Haute école d'ingénierie et d'architecture Fribourg
Hochschule für Technik und Architektur Freiburg

RF Systems

Lab#1: **Transmission Lines**

GOAL

To study, simulate and analyze the behavior of a transmission line.

TO DO LIST

- Install Python, PyVISA, NI VISA.
- Use the long RG58 cable, connect one end to the signal generator and the channel#1 input, the second end to the channel#2 input;
- Using a Python program (use SysRF_Lab1NEW_KeySight_USB.py):
    - apply a square wave @50kHz, 0V to 1V
    - evaluate delay time and estimate cable length
    - evaluate the reflection coefficient and the load resistance in the following conditions: (i) 50Ω, (ii) 25Ω (50Ω//50Ω), (iii) 75 Ω and (iv) open
    - automatically generate a Spice file describing your circuit, use the generator waveform as the voltage input; add a second generator to show the voltage at channel#2
- Simulate your Spice file