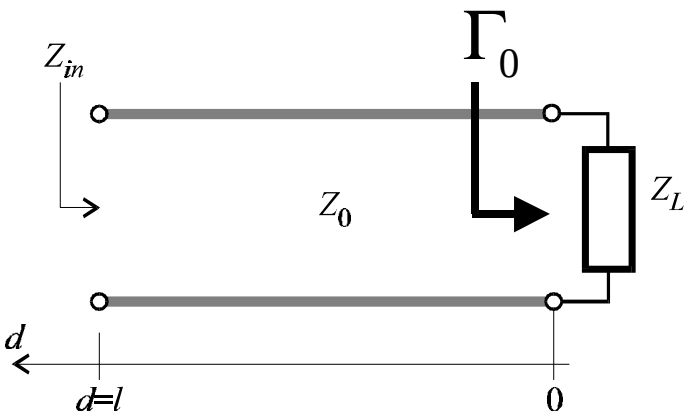
Admittance Transformation (Smith Chart)

- impedance representation in Smith Chart



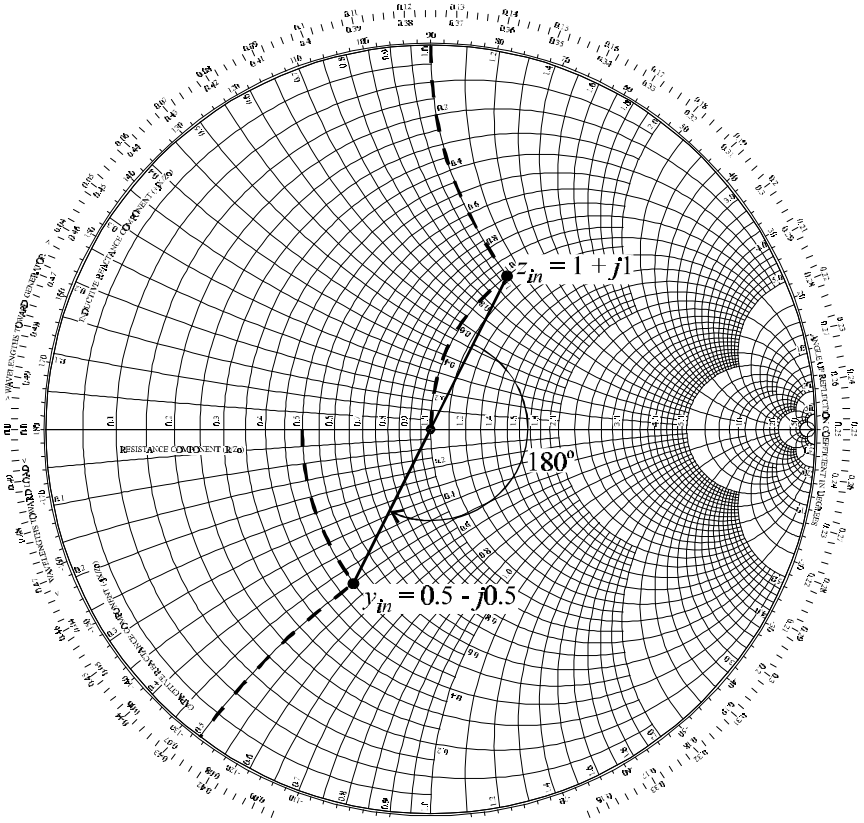
$$z_{in} = r + jx = \frac{1+\Gamma(d)}{1-\Gamma(d)}$$

- admittance representation in Smith Chart

180 degree phase shift

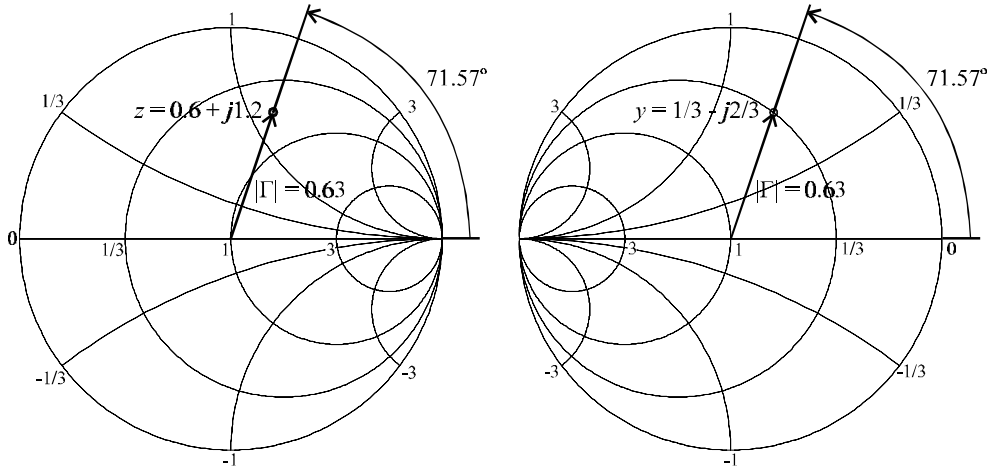
$$y_{in} = \frac{Y_{in}}{Y_0} = \frac{1}{z_{in}} = \frac{1-\Gamma(d)}{1+\Gamma(d)} \equiv \frac{1+e^{-jp}\Gamma(d)}{1-e^{-jp}\Gamma(d)}$$

Transformation $z_{in} = 1 + j1 \rightarrow y_{in} = \frac{1}{2} - j\frac{1}{2}$

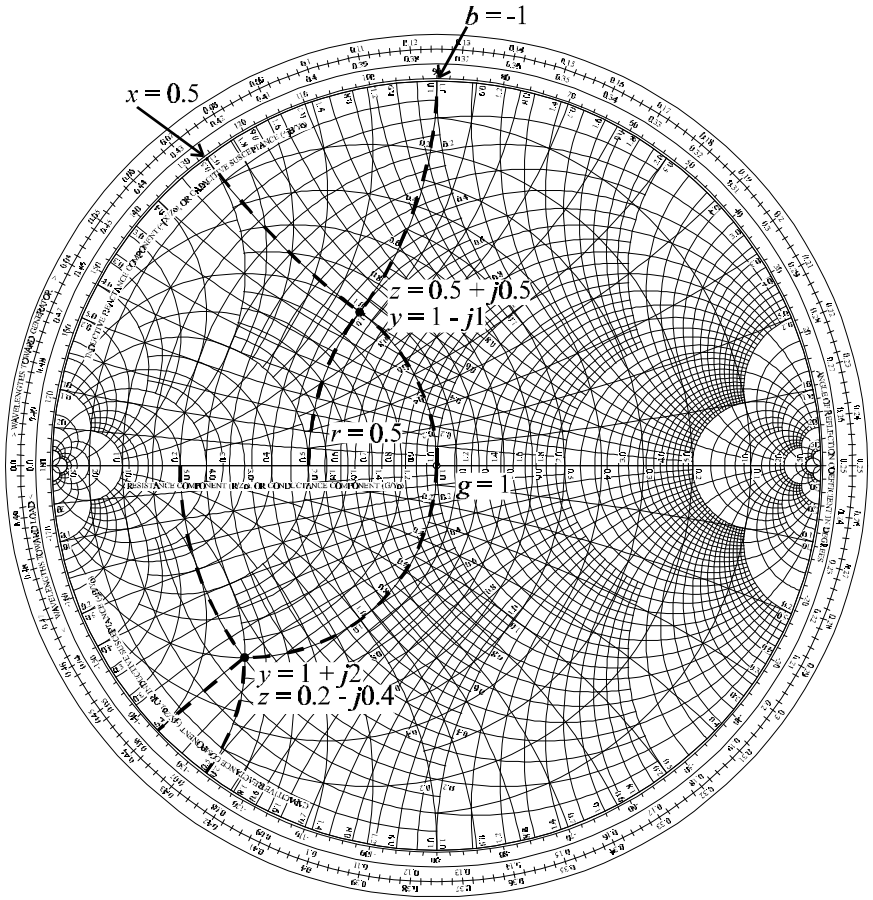


Alternative: re-interpretation

Instead of rotating the reflection coefficient about 180 degree, we keep the location fixed and rotate the entire Smith Chart by 180 degree.



Re-interpretation leads to ZY-Smith Chart



The Smith Chart in its original form is kept for impedance display,

but a second Smith Chart is rotated by 180 degree for admittance display.