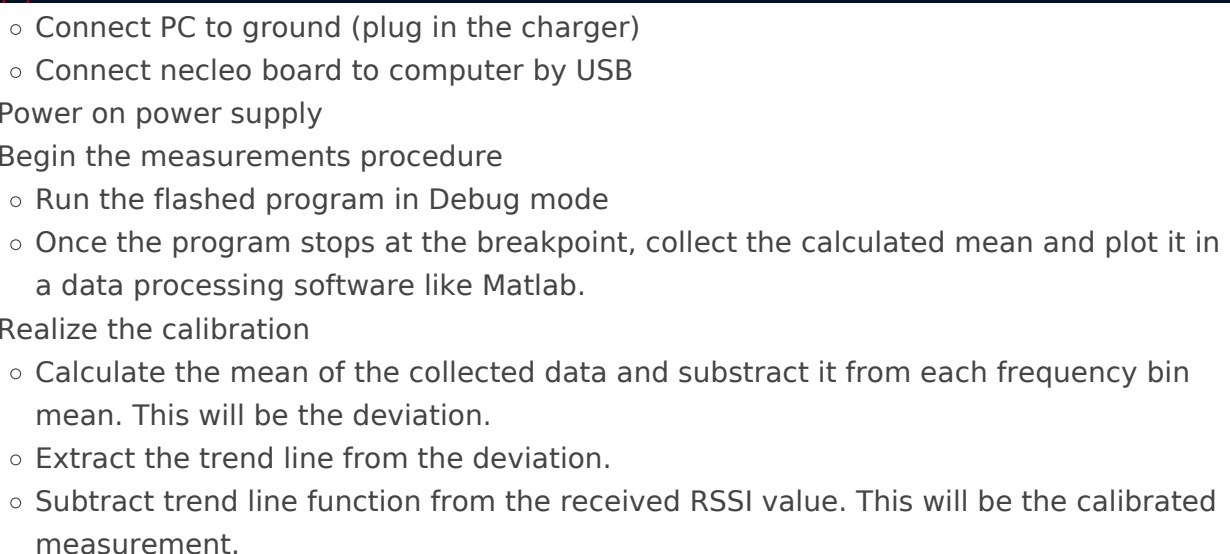# Front-end Gain calibration Procedure

Objective

Measure the total system gain at the output of the RSSI and equalize it.

Steps to follow

- Turn on equipment
  - Spectrum analizer
  - Power supply
- Configure to desired parameters
  - Spectrum analizer
    - Set center frequency in the middle of VCO output band (6250MHz)
    - Set span to match the VCO output band (1400MHz)
    - Set RBW and VBW to an adecuate level
  - Power supply
    - Set Voltage to 3.3V
    - Set current limit to 0.3A
- Set up nucleo board and PC
  - Make sure the proper code is loaded into the nucleo board
-   - Connect the power supply to the payload:
      - Vcc to PoL (RED)
      - GND to GND (BLACK)
    - Connect the DAC output to the DAC_In (GREEN)
    - Connect the ADC input to the ADC_Out
    - Load the IF Input with a 50 Ohm perfectly matched load.
    - Connect the spectrum analizer to the switched measuring pin (PURPLE)
      Make connections

- Connect PC to ground (plug in the charger)
- Connect necleo board to computer by USB
- Power on power supply
- Begin the measurements procedure
  - Run the flashed program in Debug mode
  - Once the program stops at the breakpoint, collect the calculated mean and plot it in a data processing software like Matlab.
- Realize the calibration
  - Calculate the mean of the collected data and substract it from each frequency bin mean. This will be the deviation.
  - Extract the trend line from the deviation.
  - Subtract trend line function from the received RSSI value. This will be the calibrated measurement.

- Reboot the program and check if the equalization is now correct. If it's not correct repeat the previous step