The Daniel Test

This Test aims to be a general assessment of the software and the reader performance. It should ideally be executed for each major Software update. It measures the performance by grading Noise, SNR, Spikes and anomalies metrics for each mologram and then for the whole chip, which gives a fail/pass note for each mologram and respectively the whole chip.

Note: it is best to use this test with the same chip, dedicated for this test.

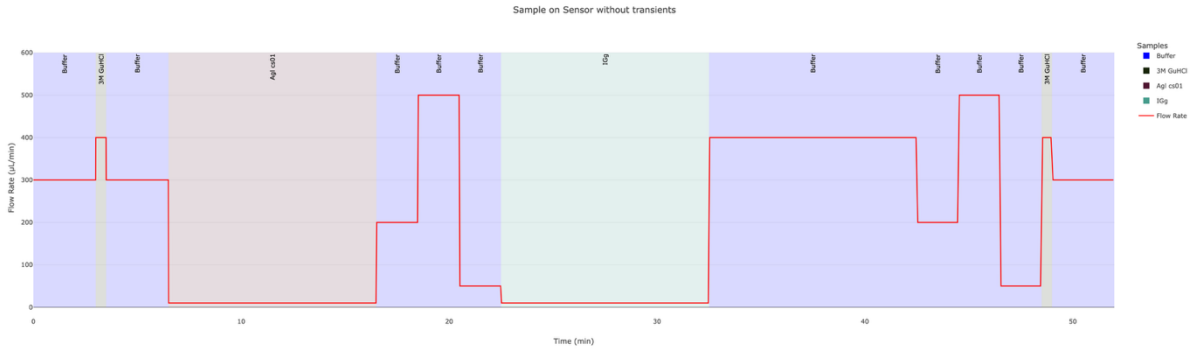
IMPORTANT - The name of the experiment downloaded results csv file must start with:

"YYYY-MM-DD_HH:MM:SS_THE_DANIEL_TEST_{reader name} …."

The experiment

$$Regeneration(GuHCl) \rightarrow Ligand\ 1\ (protein\ AGL\ cs01)X \rightarrow Analyte\ (IgG)X \rightarrow Slow\ Dissociation \rightarrow buffer\ \frac{400\mu l}{min} \rightarrow Regeneration\ (GuHCl)$$

$$X = Flow\ rate\ change\ in\ the\ high\ signal\ part$$



Custom Phase

Type	Sample	Vial	Duration	Pickup	Flowrate
Custom Injections					
Baseline	Buffer		3 min		300 uL/min
Regeneration	3M GuHCl	1-A1	0.5 min	200 µL	400 uL/min
Baseline	Buffer		3 min		300 uL/min
Association	Agl cs01	1-A2	10 min	100 µL	10 uL/min
Baseline	Buffer		2 min		200 uL/min
Baseline	Buffer		2 min		500 uL/min
Baseline	Buffer		2 min		50 uL/min
Association	IGg	1-A3	10 min	100 µL	10 uL/min
Dissociation	Buffer		10 min		400 uL/min
Baseline	Buffer		2 min		200 uL/min
Baseline	Buffer		2 min		500 uL/min
Baseline	Buffer		2 min		50 uL/min
Regeneration	3M GuHCl	1-A1	0.5 min	200 µL	400 uL/min
Baseline	Buffer		3 min		300 uL/min

New Group

Add Command

Export Settings

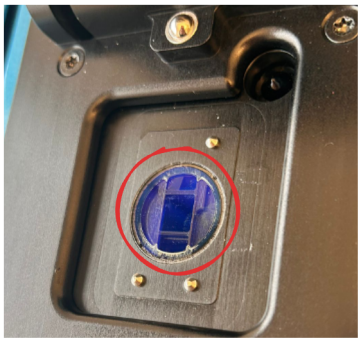
Export Fluorescence Images
Every n steps: 100

Export Surface Images
Every n steps: 100

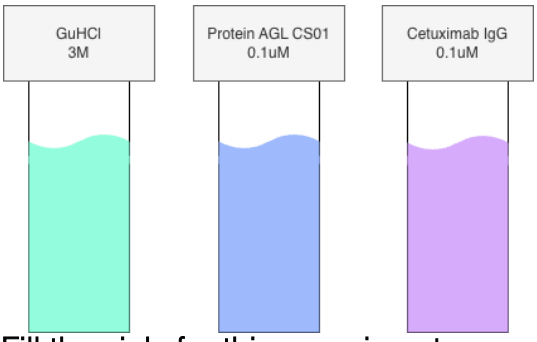
Export Result Images
Every n steps: 100

Below are the technical steps on how to conduct it:

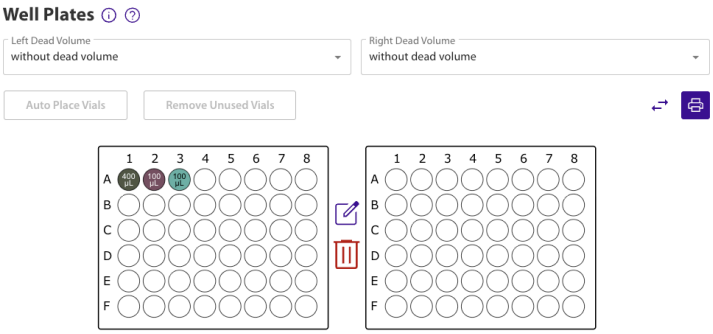
1. Use a regular chip with mologrames 8x8 oligo1-oligo2-PEG
2. Use an assembly holder with multi-channel configuration
3. Screw tight the chip to the holder assembly
4. Clean the glass surface of the reader

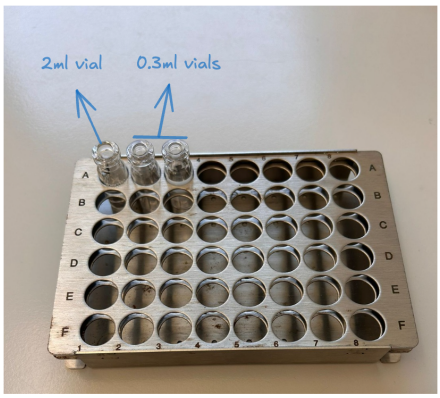


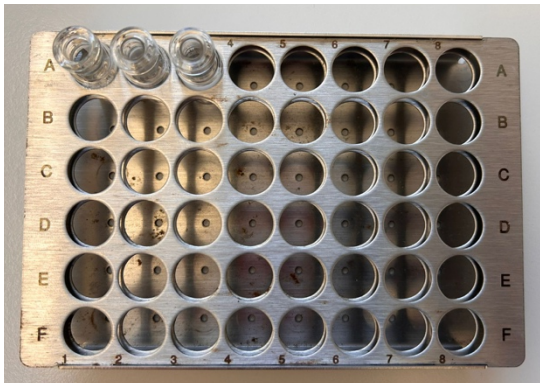
5. Fill bottles of buffer and water of autosampler, if are not filled.
6. Prepare the samples for the experiment



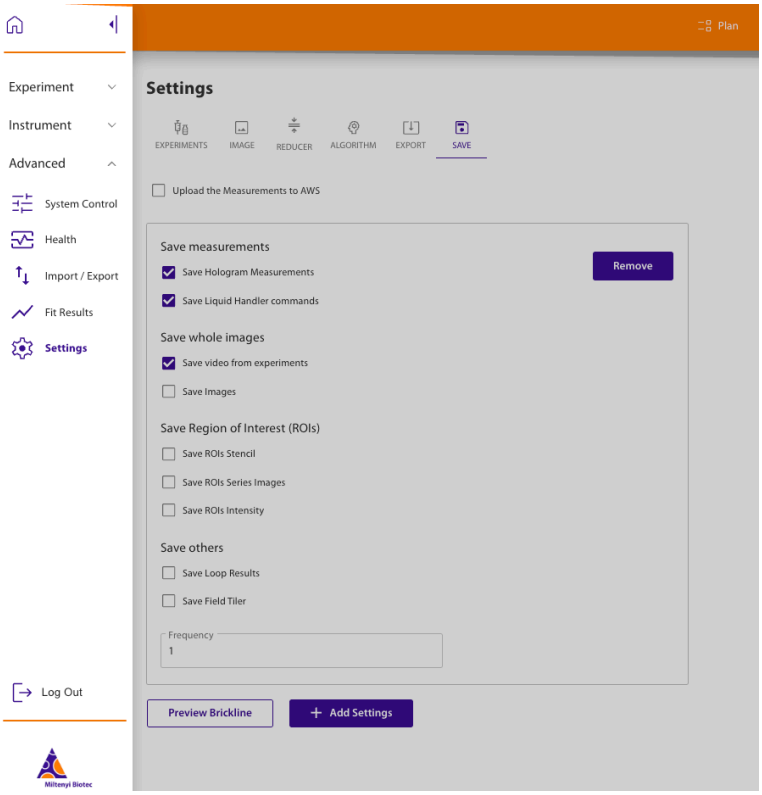
7. Fill the vials for this experiment



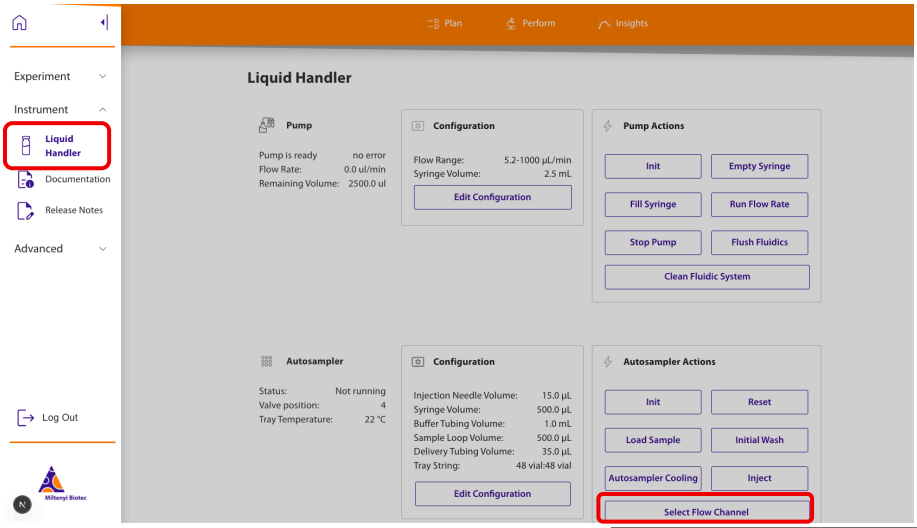


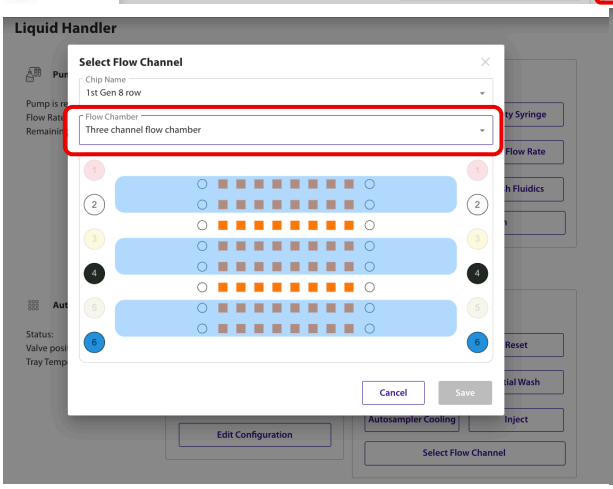


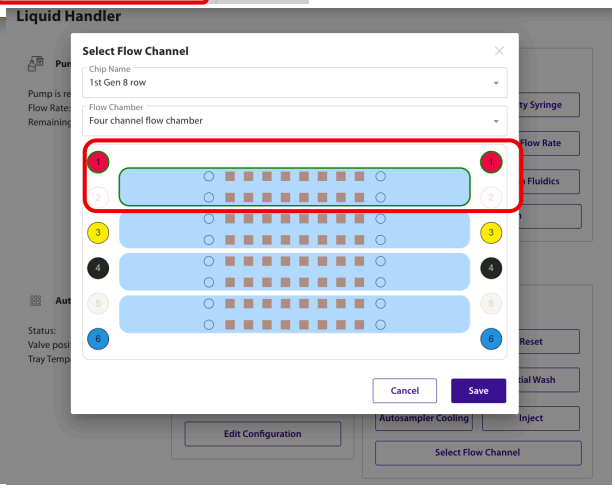
8. Settings – SAVE – Save video from experiments

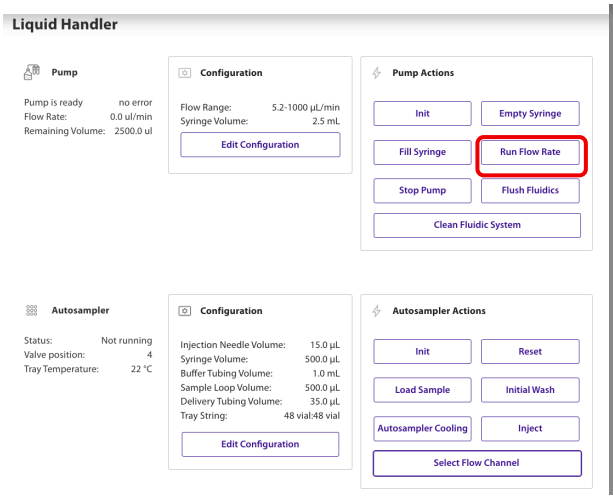


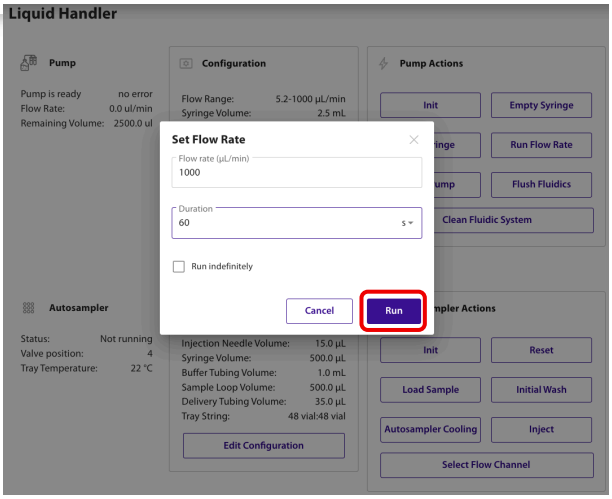
9. Fill all the unused channels with the buffer solution, make sure to end this step on the channel for which the entry is the same as the experiment one (usually 4). Below are examples with 3 and 4 channels configurations



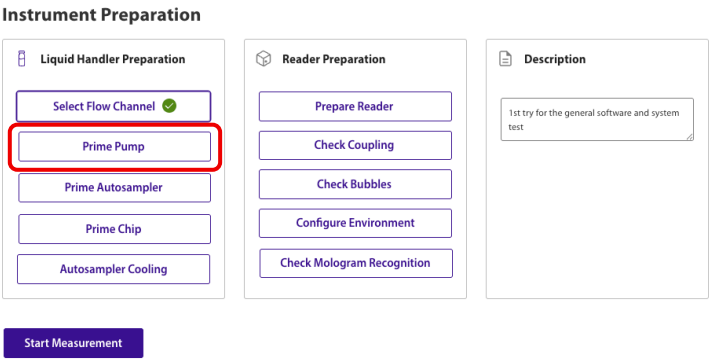




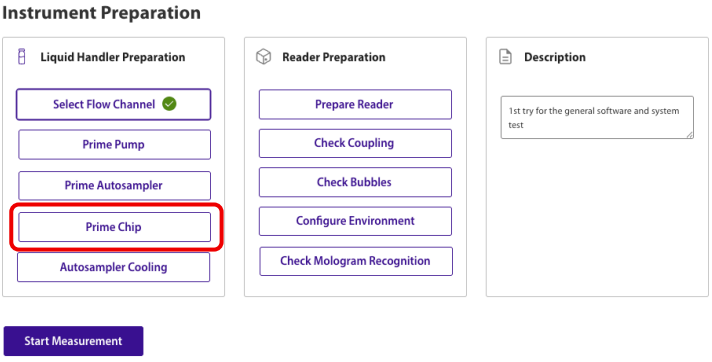


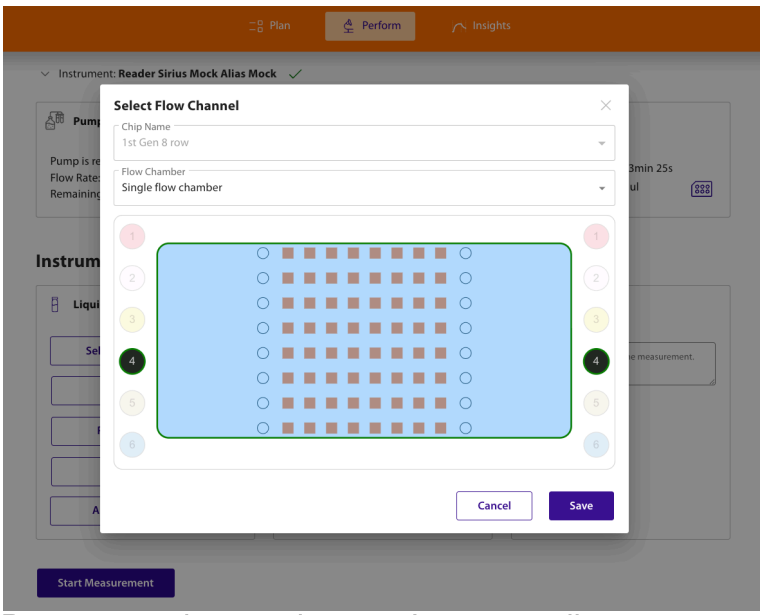


10. Prime pump

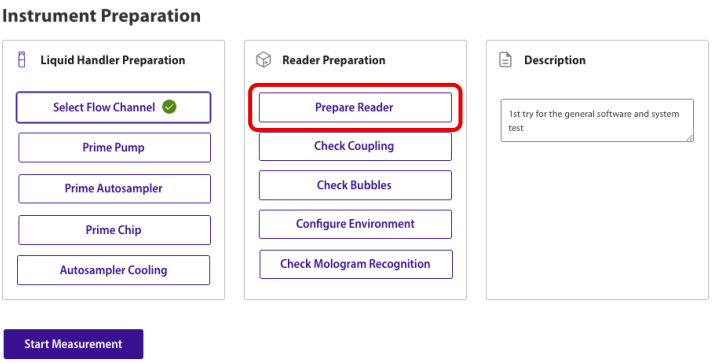


11. Prime chip

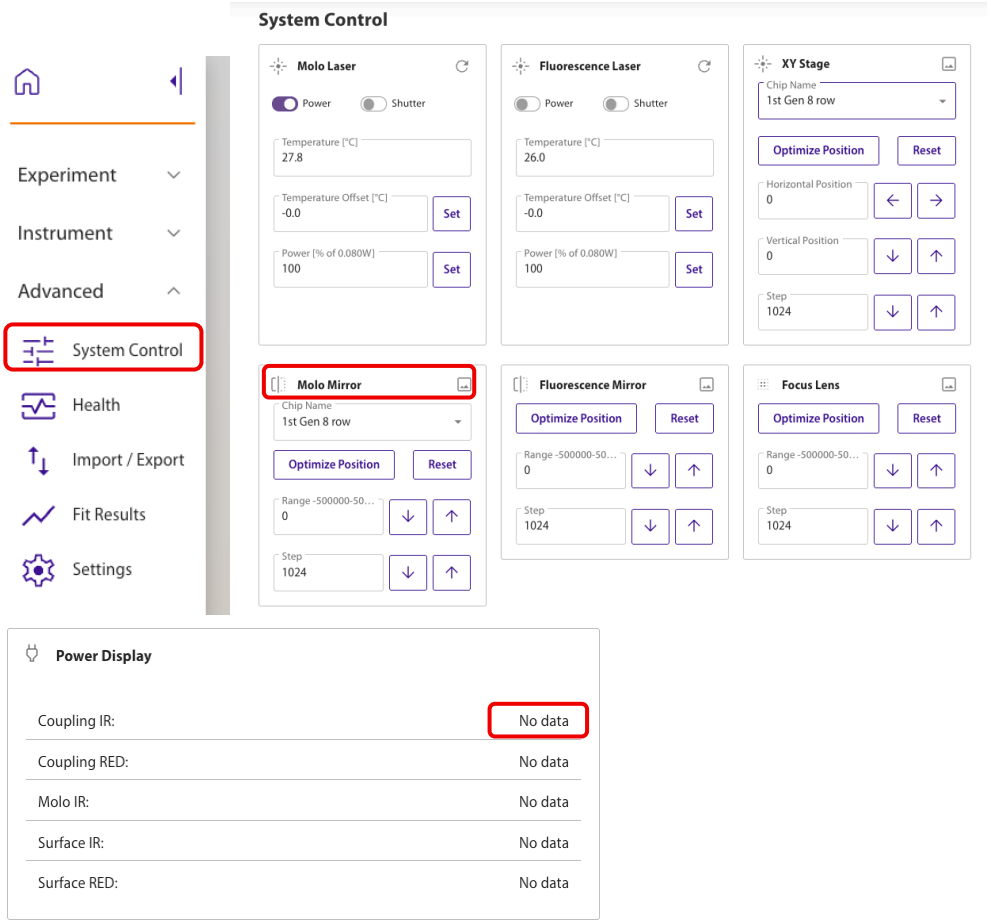




12. Prepare reader – make sure it passes all



13. System controls – verify values and adjust



14. Move out of good position for molo (>40k steps), XY (100k steps), focus.
15. Prepare reader again – make sure it passes all
16. **Check bubbles – Check that the surface image looks good and that there are no bubbles**
17. **Check coupling – Check the coupling power profile, intensity and mologram recognition**
18. **Start the measurement "Daniel General Test"**
19. Look at logs and for issues
20. Check metrics from the data: Noise, SNR, Spikes, Anomalies (steps), RMSE to desired model plot ("perfect plot").
21. Analyze the surface images and the result images
22. Check the video of the experiment by running the following (download it from the reader):

    scp -r container@READER:/home/container/lino_data/experiment_test_data/YYYY-MM-DD/{name of your experiment}{name of the arrival directory}