

Passive high frequency devices in waveguide technology



Component
École Nationale
Supérieure
d'Électrotechnique
d'Électronique

In brief

- > **Ametys Code:** N9EE13A
- > **Open to exchange students:** Yes

Presentation

Objectives

Discover the fields of application of metal waveguide structures, learn to differentiate between and choose between metal waveguide structures and transmission line structures, and distinguish the field of application of each; Learn to choose the metal waveguide(s) according to the intended industrial or scientific applications, and dimension the waveguides for specific cases

Know how to use the concepts of equivalent dipoles and equivalent quadripoles in the description of assemblies with resonant cavities, and deduce the characteristic parameters; know how to design resonant cavities and excitation circuits using formal calculations

Know how to use the concepts of impedance inverters in the design of half-wave microwave filters according to given specifications

Understand how waveguide transitions work and know how to implement an impedance transformer

Description

- Characteristics of metal waveguides
- Resonant cavities and electromagnetic resonators
- Microwave filters in metal waveguides

- Waveguide transition/impedance transformer

Pre-requisites

Basic elements of electromagnetism and wave propagation; basic concepts of linear electrical circuits in steady-state sinusoidal conditions; complex notation representation; vector analysis; matrix calculus