Complex power flow from Bus 1 to Bus 2

\[ S_{12} = 3.05757 \angle -159.02^\circ \text{ pu} \]

Complex power balance is satisfied if

Complex power at Bus 1 = Complex power at Bus 2

\[ 3V_1 I^* = 3V_2 I^* + \frac{1}{3} \text{ Complex power of the line} \]

\[ 3.05757 \angle -159.02^\circ \]

\[ (3)(1.05 \angle -7^\circ)(1.01518 \angle -7.02^\circ) \]

\[ = 3.210417 \angle -154.02^\circ \]

Complex power of the line:

\[ 3RI^2 + \bar{3} \times I^2 \]

\[ (3)(0.01)(1.01918)^2 + \bar{(3)(0.1)(1.01918)}^2 \]

\[ = 0.03116 + \frac{1}{3} 0.311618 \]

\[ \bar{\text{...}} \]
\[ \theta / 3.210 \text{mT} \times (-154.02^\circ) + 0.0575 + \frac{0.05116}{0.311618} \]

\[ = 3.0575 \times (-159.0199^\circ) \]

Satisfied!

\[ 3.0575 \times (-159.02^\circ) = 3.0575 \times (-159.0199^\circ) \]

Complete power balance is satisfied!