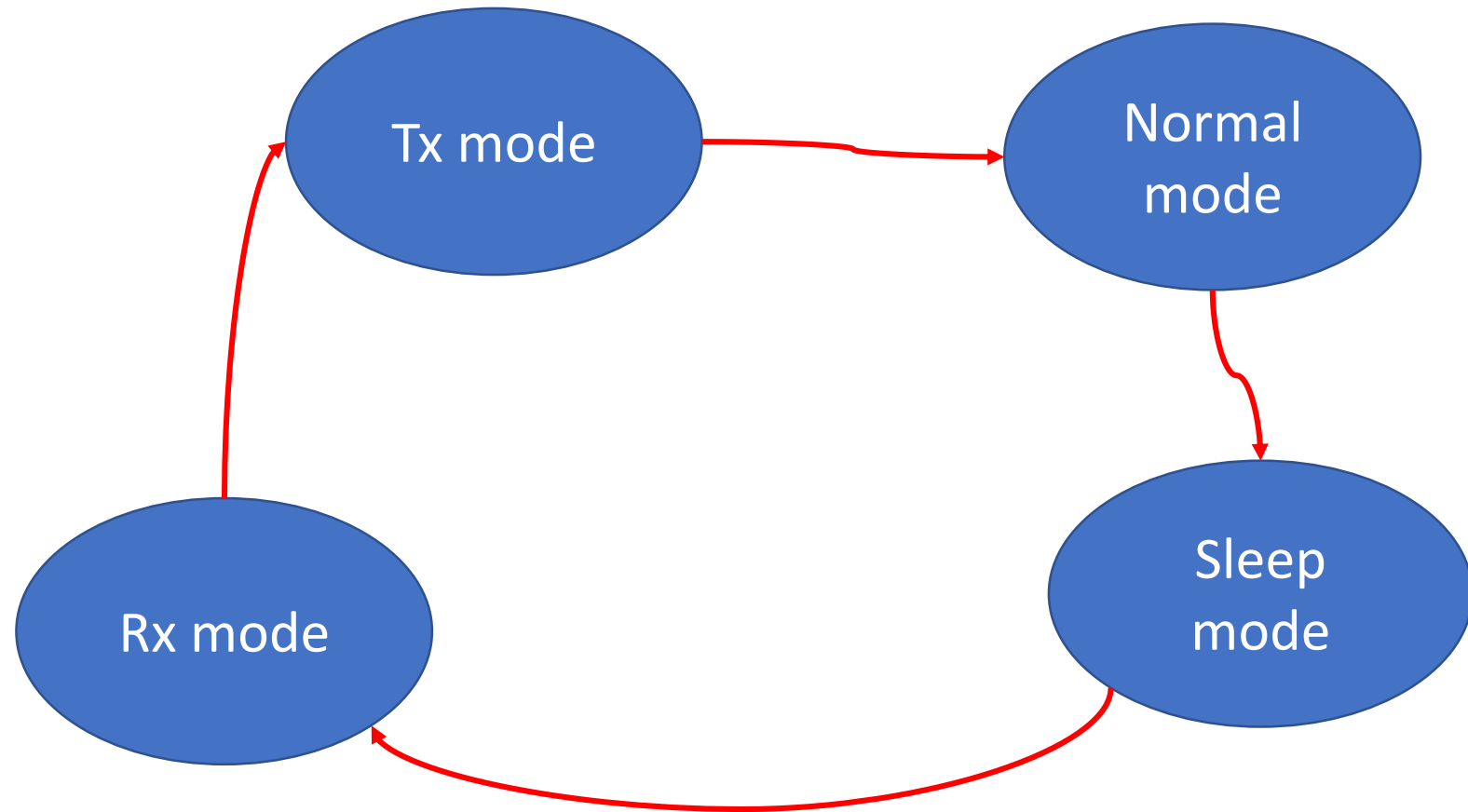


Power consumption Lab

F. Ferrero

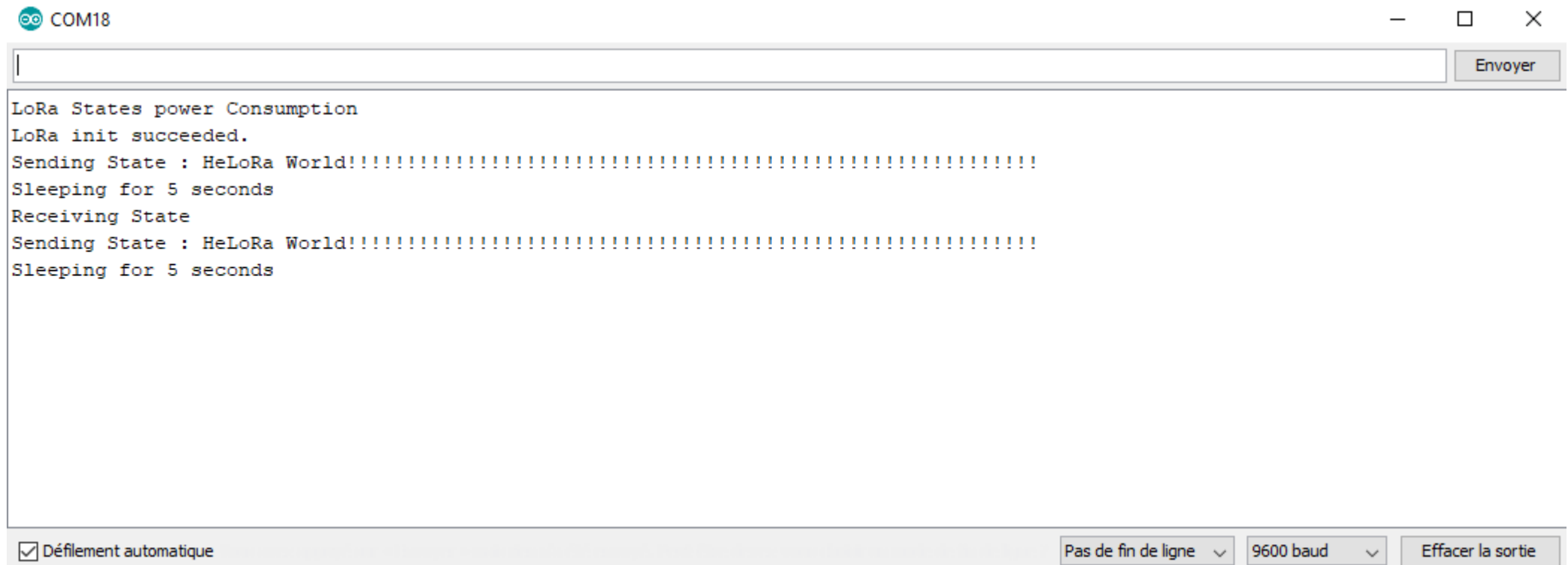
Power consumption Lab

- Download the code Lora_test_States.ino in UCA_Board/Arduino_Code/LoRa_PHY/
- Upload the code in the board



Power consumption Lab

- The code set 4 different states :
 - Transmission mode (the Tx power can be tuned from 2 to 20dBm)
 - Normal mode (Arduino in normal mode and transceiver in sleep mode)
 - Sleep mode
 - Reception mode



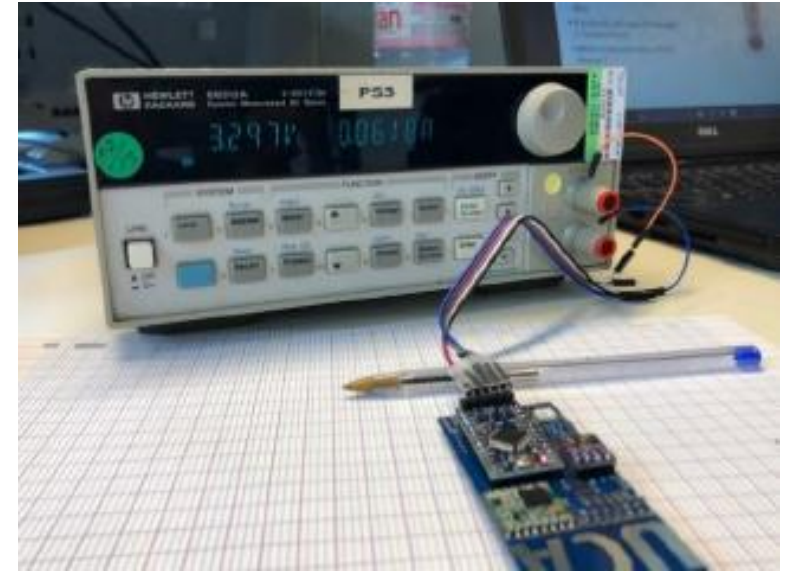
The screenshot shows a serial monitor window with the title 'COM18'. The window contains the following text:

```
LoRa States power Consumption
LoRa init succeeded.
Sending State : HeLoRa World!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Sleeping for 5 seconds
Receiving State
Sending State : HeLoRa World!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Sleeping for 5 seconds
```

At the bottom of the window, there is a checkbox labeled 'Défilement automatique' which is checked. To the right of this checkbox are three dropdown menus: 'Pas de fin de ligne', '9600 baud', and 'Effacer la sortie'.

Power consumption Lab

- You can use a 66312A DC source to measure the power consumption in the 3 different modes with 3.3V
- Try to power the Arduino on Vcc Pin and Raw Pin.
- The Vcc Pin can be powered up to 5V



Power consumption Lab

- Compare the autonomy of your device for a primary and secondary battery
- Scenario :
 - For transmit, a SF9 and 14 dBm
 - A transmit will take 200ms and 1 Tx each 10mn
 - To wake-up and process the data, you need 300 ms with a normal mode
 - Rest of the time, the device is in sleep mode
- What is the autonomy of the device ?
 - For a AA metal lithium battery with 2.6 A.h
 - For a AA lithium-ion battery with 0.9 A.h

