

TEL-X-OMETER in modern lab:

Load LiF crystal (blue marking on top) into TEL-X-OMETER with the black mark facing the x-ray source

Turn the key to turn on the instrument, and turn the time switch to 55 min (it will time-out after 55 minutes, unless you monitor the timer)

Open Tel-X-Driver software

Close and lock the lid

Turn on the X-ray source

Have a 1 s dwell time and either 0.1° or 0.05° angular resolution

Click the "Setup" button; ensure that the software's arm position agrees with the actual arm's position (to within 1°)

Click "Edit ROI" to scan from 38° to 48° , make sure that the stepper motor moves the arm properly throughout the scan

Run a scan (it should take about 2 min)

Use the cursor to find where the maximum of the $K\alpha$ peak occurs, this should be at 45.00° , if it is not, the instrument is improperly calibrated

If the maximum is not at 45.00° , change the ROI to whatever value you read as the maximum (i.e. if the max was recorded to be 45.80° , set ROI from 45.80° to 45.80°)

Run the scan and the arm will be moved to that position

Once the scan is finished, go to "Setup" and set the arm position to 45.00°

The instrument is now properly calibrated and ready to use

Note, sometimes at angular resolution 0.05° the stepper motor gets stuck. If this happens, then you will need to recalibrate it. If the problem persists, use a resolution of 0.1°

TEL-X-OMETER in back room:

Click "Calibration LiF" to turn it on

Allow the software to automatically scan from 39° to 47°

Pay careful attention to where the intensity peaks; record this number

After the scan, the software will ask for the 2θ angle for the peak. Input the recorded number