

# Calibration Unit Callisto

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Below an overview about a real calibration unit designed and manufactured to calibrate Callisto frequency agile radio spectrometer.



Fig. 1: Top: Calibration unit containing microwave relays, noise source, attenuators, low noise amplifier and Peltier cooler. Bottom: Control unit contains power supply for electronics, low noise amplifier and 28 volts supply for noise source as well as 28 volts for microwave relays. Display below shows current temperature ( $^{\circ}\text{C}$ ) of the calibration source which has to be taken into account for the evaluation of noise temperature. Control unit allows to keep temperature constant, based on Peltier cooler.

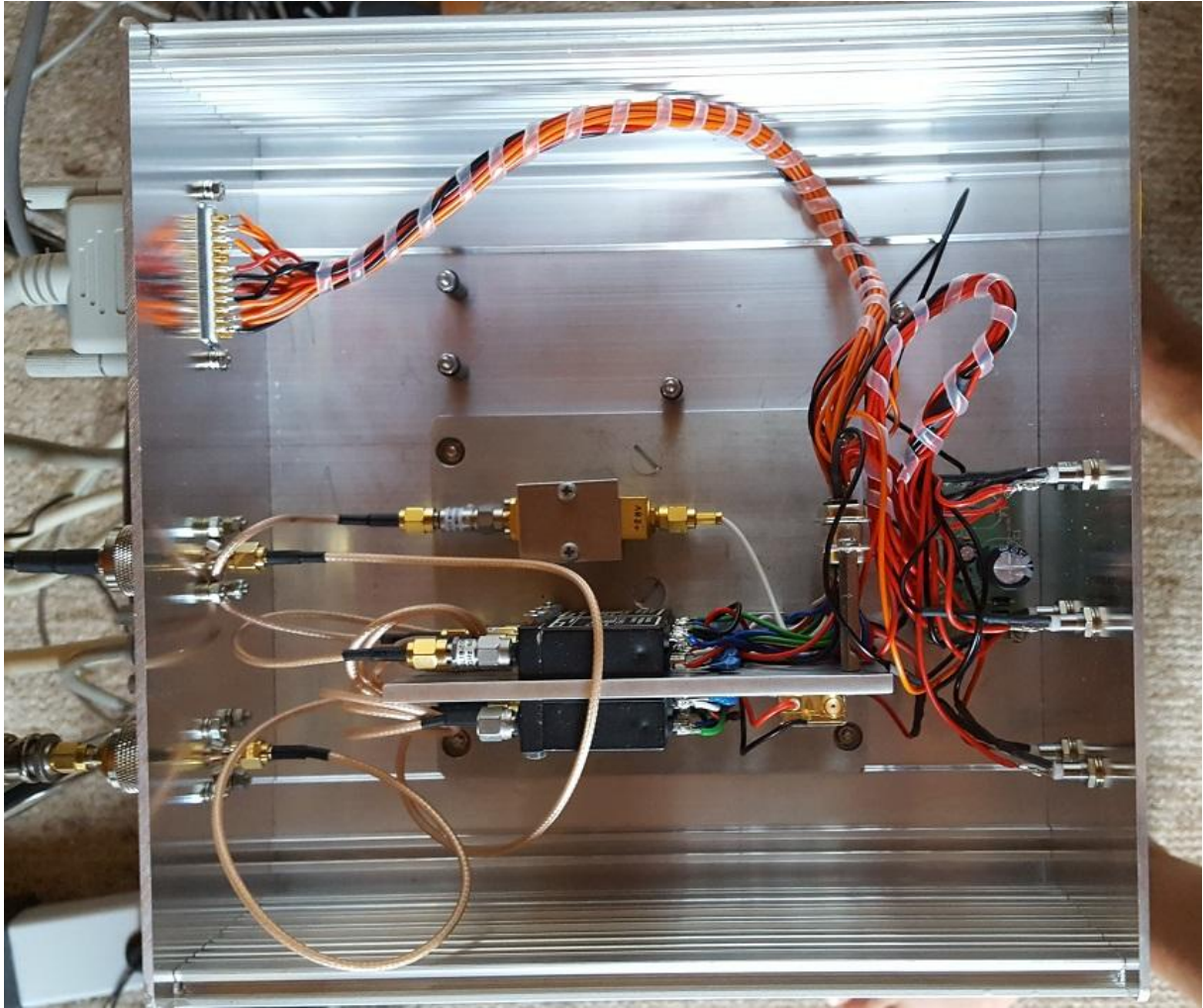


Fig. 2: Top view of calibration unit.



Fig. 3: One half of calibration hardware with noise source, attenuators and microwave relays.

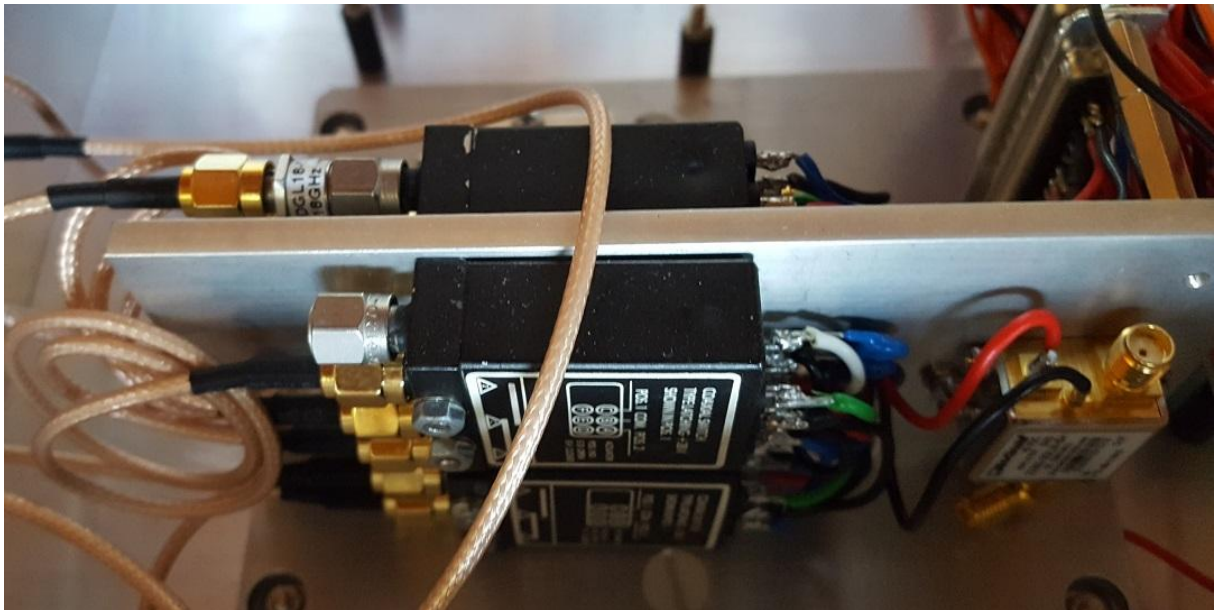


Fig. 4: Other half of the calibration unit with microwave relays and optional low noise amplifier.

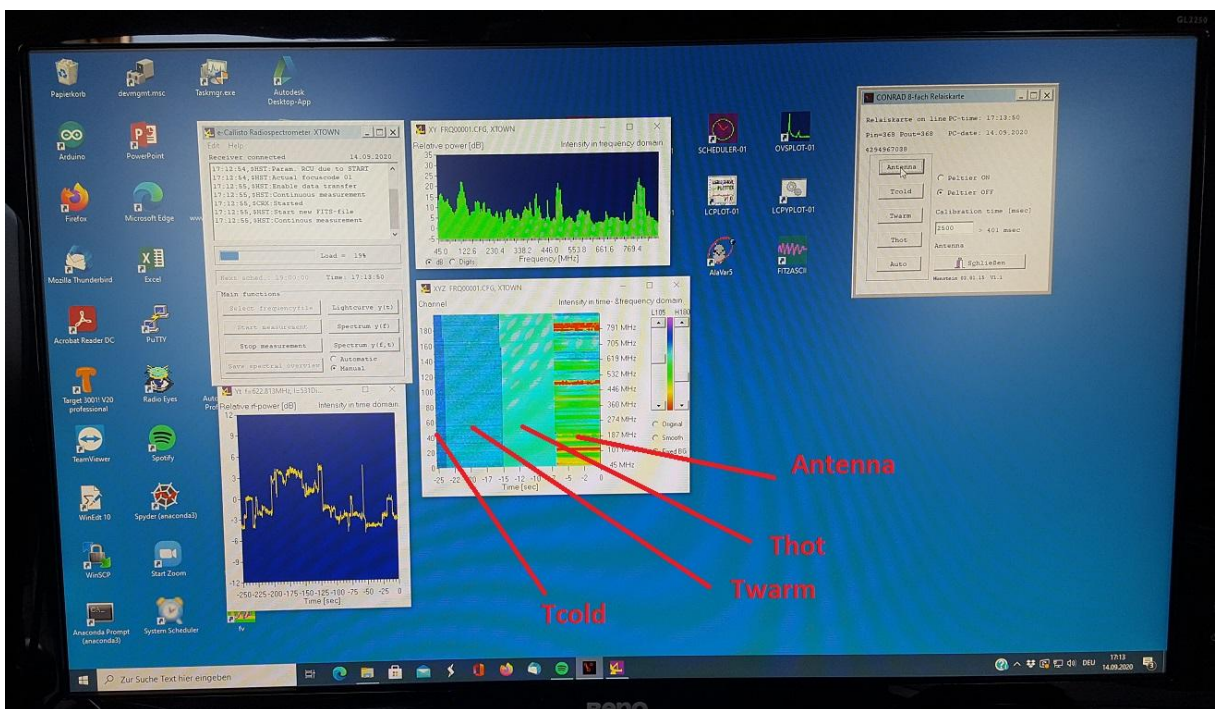


Fig. 5: Software left Callisto application, right calibration control application. spectrum shows three calibration steps (Tcold, Twarm and Thot) as well as Tantenna. Not show here software tool to read any analyze calibrations step to convert antenna signal into Kelvin or Jansky of solar flux units (SFU).