

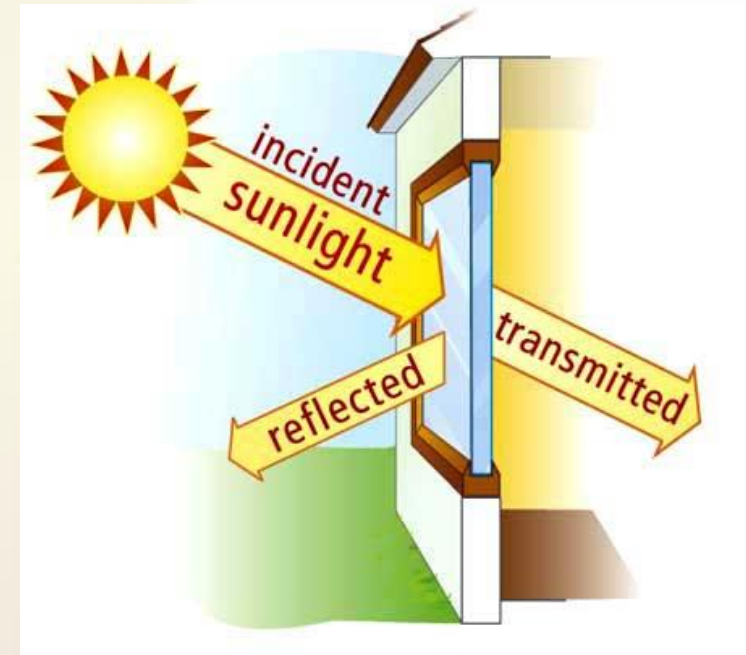


RF Components and Basic Concepts
1.16 - Reflection, Transmission and Matching

Reflection and Transmission

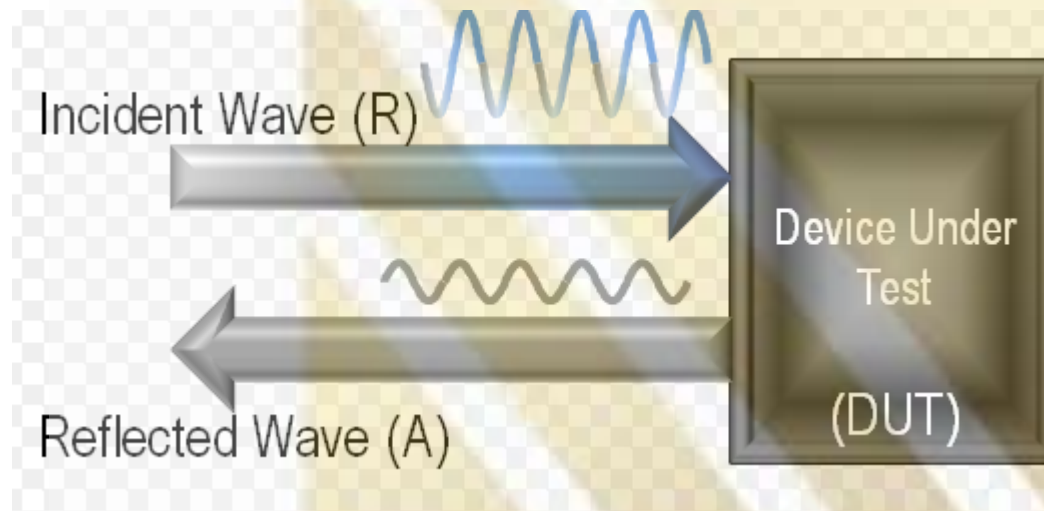
The **reflection** of a **wave** is simply a process by which a **wave**, whether light, sound, infrared, or radio **waves**, hits an object and bounces off it.

Transmission is the moving of electromagnetic **waves** (whether visible light, radio **waves**, ultraviolet, etc.) through a material



Reflection and Transmission

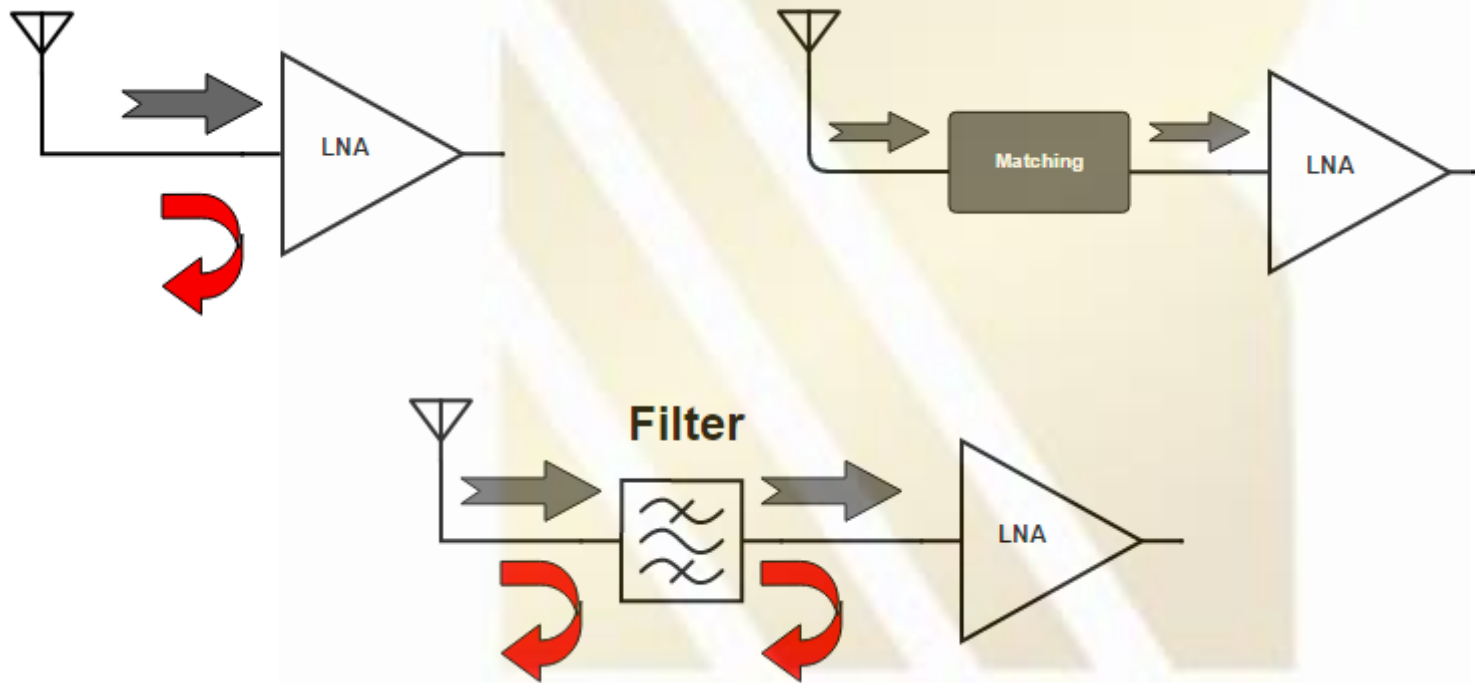
- For a RF device



Why we need matching ?

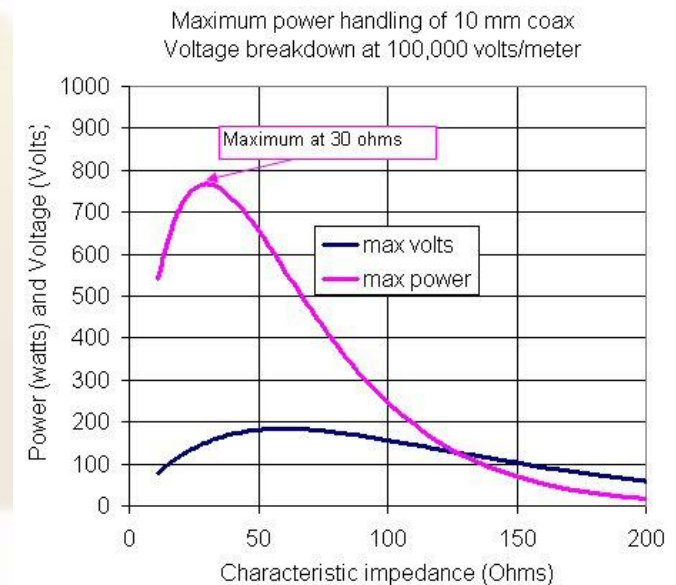
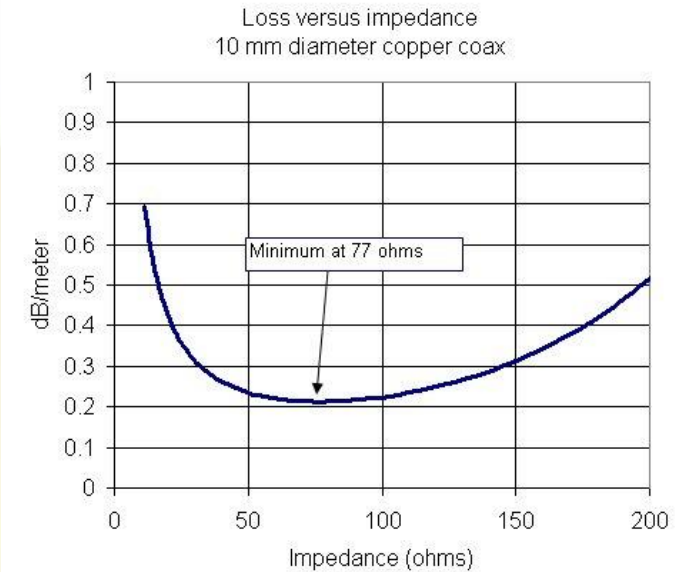
RF Design Theory and Principles (RAHRF201) Section 1

- In order to prevent reflection and transfer the maximum power we have to do matching.

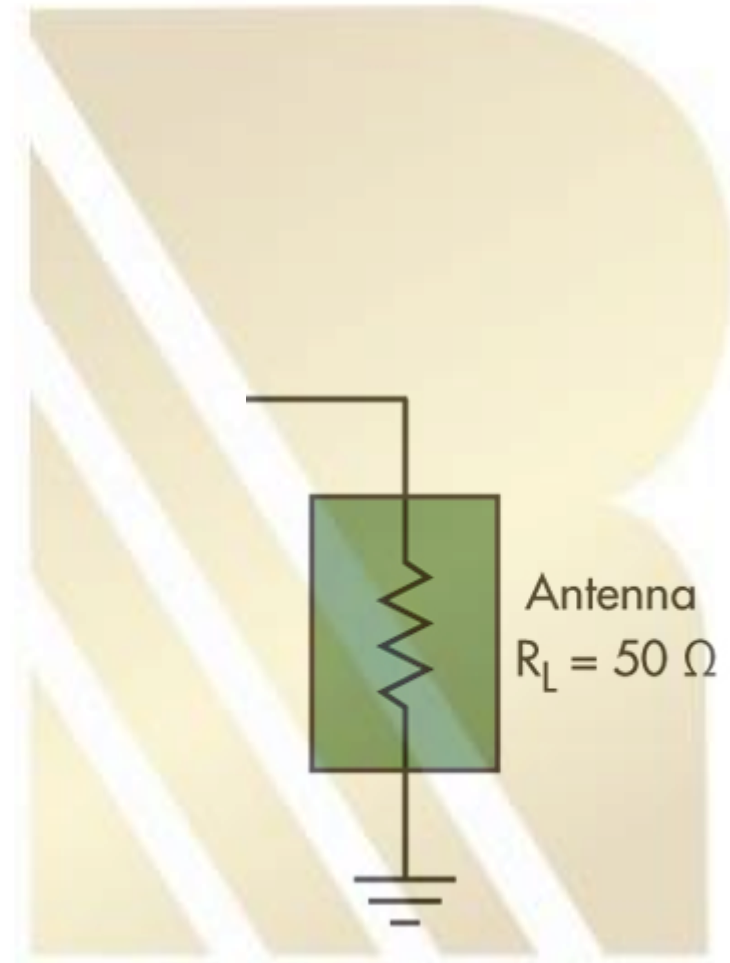
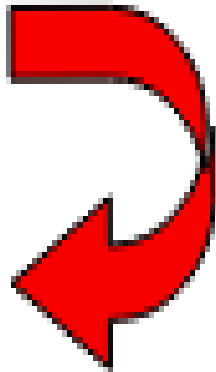
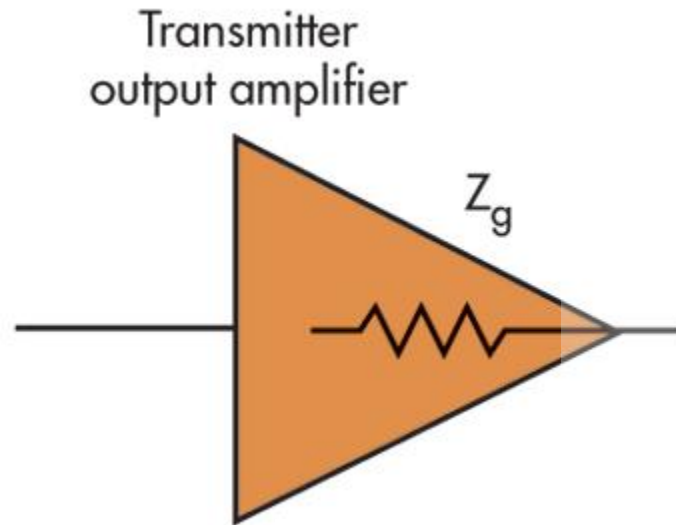


Matching to 50 Ω

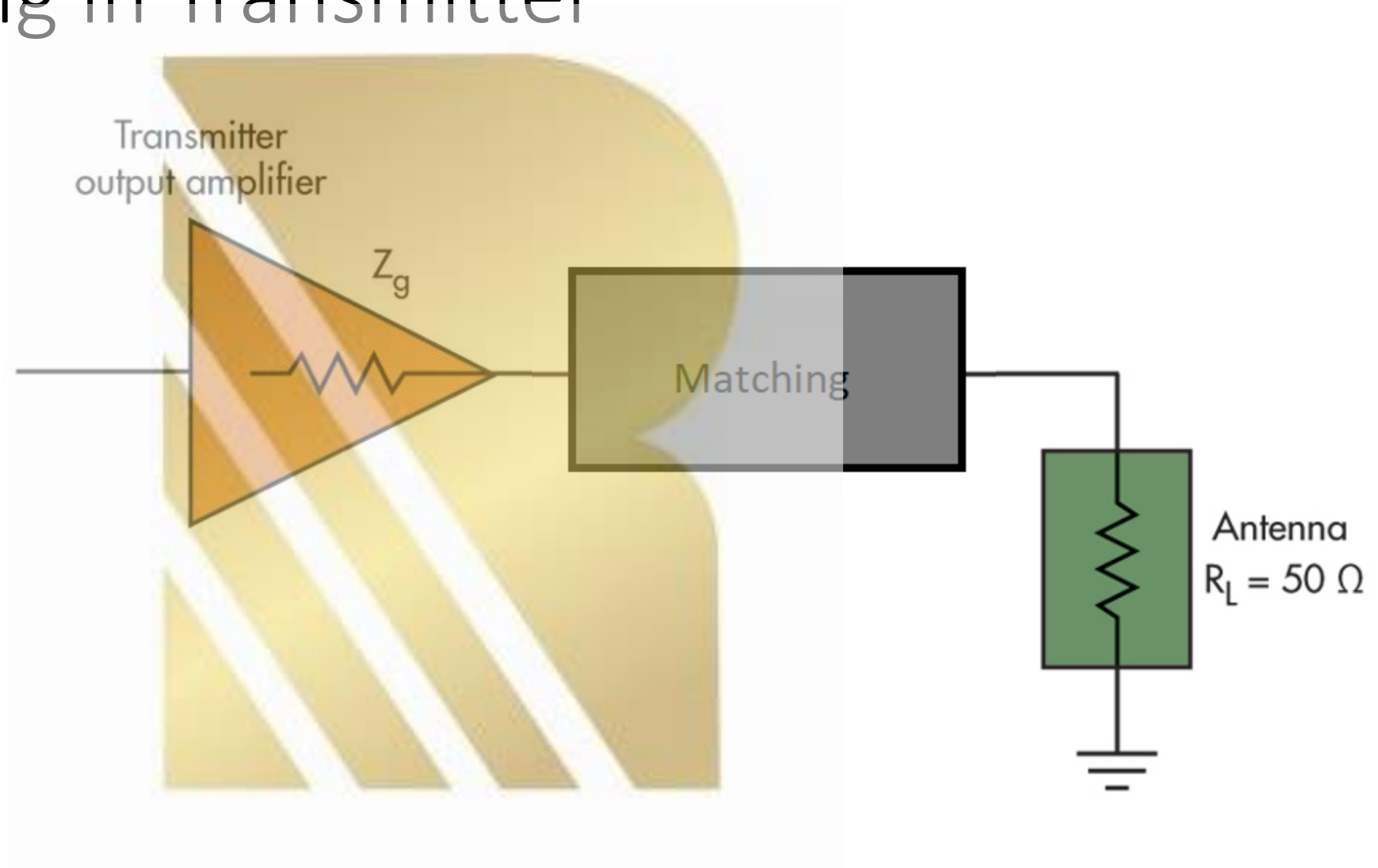
- The standardization of fifty ohm impedance goes back to developing coax cables for kilowatt radio transmitters in the 1930s.
- 50 ohms is a great compromise between power handling and low loss
- The arithmetic mean between 30 ohms (best power handling) and 77 ohms (lowest loss) is 53.5. Thus the choice of 50 ohms is a compromise between power handling capability and signal loss per unit length, for air dielectric.



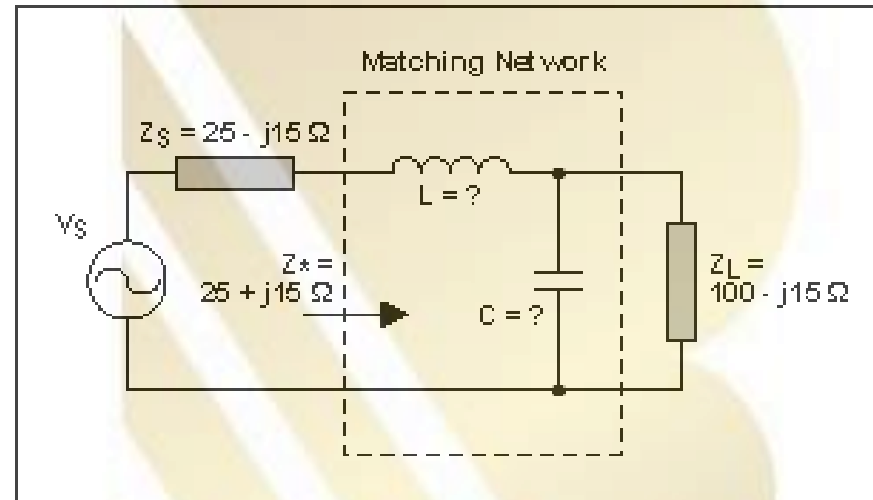
Matching in Transmitter



Matching in Transmitter



Matching Circuit Example



• R_-

