Emily Muller
ELEC 413
Project 1

Chip 1

Requirements:
- Oxide Clad
- Use EBeam Library on KLayout, components include
  - GC_TE_1310_8degOxide_BB
  - Waveguide: 350nm x 220nm @ 1310nm
  - ebeam_splitter_swg_assist_te1310
- 1310nm wavelength
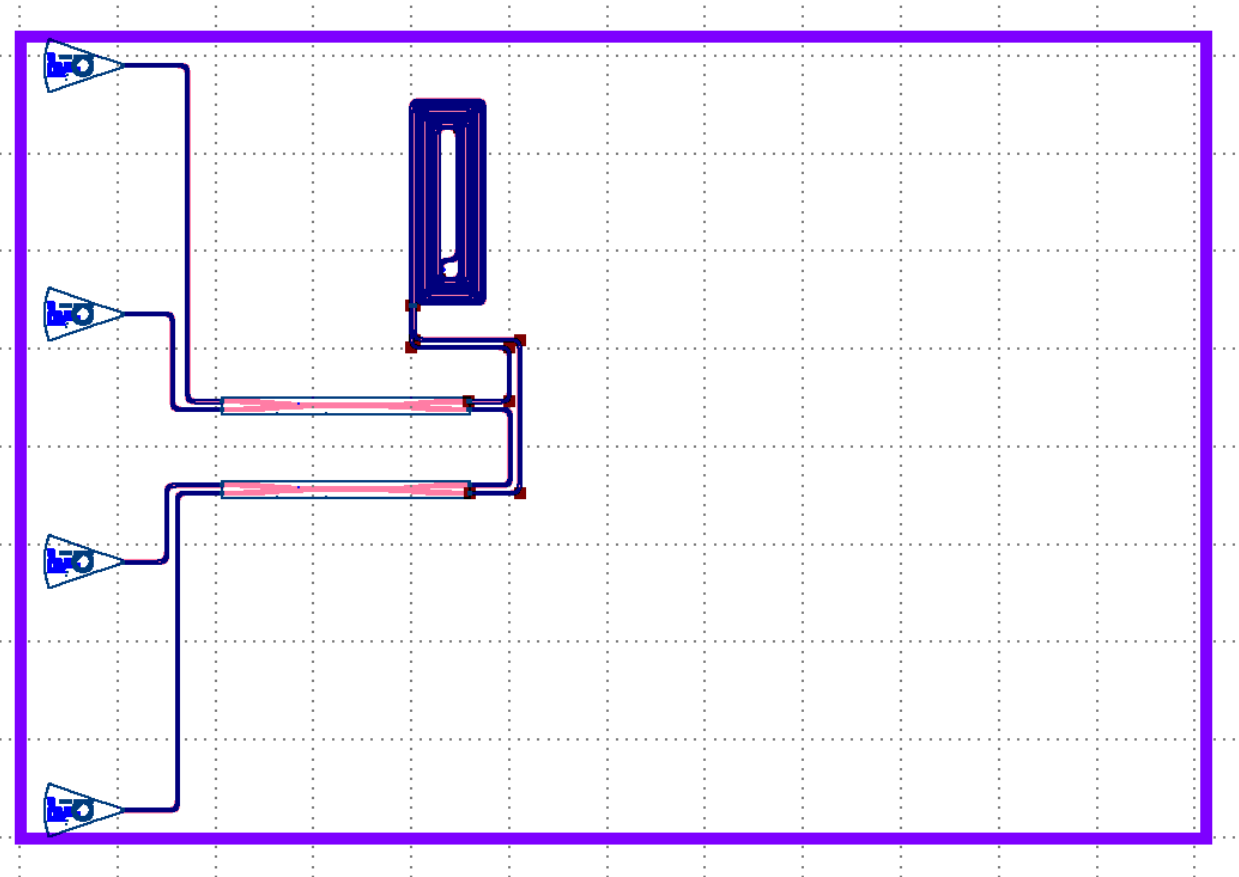- FSR = 25GHz Spacing
- 605 x 410 um floorplan

$$FSR = \frac{c}{n_g \Delta L}$$

Know FSR = 25GHz, c = 3*10^8 m/s. Need to find ng through simulation so that we can solve for the desired ΔL.

Know $\Delta L \approx 2.7 mm$

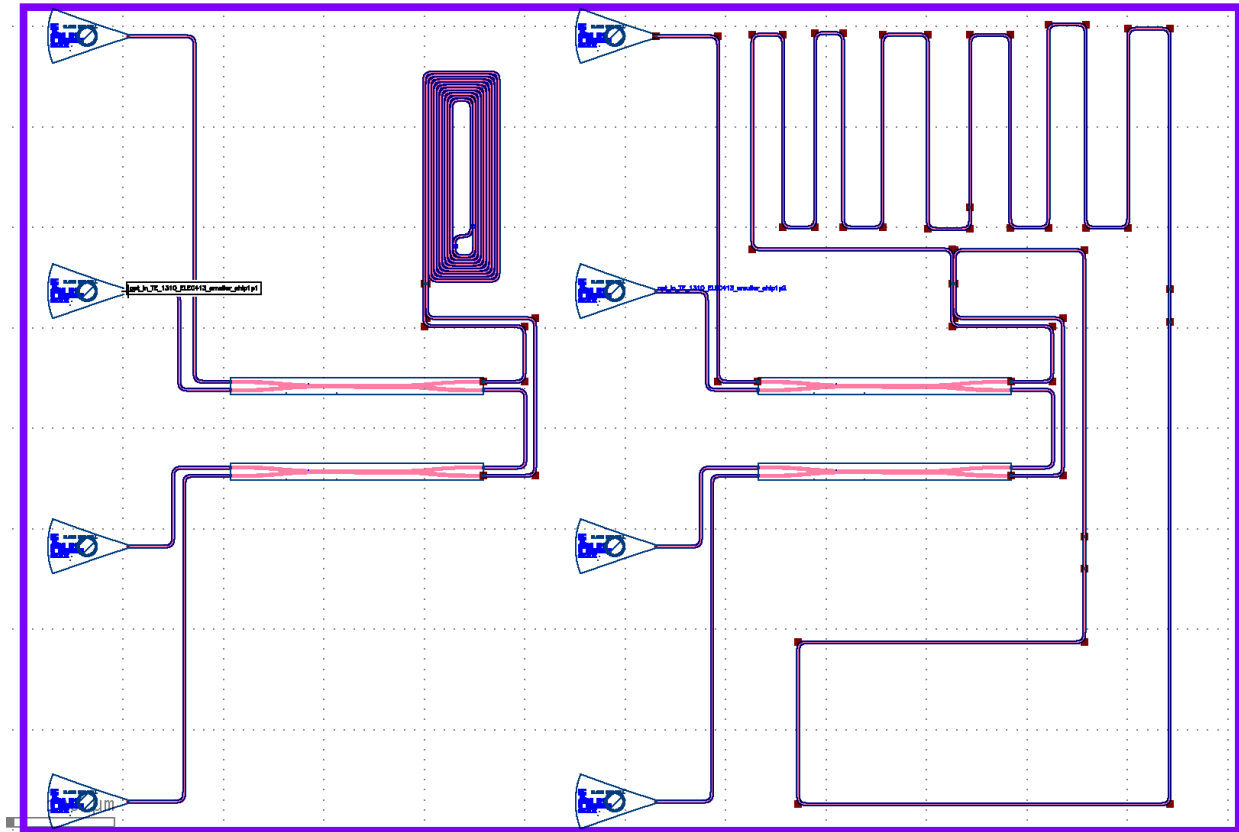| wavelength (µm)	loss (dB/cm)	group index	
1.31	0.00069427	4.685088+3.373411e-09i	97
1.31	0.00067847	5.280983+5.911007e-09i	6
1.31	0.00015743	2.067760+2.796693e-09i	41

$\Delta L = 2.65$ mm

L1 = 77.625
L2 = 2718.742
DL = 2641.118 = 2.641 mm 🙂

For second setup:
L1 = 77.625
L2 = 2747.32
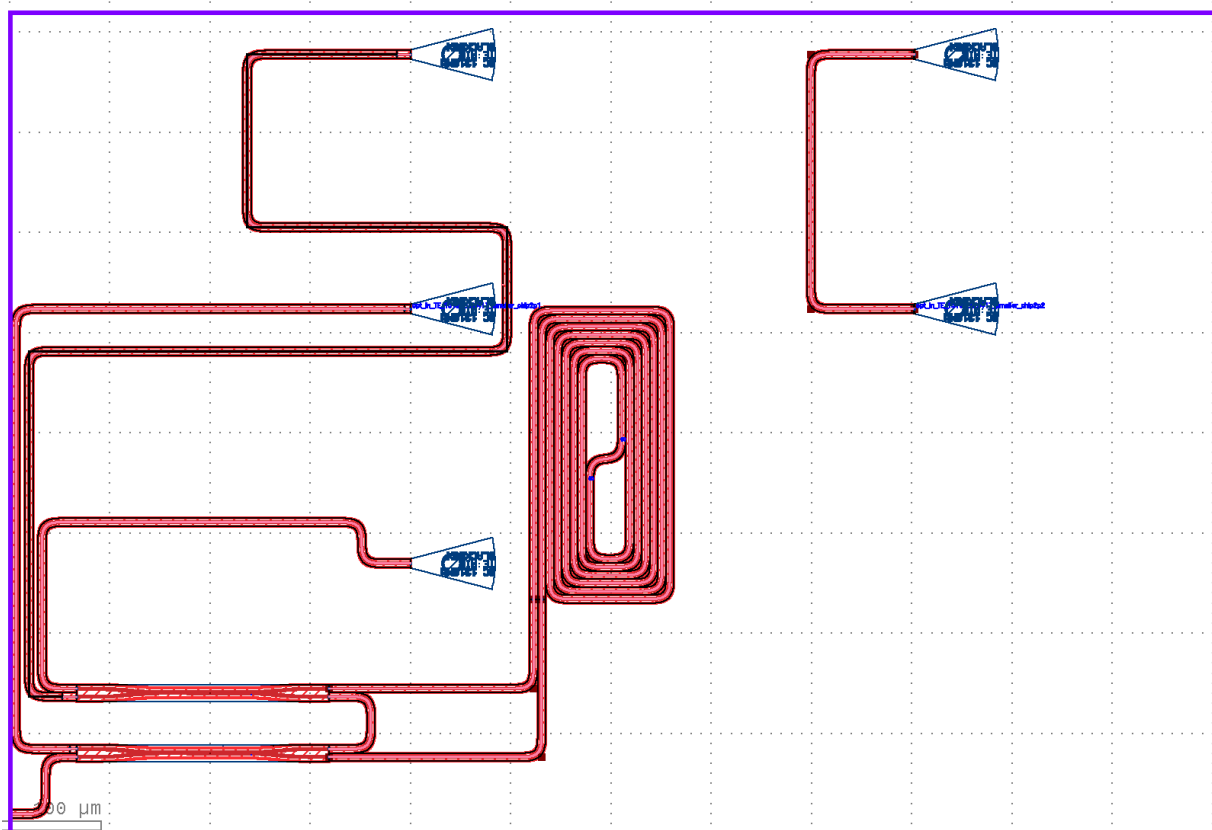DL = 2669.695 = 2.67mm

Chip 2

Know FSR = 25GHz, c = 3*10^8 m/s. Need to find ng through simulation so that we can solve for the desired ΔL.

Ng = 4.88
DL = 2.469mm

L1 = 61.481
L2 = 2530.116
DL = 2468.635 = 2.468mm