





RAITH150 Two Quick guide

1. **Login** to the Raith software by double clicking on RAITH 150TWO icon .
2. **Load** the sample.
3. Go to the alignment sample, **set the WD** = 10 mm by following the proper procedure - in stage control option switch to XY system, put the Z= 12.876 (height of commercial alignment sample = WD 10mm) and then move back to UV coordinate system.
4. **Setting up the microscope** (for more detail read Chapter 2 of RAITH150 Two NanoSuite software operation manual)
 - Set extractor voltage (ETH)
 - Set aperture size (size of aperture determines probe current)
 - Precisely set the working distance- after focusing of microscope read the WD by “pipette”, then adjust, move the stage to W=10mm in Raith PC and in the EO software set the WD=10mm. The WD should match in both software.
 - Aperture alignment
 - Focus on sample at high magnification
 - Stigmatism correction
 - Save your data at Column control
 - Either load the presets made by guarantor
5. Measure the **Beam current** at Faraday cup on holder.
6. Move to your sample, focus on the left bottom edge and correct the WD again.
7. **Coordinate transformation**  (for more detail read Chapter 3 of RAITH150 Two NanoSuite software operation manual)
 - Set the Origin correction and then Angle correction.
 - Then 3-points correction (choose the proper procedure for first and second lithography steps).
8. **Write field setup**  (for more detail read Chapter 4 of RAITH150 Two NanoSuite software operation manual)
 - Set magnification/write field
 - Manual and automatic write field calibration
 - Layer 61- manual calibration
 - Layer 63- automatic calibration
 - Start with 25um calibration, then 5um, then 1um
 - Rotation U, V must be 0.00x
 - Factor zoom U, V must be 0.00000x
 - Remove rotation offset
 - Shift should be zero
 - Open Raith protocol tool – WF alignment and check your results
9. **Upload your pattern**
 - GDSII layout with working areas and layers (mostly designed in KLayout or in Elphy).
10. **Set up the patterning parameters**  (for more detail read Chapter 7 of RAITH150 Two NanoSuite software operation manual)
 - Put the scan size
 - Calculate the step size
 - No. of points and point average
 - Put your dose
11. **Setup the position list**
 - Drag your structure into position list
 - Set patterning properties (layers, working area)
 - Put the desired U, V position
 - Check the individual patterning parameters and the time for the exposure of structure
12. **Start the exposure**