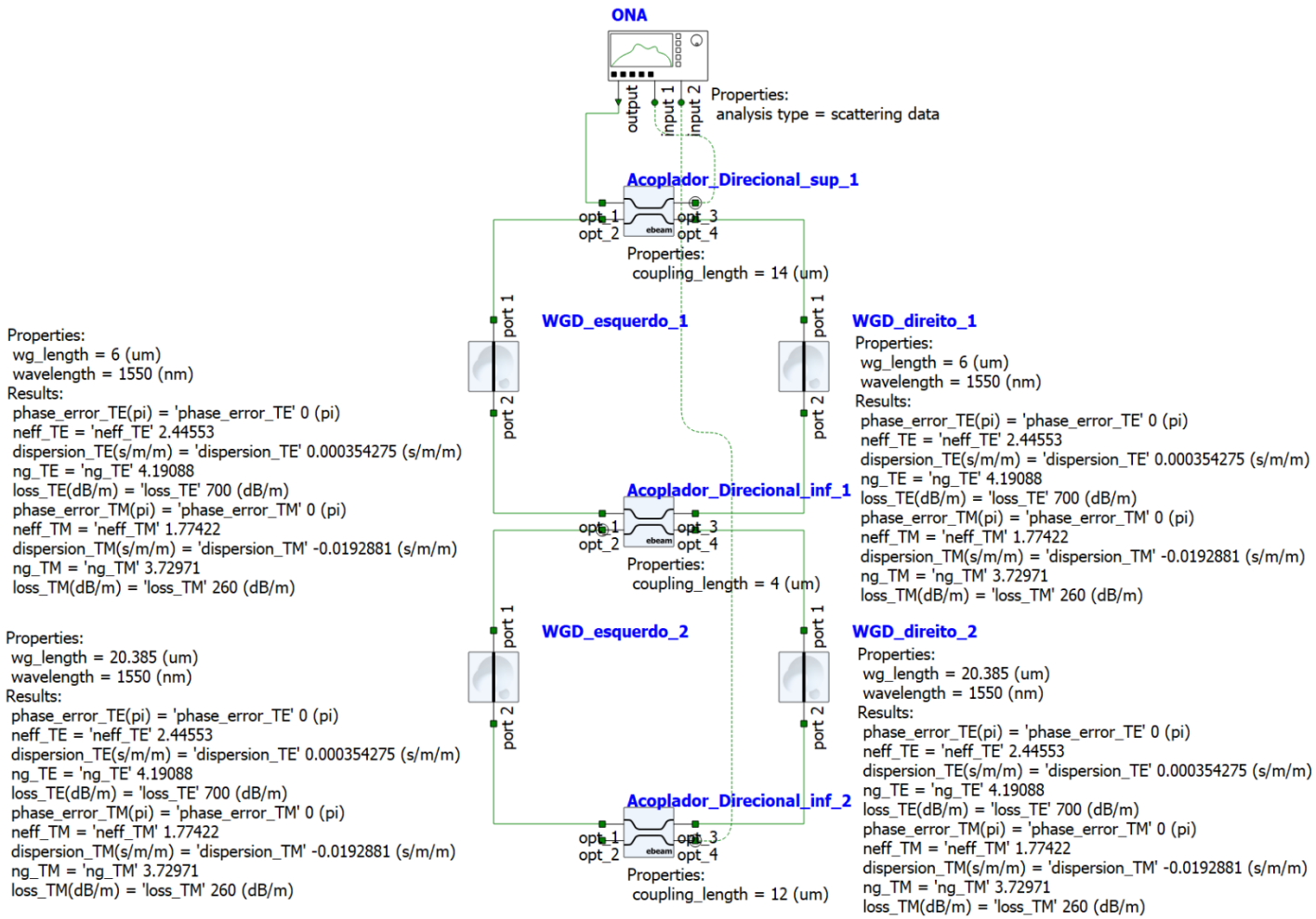
Dispositivos PDK SiePic

2.1 Transmissão x Comprimento de onda

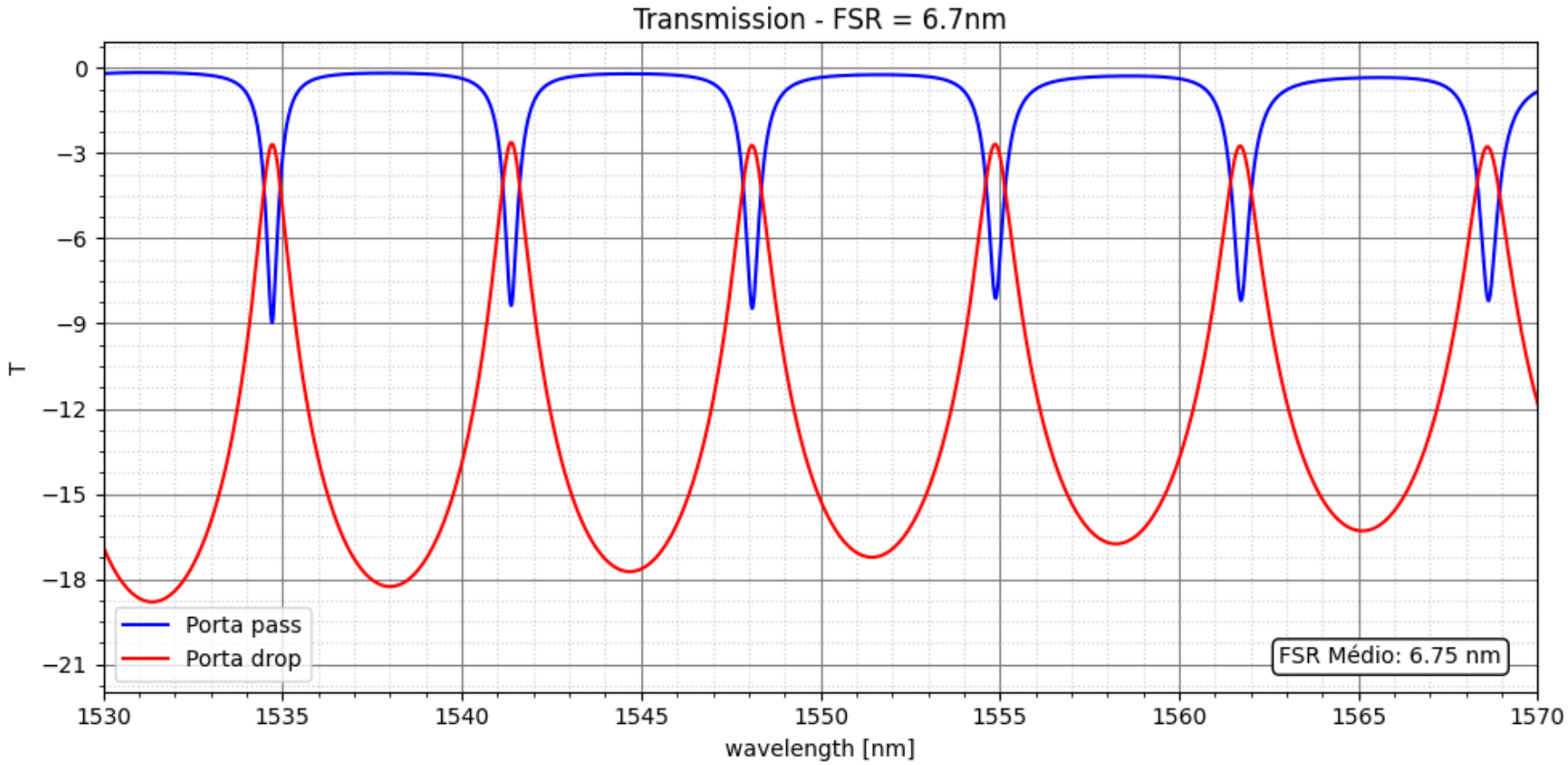


Dispositivos PDK SiePic

Geometria

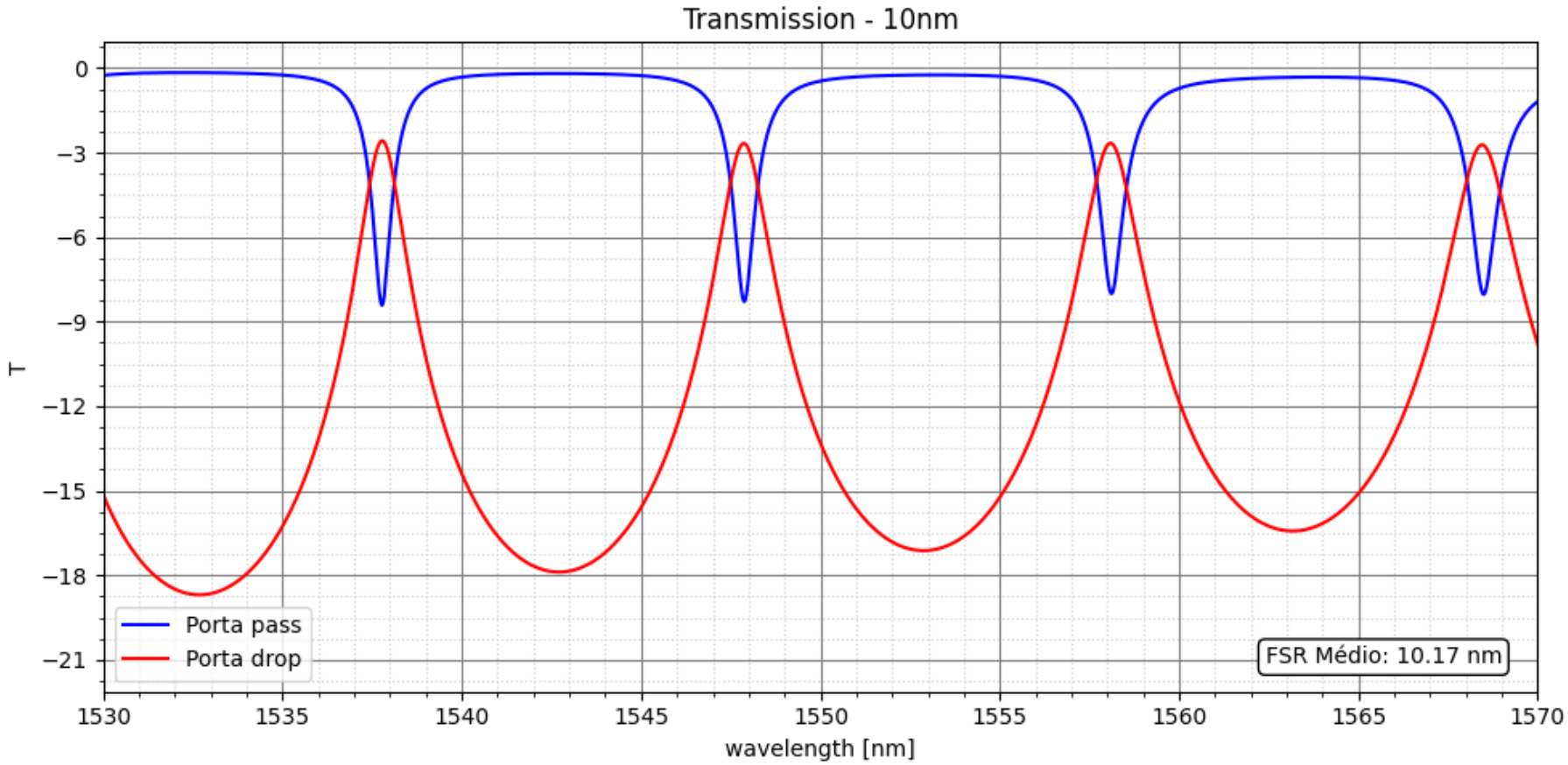

ONA
output
input 1
input 2
Properties:
analysis type = scattering data
Acoplador_Direcional_sup_1
opt_1
opt_2
opt_3
opt_4
Properties:
coupling_length = 14 (um)
WGD_esquerdo_1
port 1
port 2
Properties:
wg_length = 6 (um)
wavelength = 1550 (nm)
Results:
phase_error_TE(pi) = 'phase_error_TE' 0 (pi)
neff_TE = 'neff_TE' 2.44553
dispersion_TE(s/m/m) = 'dispersion_TE' 0.000354275 (s/m/m)
ng_TE = 'ng_TE' 4.19088
loss_TE(dB/m) = 'loss_TE' 700 (dB/m)
phase_error_TM(pi) = 'phase_error_TM' 0 (pi)
neff_TM = 'neff_TM' 1.77422
dispersion_TM(s/m/m) = 'dispersion_TM' -0.0192881 (s/m/m)
ng_TM = 'ng_TM' 3.72971
loss_TM(dB/m) = 'loss_TM' 260 (dB/m)
WGD_direito_1
Properties:
wg_length = 6 (um)
wavelength = 1550 (nm)
Results:
phase_error_TE(pi) = 'phase_error_TE' 0 (pi)
neff_TE = 'neff_TE' 2.44553
dispersion_TE(s/m/m) = 'dispersion_TE' 0.000354275 (s/m/m)
ng_TE = 'ng_TE' 4.19088
loss_TE(dB/m) = 'loss_TE' 700 (dB/m)
phase_error_TM(pi) = 'phase_error_TM' 0 (pi)
neff_TM = 'neff_TM' 1.77422
dispersion_TM(s/m/m) = 'dispersion_TM' -0.0192881 (s/m/m)
ng_TM = 'ng_TM' 3.72971
loss_TM(dB/m) = 'loss_TM' 260 (dB/m)
Acoplador_Direcional_inf_1
Properties:
coupling_length = 4 (um)
WGD_esquerdo_2
Properties:
wg_length = 20.385 (um)
wavelength = 1550 (nm)
Results:
phase_error_TE(pi) = 'phase_error_TE' 0 (pi)
neff_TE = 'neff_TE' 2.44553
dispersion_TE(s/m/m) = 'dispersion_TE' 0.000354275 (s/m/m)
ng_TE = 'ng_TE' 4.19088
loss_TE(dB/m) = 'loss_TE' 700 (dB/m)
phase_error_TM(pi) = 'phase_error_TM' 0 (pi)
neff_TM = 'neff_TM' 1.77422
dispersion_TM(s/m/m) = 'dispersion_TM' -0.0192881 (s/m/m)
ng_TM = 'ng_TM' 3.72971
loss_TM(dB/m) = 'loss_TM' 260 (dB/m)
WGD_direito_2
Properties:
wg_length = 20.385 (um)
wavelength = 1550 (nm)
Results:
phase_error_TE(pi) = 'phase_error_TE' 0 (pi)
neff_TE = 'neff_TE' 2.44553
dispersion_TE(s/m/m) = 'dispersion_TE' 0.000354275 (s/m/m)
ng_TE = 'ng_TE' 4.19088
loss_TE(dB/m) = 'loss_TE' 700 (dB/m)
phase_error_TM(pi) = 'phase_error_TM' 0 (pi)
neff_TM = 'neff_TM' 1.77422
dispersion_TM(s/m/m) = 'dispersion_TM' -0.0192881 (s/m/m)
ng_TM = 'ng_TM' 3.72971
loss_TM(dB/m) = 'loss_TM' 260 (dB/m)
Acoplador_Direcional_inf_2
Properties:
coupling_length = 12 (um)

2.1 Transmissão x Comprimento de onda



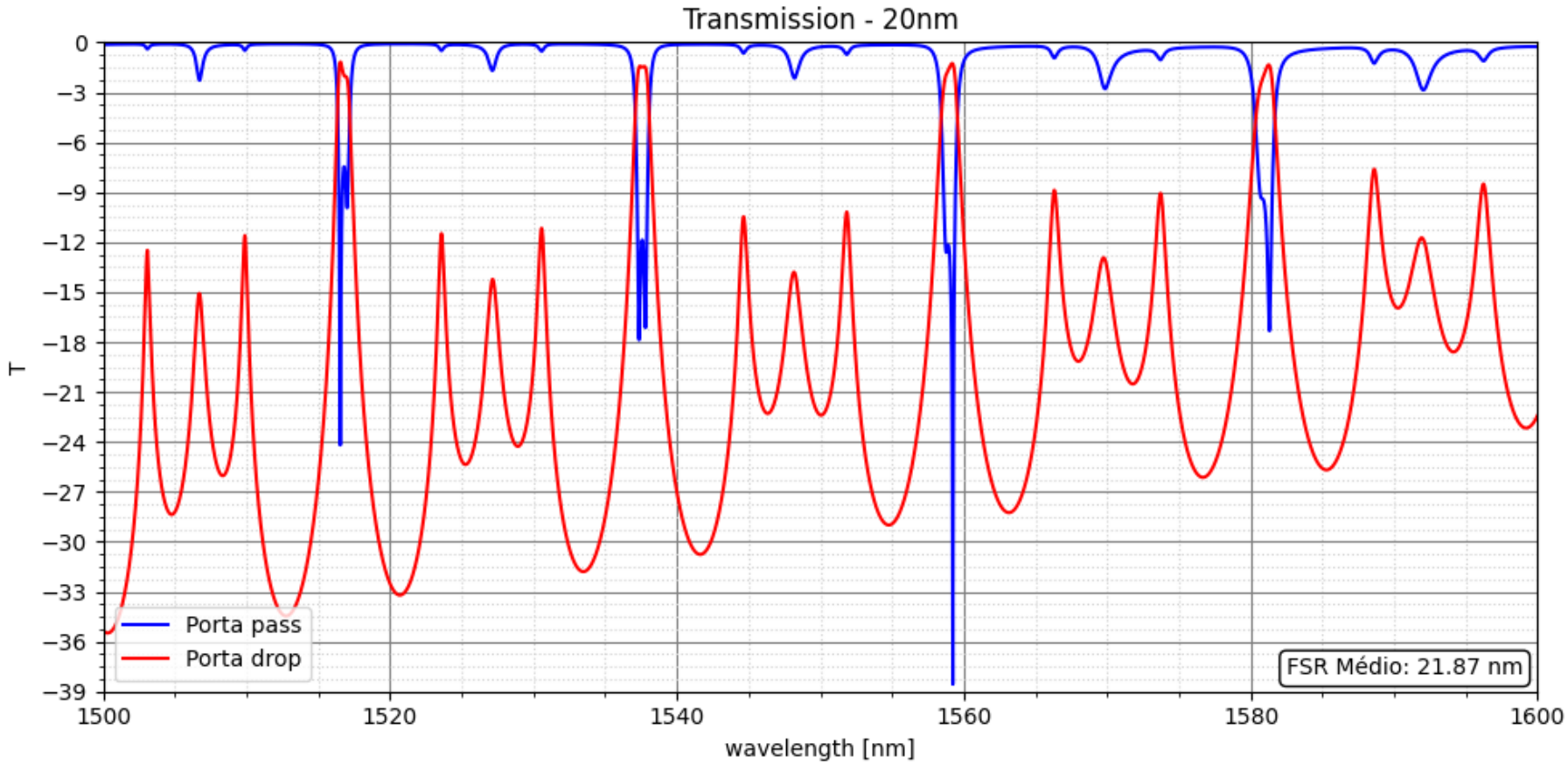
Dispositivos PDK SiePic

2.1 Transmissão x Comprimento de onda



Dispositivos PDK SiePic

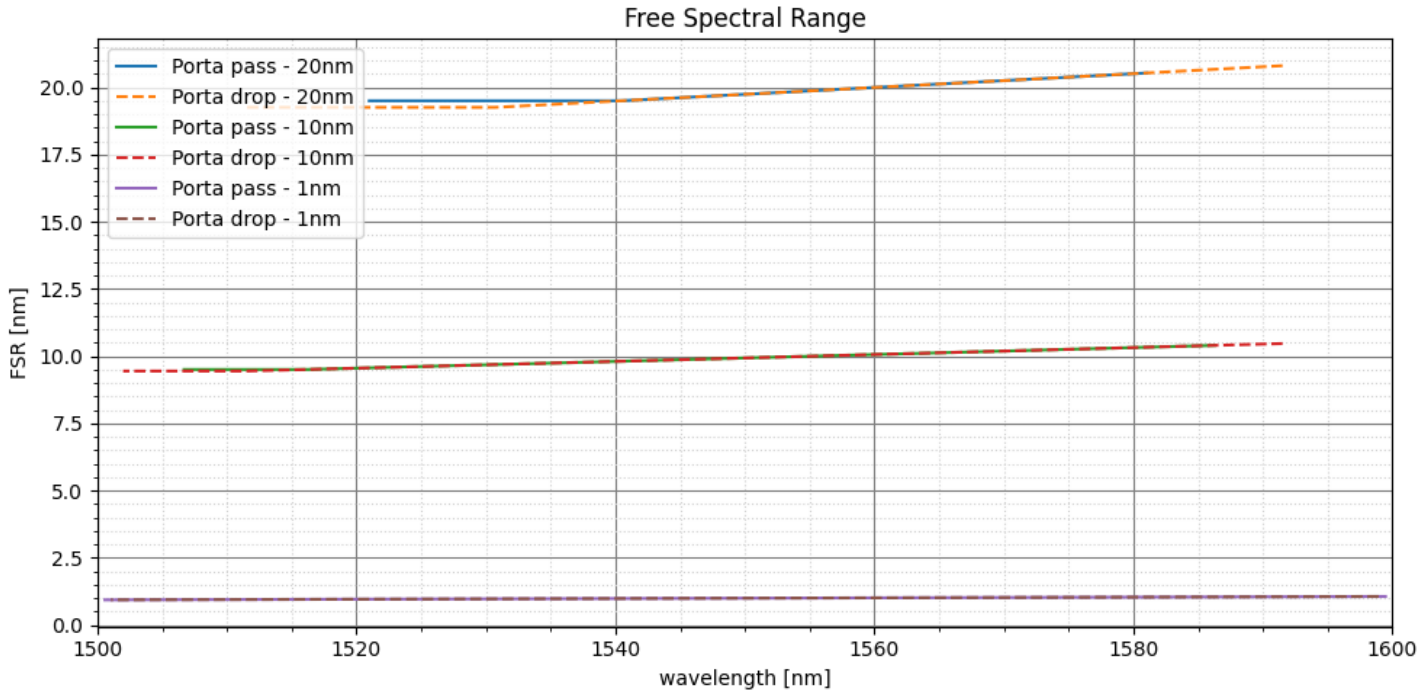
2.1 Transmissão x Comprimento de onda



Dispositivos PDK SiePic

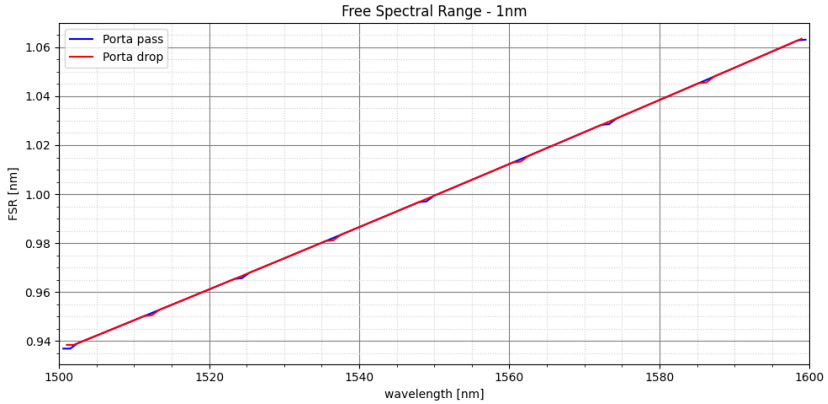
2. Free Spectral Range

2.1 FSR x Comprimento de onda

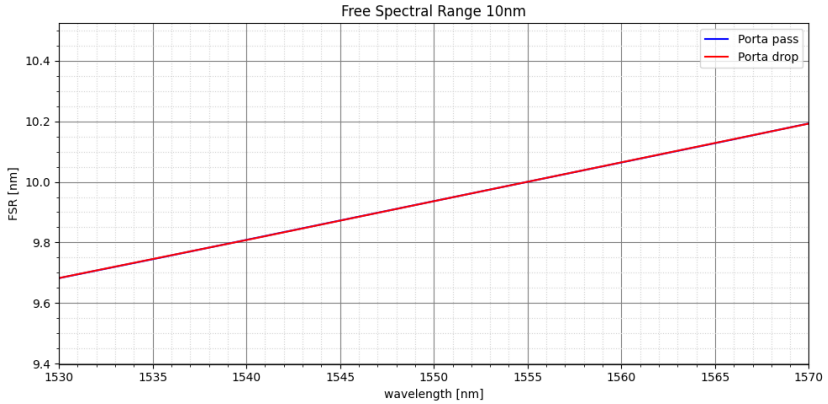


Dispositivos Ideais

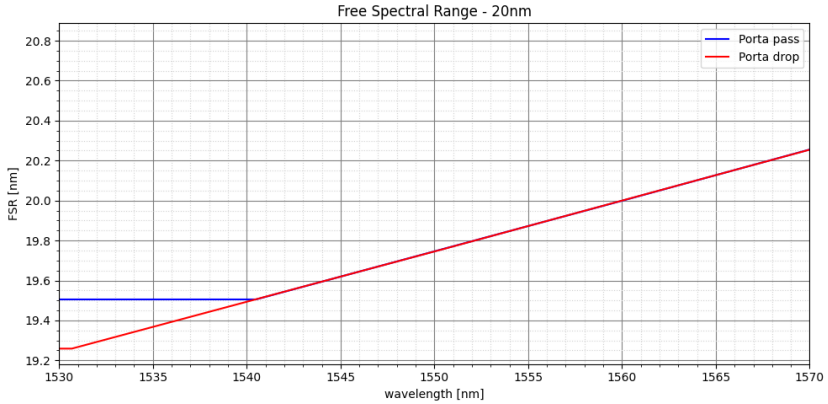
2.1 FSR x Comprimento de onda



FSR = 1nm



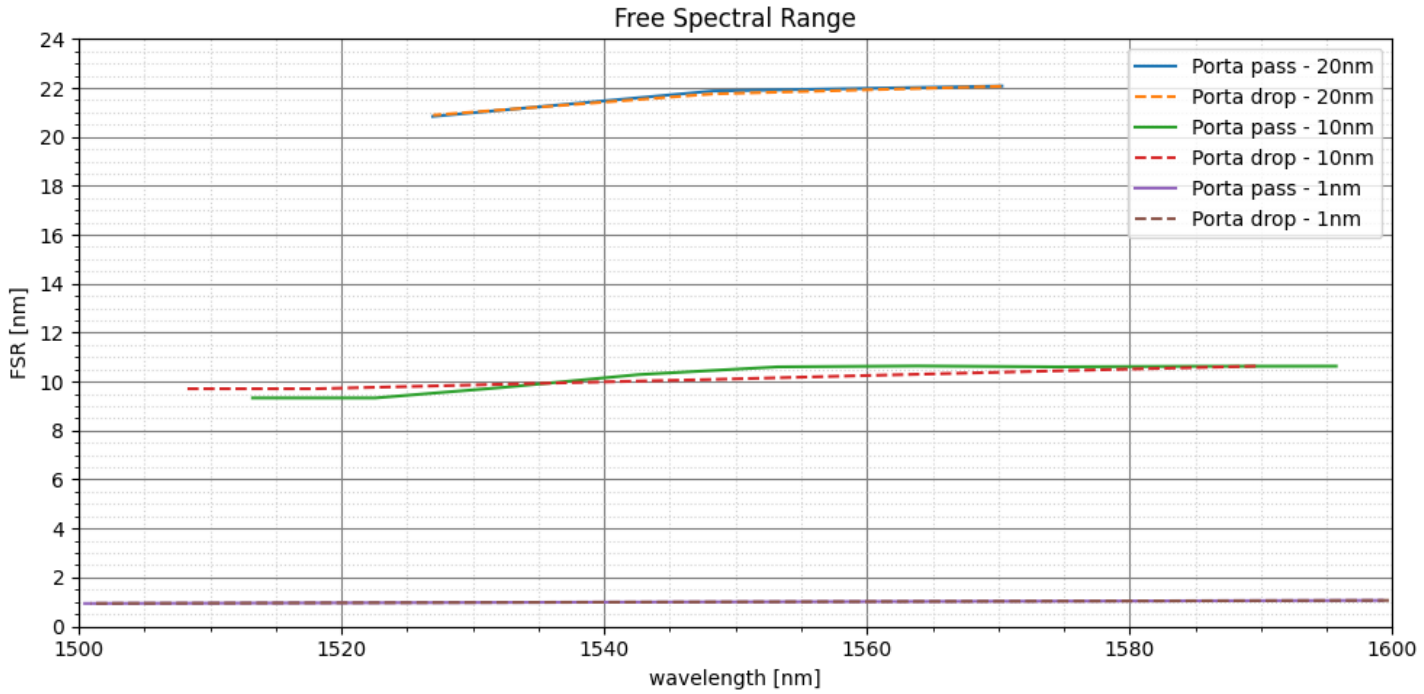
FSR = 10nm



FSR = 20nm

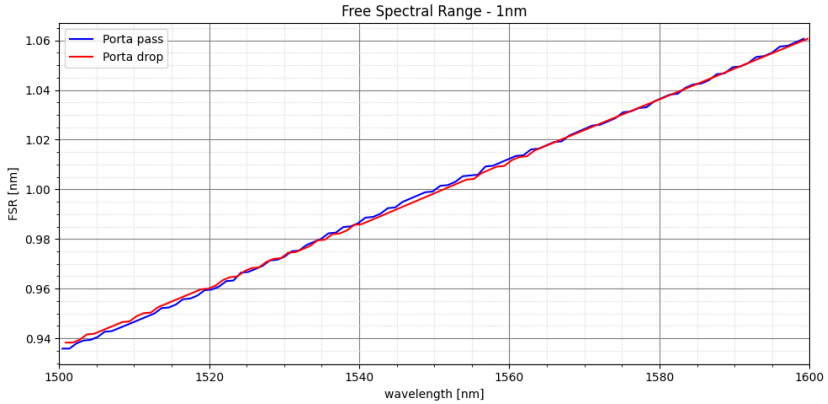
Dispositivos Ideais

2.1 FSR x Comprimento de onda

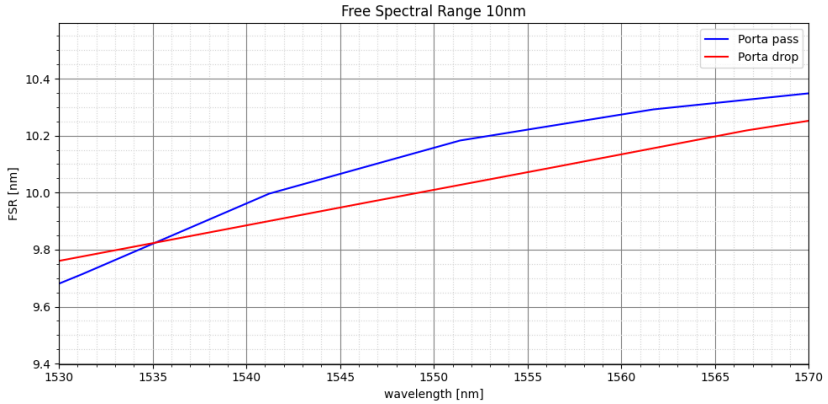


Dispositivos PDK SiePic

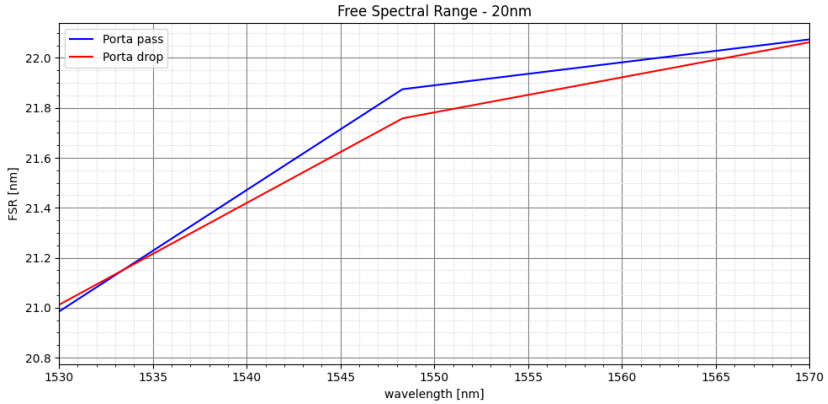
2.1 FSR x Comprimento de onda



FSR = 1nm



FSR = 10nm



FSR = 20nm

Dispositivos PDK SiePic

3. GDS

3 GDS