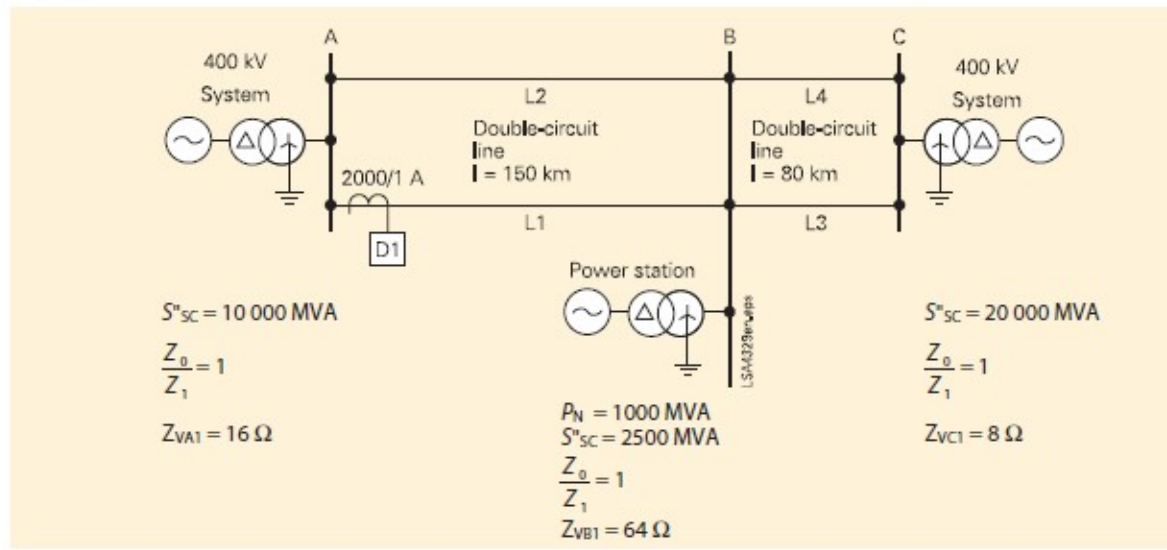


Example:



Double-circuit line.

Setting of the distance zones for phase-to-phase short-circuits

Given:

100 kV double-circuit line

Line data:

Configuration according to

l_1 and $l_2 = 150$ km, l_3 and $l_4 = 80$ km

$Z_{IL}' = 0.0185 + j\,0.3559\ \Omega/\text{km}$

$Z_{OL}' = 0.2539 + j\,1.1108\ \Omega/\text{km}$

$Z_{OM}' = 0.2354 + j\,0.6759\ \Omega/\text{km}$

$P_{nat.} = 518$ MW per line

Current transformer: 2000/1 A

Voltage transformer: 400/0.1 kV

Task:

Calculation of the zone setting for relay D1.