

# Microwave Tutorials



## Component

École Nationale  
Supérieure  
d'Électrotechnique  
d'Électronique  
d'Informatique  
d'Hydraulique  
et des  
Télécommunications

## In brief

- **Ametys Code:** M34HLAHB
- **Open to exchange students:** Yes

## Presentation

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### Objectives

At the end of this series of practical sessions, students will be able to characterise microwave components using dedicated measuring equipment.

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### Description

- Different topologies of couplers, power dividers and filters are measured using vector network analysers.
  - Spectral analysis is used to characterise frequency conversion performed using an oscillator and a mixer, as well as the non-linearity of power amplifiers. Noise factor measurements are also performed.
  - The radiation pattern of an antenna is determined using a wattmeter.
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### Pre-requisites

- S parameters

- Passive and active RF circuits
- Antennas