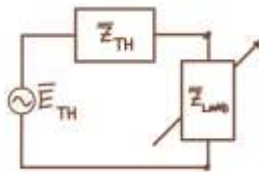


AC Maximum Power Transfer Theorem (19:19)

Compare and contrast the Maximum Power Transfer Theorem as applied to DC circuits with the Maximum Power Transfer Theorem as applied to AC circuits.

Describe the complex conjugate operation.

Given this Thevenin's equivalent circuit determine the load impedance that receives maximum real power. At conditions of maximum power determine the voltage, current, and power experienced by the load. Determine power delivery to the complete circuit and efficiency.



$$\vec{E}_{TH} = 80\text{V} \angle 0^\circ$$

$$\vec{Z}_{TH} = 200\Omega \angle 30^\circ$$

Given this range of load conditions for the above circuit determine the voltage, current, and power experienced by the load. Determine power delivery to the complete circuit and efficiency.

$$\begin{array}{l} \vec{Z}_{Load} \\ \hline 200\Omega \angle -20^\circ \\ 200\Omega \angle 0^\circ \\ 847\Omega \angle -53.8^\circ \\ 504.7\Omega \angle -7.8^\circ \end{array}$$

Comment on how the magnitude and angle of the load impedance influence power experienced by the load and the larger circuit.