RSXS specular reflectivity alignment

The goal is to align th and chi at several tth and th angles, such as 20/10, 50/25 and 100/50 at specular reflectivity geometry. Accurate chi and th alignment are critical for wide-range reflectivity measurement. Phi alignment is not crucial for this experiment.

Use following steps to prepare the instrument for reflectivity scans:

1. Perform the sample alignment as described in “RSXS sample alignment” procedure.
2. Verify the photodiode on the scattering plane (**umv detz 40**) and the appropriate slit of aluminum filter of 10 mm diameter wide (slit number #9) at the front of the photodiode (**slitselect 9 pd**).
3. Move tth and th to 20° and 10° (**uan 20 10**).
4. Align th (**lup th**). Move th to centre and set th 10° (**set th 10**).
5. Move tth and th to 50° and 25° (**uan 50 25**).
6. Align chi (**lup chi**). Move chi to centre (but no need to set chi).
7. Verify th alignment is good.

   If needed, move th to centre and set th 30° (**set th 30**). Verify that the new th offset is still good for the outcome of the Step 3.
8. Move tth and th to 0°. Verify x alignment (**lup x**).

The following steps are optional:

9. Move tth and th to 100° and 50° (**uan 100 50**).
10. Verify chi alignment is good. If needed, move chi to centre. Verify that the new position is still good for the outcome of the Step 5.
11. Verify th alignment is good.

Now, the th and chi are aligned with respect to the specular reflections so the instruments and sample are ready for reflectivity scans.