

Lecture 14 -- Power Gain and Matching Networks

Why define a power gain?

What is the definition of the power gain G_p ?

Is the power dissipated in the load easy or difficult to measure? Why or why not?

Is the power drawn from the source easy or difficult to measure? Why or why not?

What is the transducer power gain?

What is the power available from the source? What circuit is assumed to extract that power?

What is the difference between average power and instantaneous power?

What power expression leads to the maximum power transfer theorem? What are the consequences of it when you control the load? When you control the source?

What is the available power gain?

In “practical systems” what are the transducer, available and “normal” power gains in terms of S-parameters? Express these gains with a picture assuming $S_{12}=0$.

What is the definition of quality factor and four consequences of that definition?

What is the characteristic impedance of a second order system?

What equations describe a series to parallel transform in a second order system?