MAXIV STATUS

KITS, MAXIV

30th Tango meeting, Toulouse

What's new?
@MAXIVLaboratory

MAX IV Laboratory @MAXIVLaboratory · Apr 28
We are looking for a Scientist - Soft X-ray Coherent X-ray Imaging to join us at #MAXIV lu.mynetworkglobal.com/en/what:job/jo…

7 3


365
21
29
13
Days
Hours
Minutes
Seconds
until the inauguration of MAX IV
MAX IV Laboratory @MAXIVLaboratory · 21 Jun 2015
One year to go!
2
3


0000 04:05:19

ti 2015-08-25 22:09 First electrons

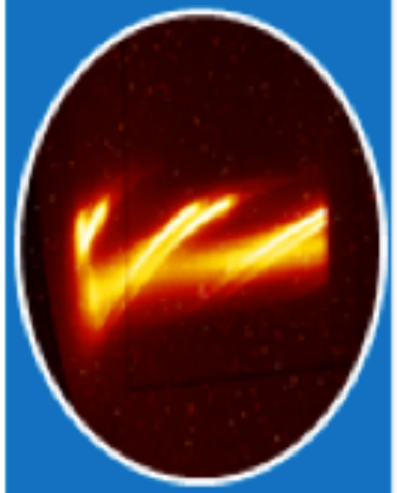
Hej,
We have three turns in the 3 Ge
time.
Cheers,
Pedro

ti 2015-0 tored e-beam

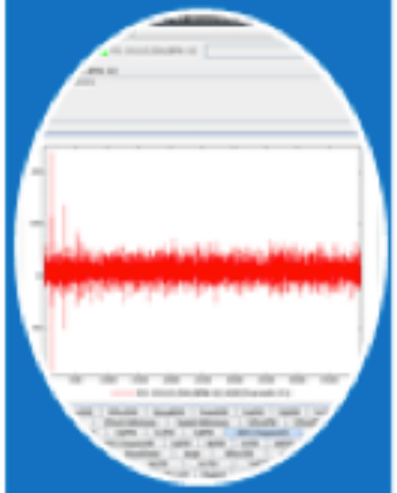
estone of 3 GeV ring commissioning has just
– as we powered up two of the six RF cavities in the
ould capture the injected electron beam and keep it
ating in the machine until the next LINAC pulse, 2 seconds
ter. Here is a picture of the signal as seen on an oscilloscope
and also of a very happy commissioning team getting ready to
celebrate !
Cheers,
Pedro.

MAX IV

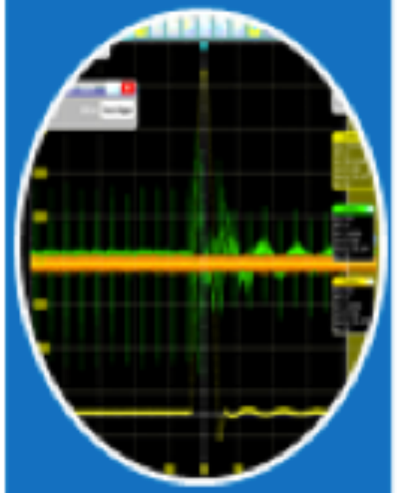
3 GeV Ring Commissioning Timeline



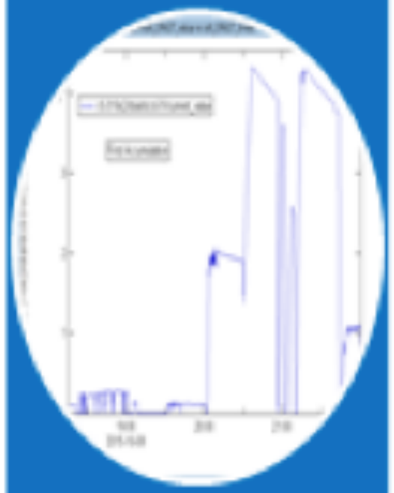
Beam in TR3 Aug 11 2015



First Turn Aug 25 2015

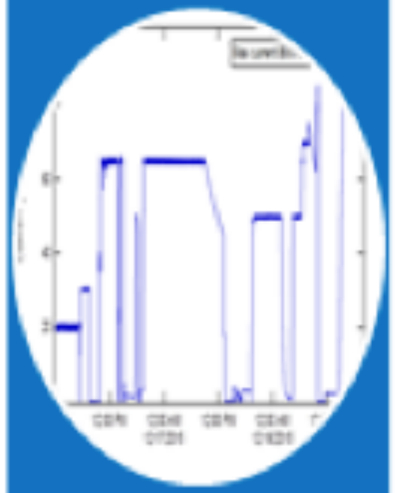


Stored Beam 0.1 mA Sep 15 2015



Stacking 4 mA Oct 08 2015

First Light Nov 2 2015

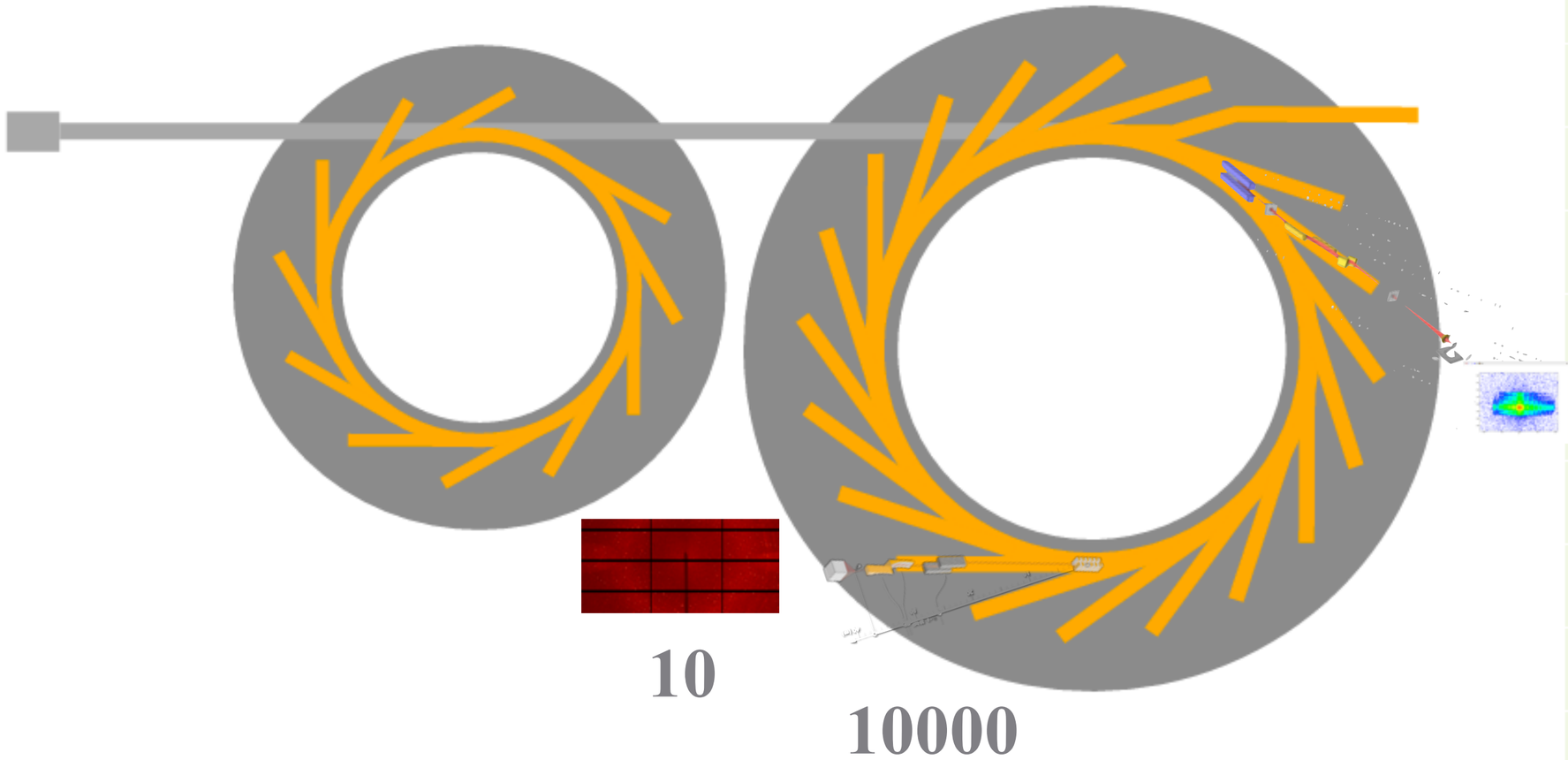


120 mA Jan/31 2016

200000

100000

Beamline map | Specifications



10

10000

ARPES
Balder
BioMAX
CoSAXS
DanMAX
FemtoMAX
FLEXPES
FinEstBeaMS
HIPPIE
MAXPEEM
NanoMAX
SoftiMAX
SPECIES
VERITAS

Contact info: Olivier Balmes

MAX IV BioMAX @MAXIVbiomax · 14 Sep 2015

Family day at MAX IV with our future engineers and scientists taking control. BioMAX ready for lift off!

2

MAX IV Laboratory @MAXIVLaboratory · Mar 3

UNDULATORS IN THE RING - the first X-ray sources have now been installed at #MAXIV

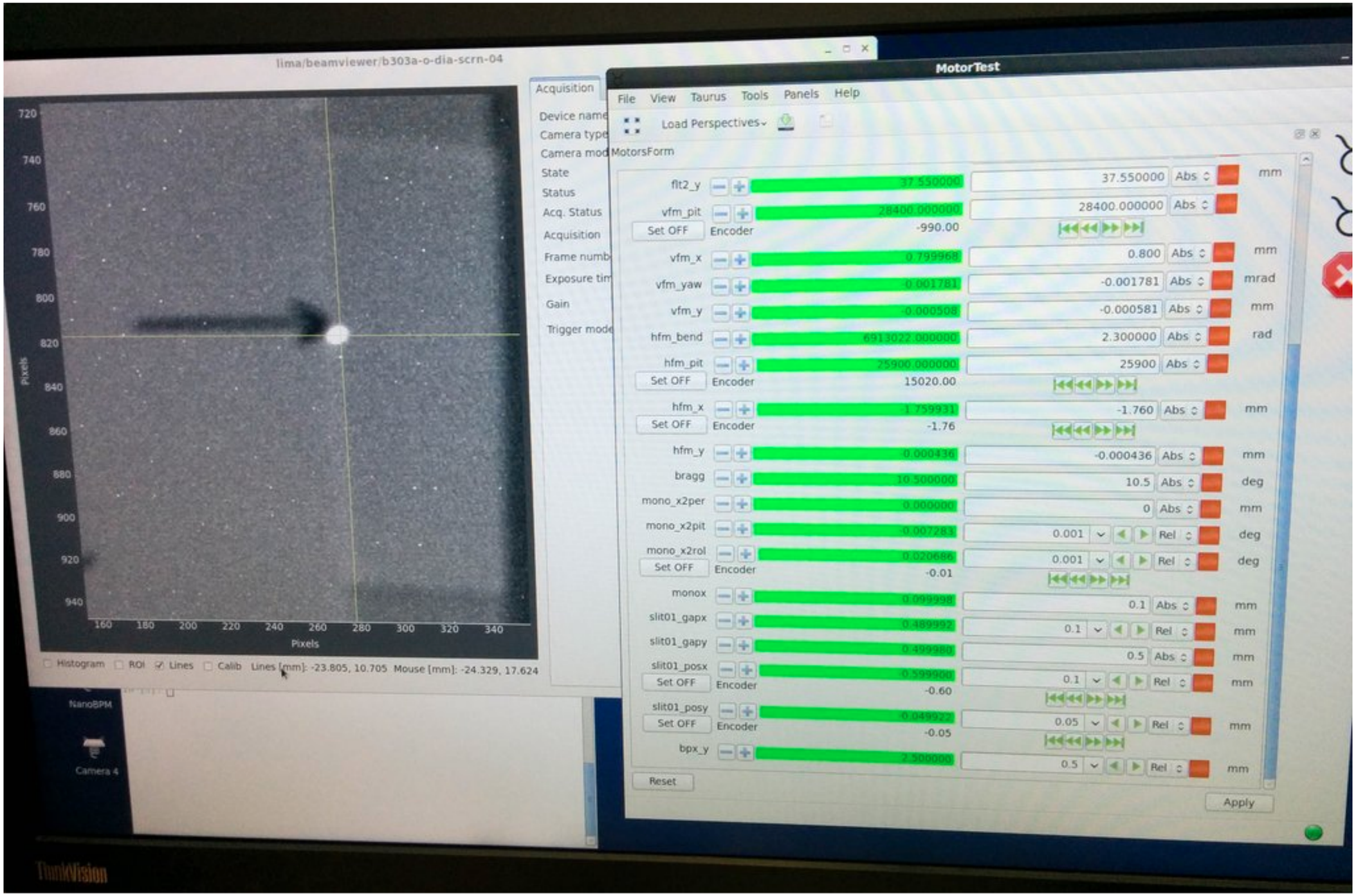
maxlab.lu.se/node/2035

16 9

MAX IV Laboratory @MAXIVLaboratory · Apr 12

Today we have the10th Steering Committee Meeting between @synchroSOLEIL and #MAXIVLaboratory

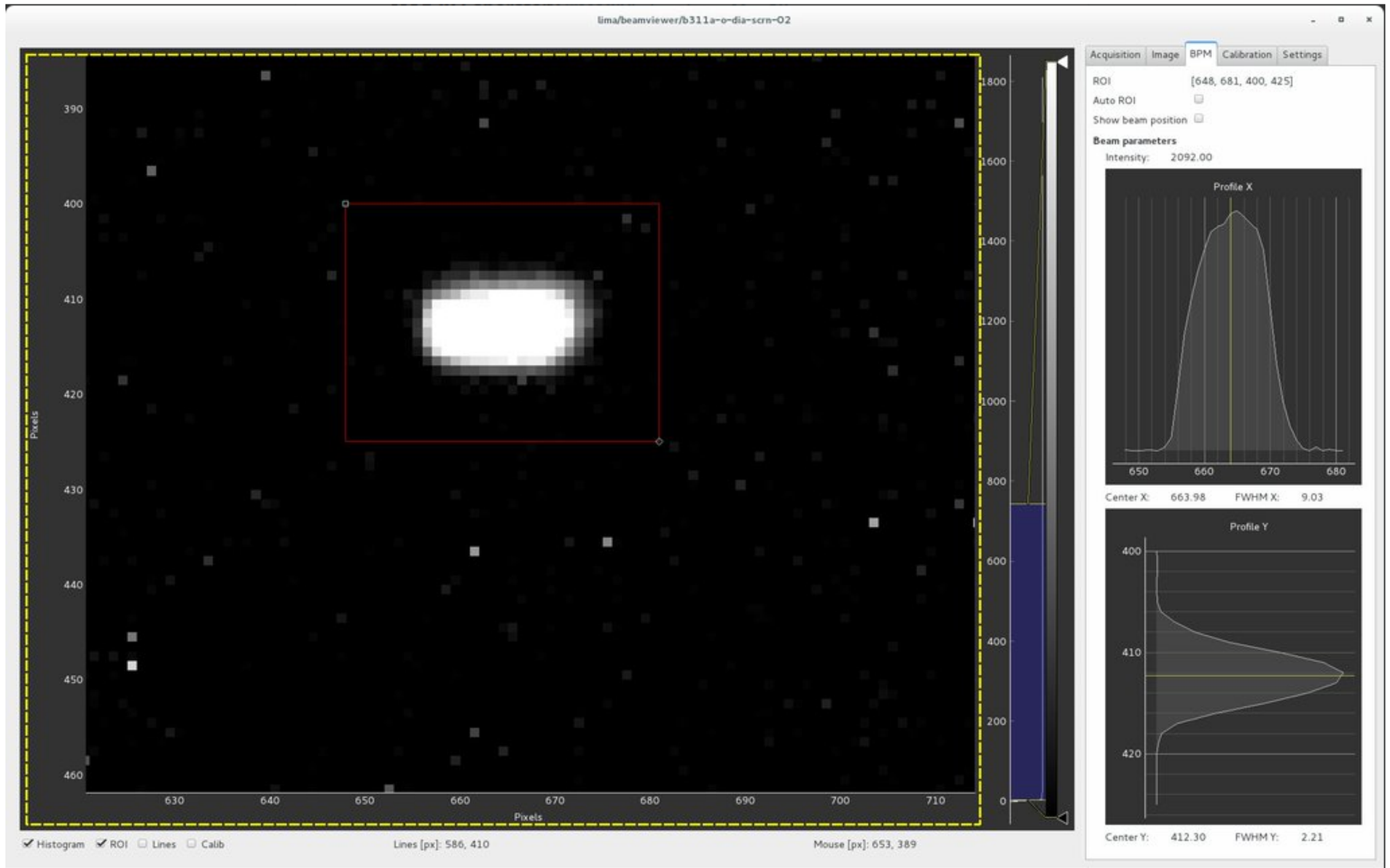
5



MAX IV Laboratory @MAXIVLaboratory · May 22

#NanoMAX has seen the first monochromatic beam in the experimental hutch - a nice little elliptic spot! #MAXIV

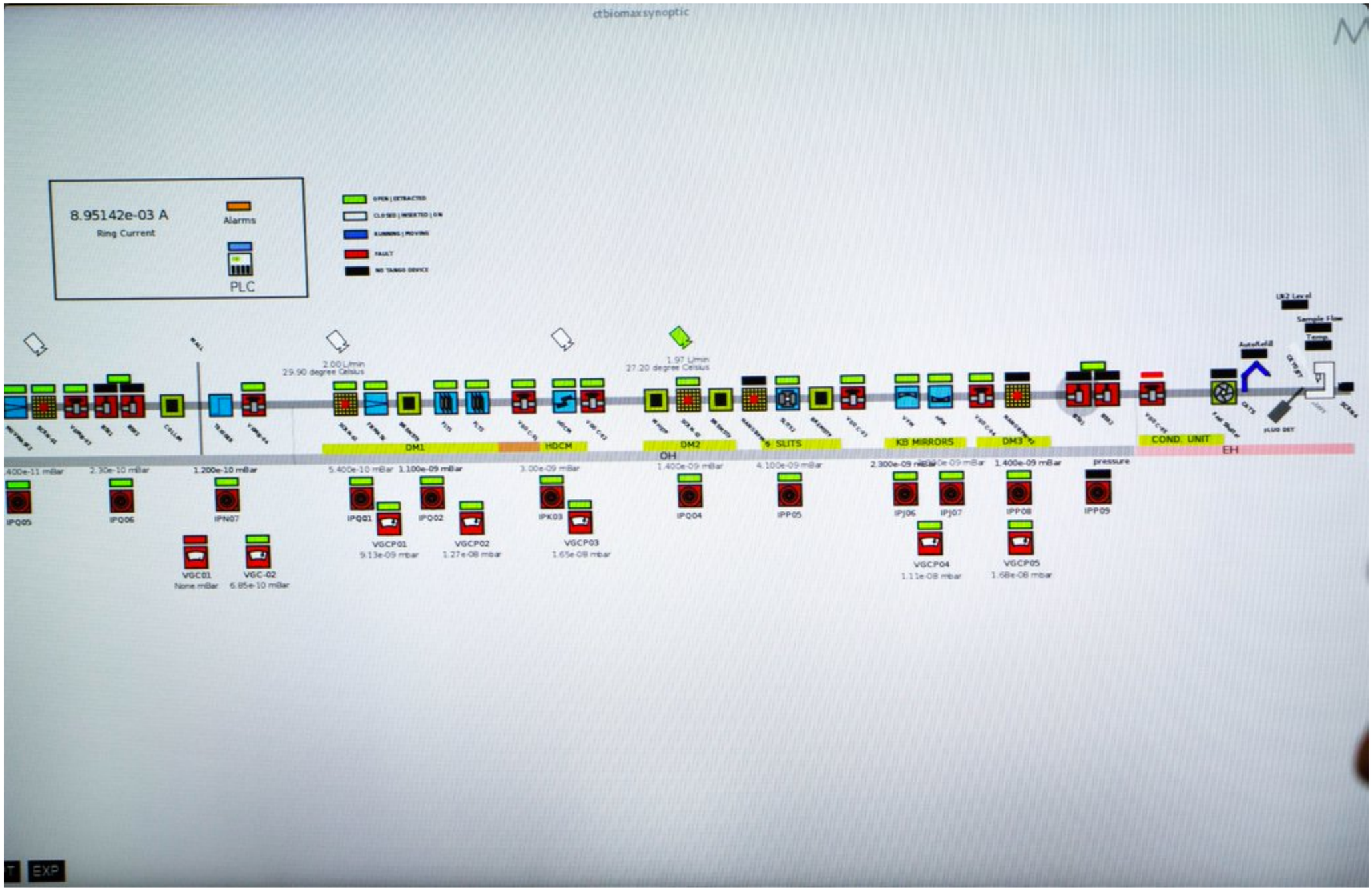
10 14



MAX IV BioMAX @MAXIVbiomax · May 12

First monochromatic beam at BioMAX @MAXIVLaboratory. Soon beam on the first sample? 39 days to the inauguration!

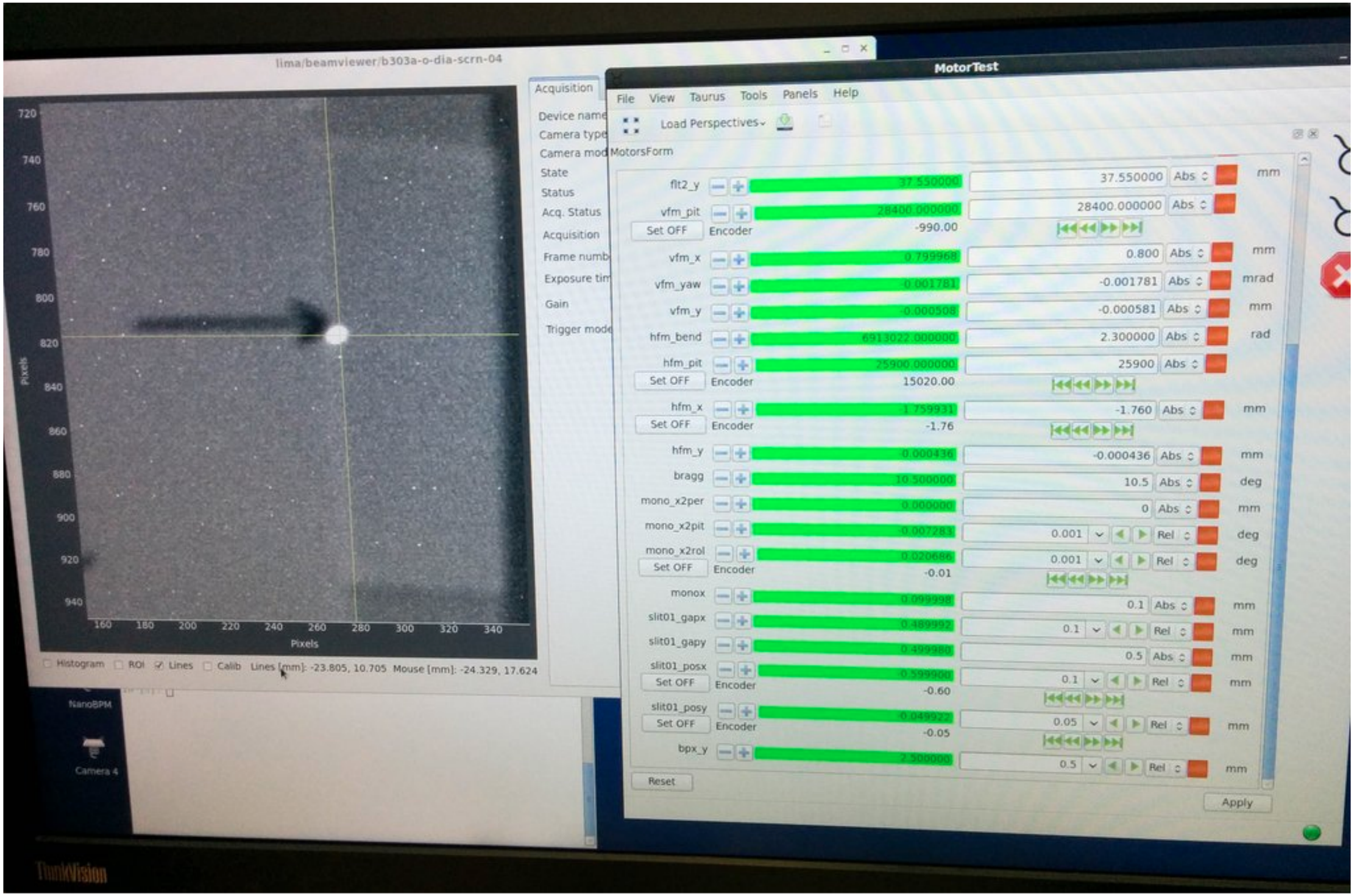
15 10



MAX IV Laboratory @MAXIVLaboratory · May 20

Testing the beam @MAXIVbiomax - looking good! #MAXIV

4 14



MAX IV Laboratory @MAXIVLaboratory · May 22

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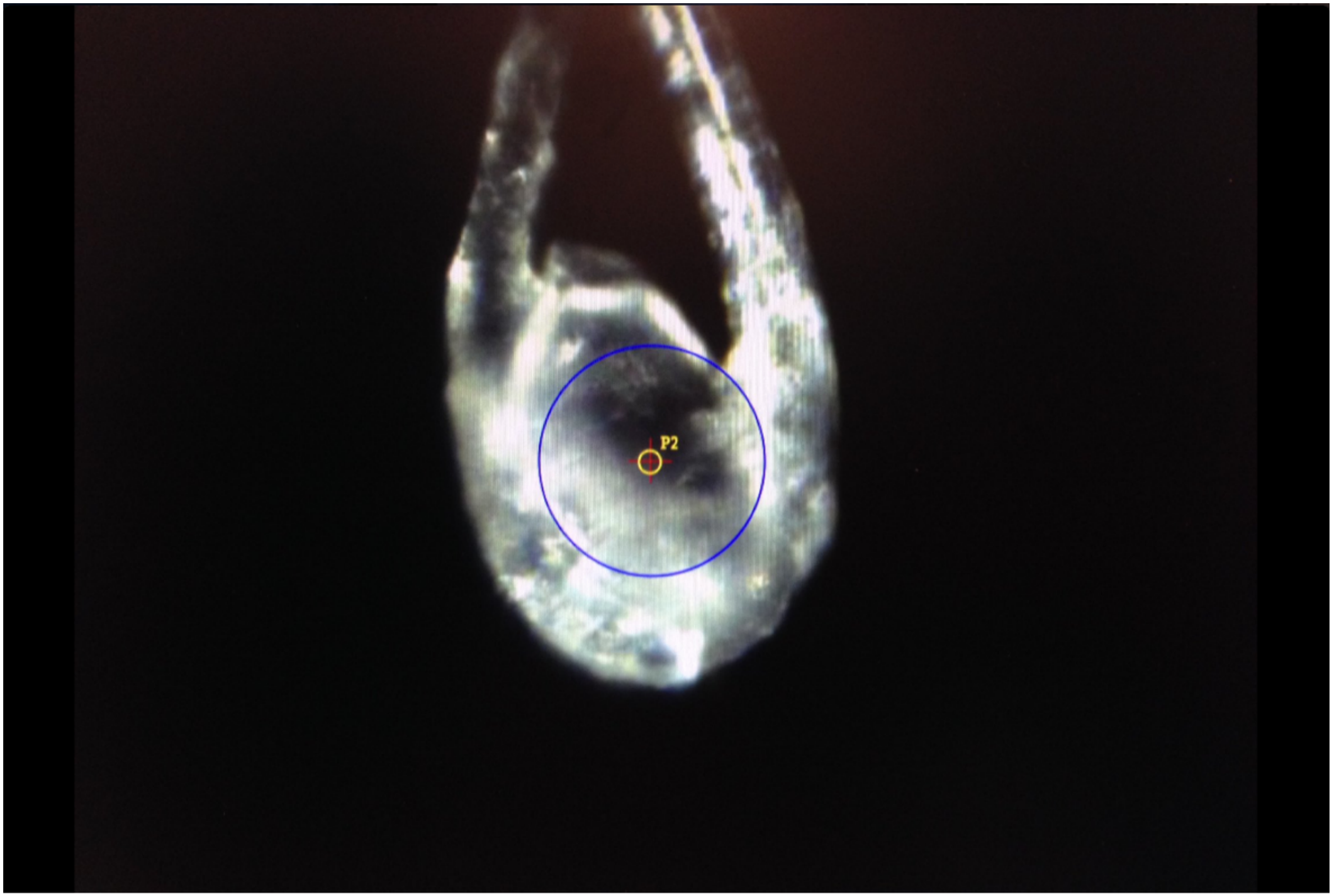
10 14 •••

MAX IV Laboratory @MAXIVLaboratory · Jun 9

Brilliant afternoon at BioMAX, first photons on a sample.

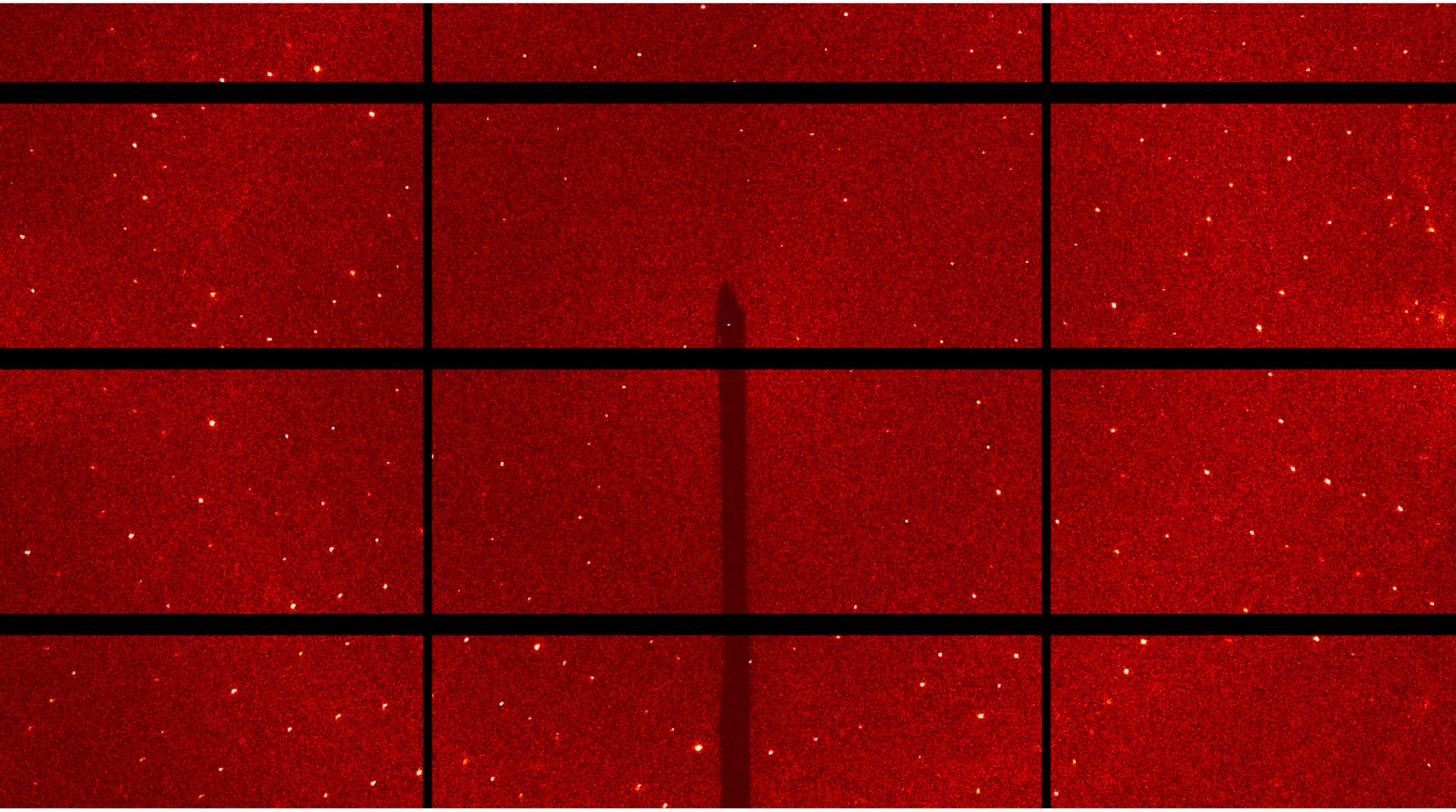
12 7



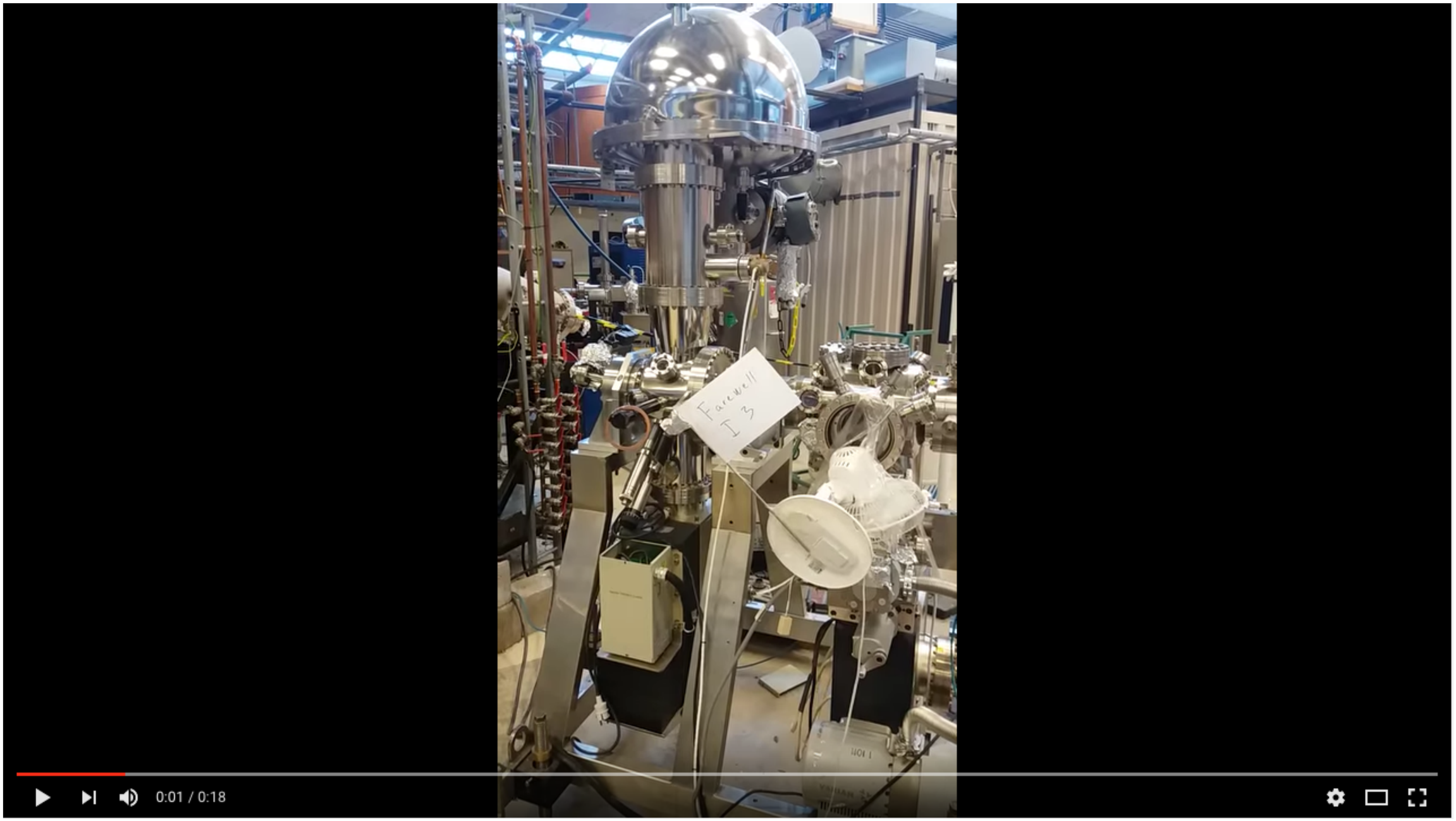
MAX IV Laboratory @MAXIVLaboratory · Jun 9

Brilliant afternoon at BioMAX, first photons on a sample.

12 7 •••



MAXLAB Farewell



https://www.youtube.com/watch?v=N1P4D51zCvc&feature=youtu.be

Today, we do…

1.5 GeV Ring : Continue the Installation and SST - Performance and Reliability Test

Beamlines Installation and SST of Optics

Beamlines End Station: Biomax, Nanomax, Femtomax

Organisation

Yesterday

Today

tomorrow

Tango Gateway

LIBERA
- Fully Auto configura Ansi
-Used in other Facilities

Jenkins + Docker
(builds and unittests)

LOGGING AND ALARMS (in ES)

Public RPM repo

Python 3 + asyncio

unittests to increase

Reactive patterns for Tango RxPy?

Knowledge transfer

Porting Cat to Python Tango DS:s

Sardana documentation for beginners

USING EVENTS

Tango 9

WEB SERVICES

SCRUM

What did you do yesterday?
What are you doing today?
Do you have any road blocks?

SSW TV

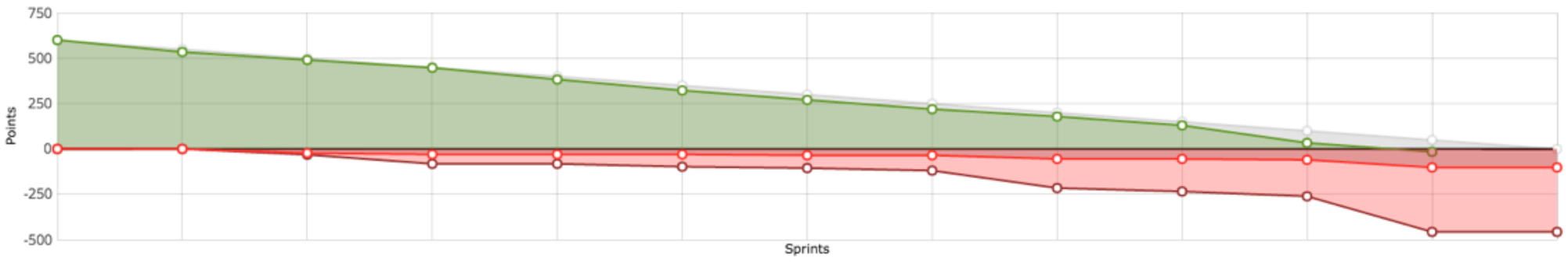
Yesterday, we did…

Help

Vincent Hardion

MAX IV CS BACKLOG

105% 600 project points 846.5 defined points 629 closed points 57 points / sprint



SHOW FILTERS SHOW TAGS + ADD A NEW USER STORY

Votes	User Stories	Status	Points
	Project Scope [Doomline]		
▲ 0	#273 NanoBPM High Level device	New	2
▲ 0	#272 Installation of the MD3 Prosilica Camera	New	1
▲ 0	#271 BeamViewer Extension	New	2
▲ 0	#230 IVUs: Highlevel DS for the beamline	New	3
▲ 0	#250 IK220 Packaging	In progress	?
▲ 0	#252 AMPTEK PX5	New	2
▲ 0	#100 R1: State Grid	New	3
▲ 0	#23 HIPPIE: Code Review of the Solaris Prevac Tango device and GUI	New	1
▲ 0	#234 NanoMAX: add TCO and FGE information to associated motors	New	1
▲ 0	#199 RT7846 R3/MAG/PS: Allow broadcast on all the ITest power supplies	Ready	?
▲ 0	#263 Project Refactoring	Archived	8
▲ 0	#237 BIOMAX SDM Installation: Mount the storage to FC-0	Ready for test	1

11 SPRINTS

Sprint 59

16 May 2016-27 May 2016 49close 108.5tota

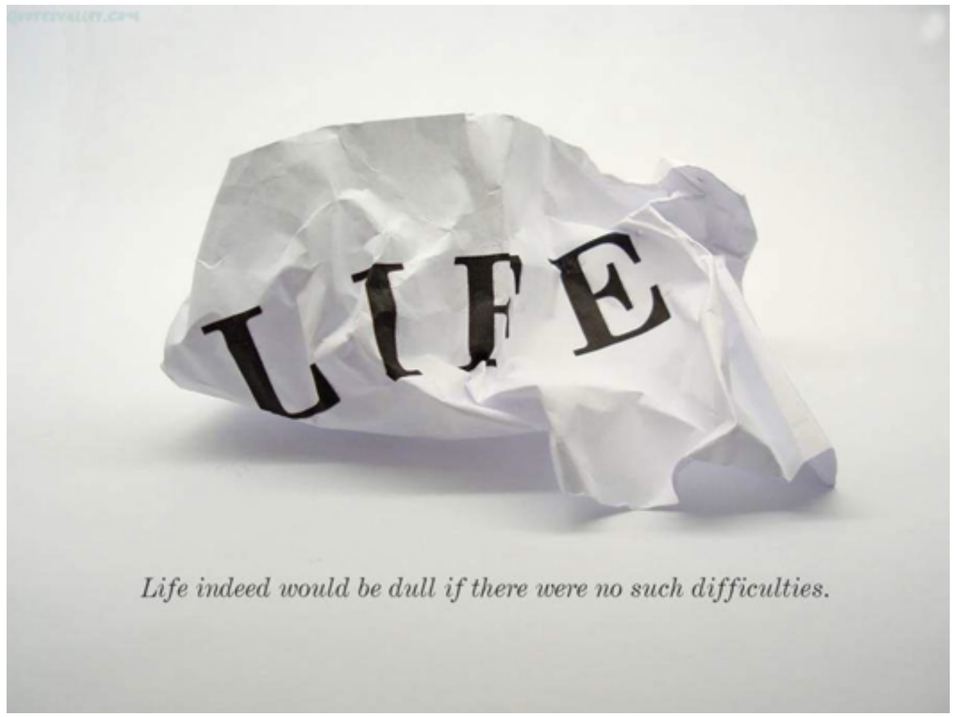
#99 R1: Synoptic	5
#346 Move Qt Signals to the new...	20
#347 Prevac Virtual Machine	1
#348 Continuous Scan@Metrolo...	3
#349 Installation of ipython note...	2
#350 RF transmitter refactoring	3
#351 VAC PLC update	0.5
#352 Alarm Level Changing GUI	5
#353 Installation of workstation	1
#354 ROI counter lima plugin	2
#317 Danfysik configuration	0.5
#360 Pilatus 1m	5
#361 TaurusTrend save to ASCII ...	1
#236 NanoMax Infra test AdLink ...	3
#269 Change the Magnet state b...	2
#226 EPU: GUI for test and comm..	2
#128 RF Transmitter: Atts in mW	1
#170 R3/WAT/BAS: Bas2 building...	3

Difficulties

Major issue with Basler Camera when more than 20 on the same network

Long debugging process with the Libera Brilliance Plus

Amptek device to continuous acquisition



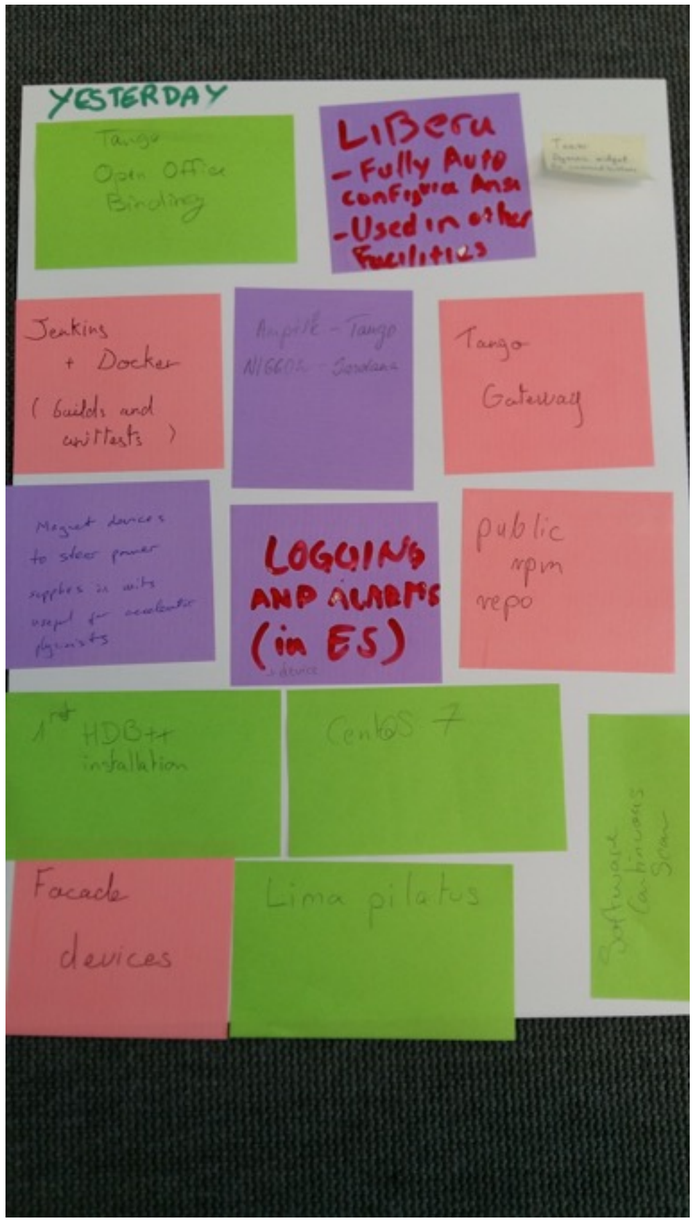
YESTERDAY

- Misc:
  - Tango Gateway
  - Tango Open Office Binding
  - Jenkins + Docker + Unit test for Tango device
  - Public Tango RPM
  - Migration to CentOS7
  - Sphinx Documentation for Python Tango device
  - Pogo template for the Python HL

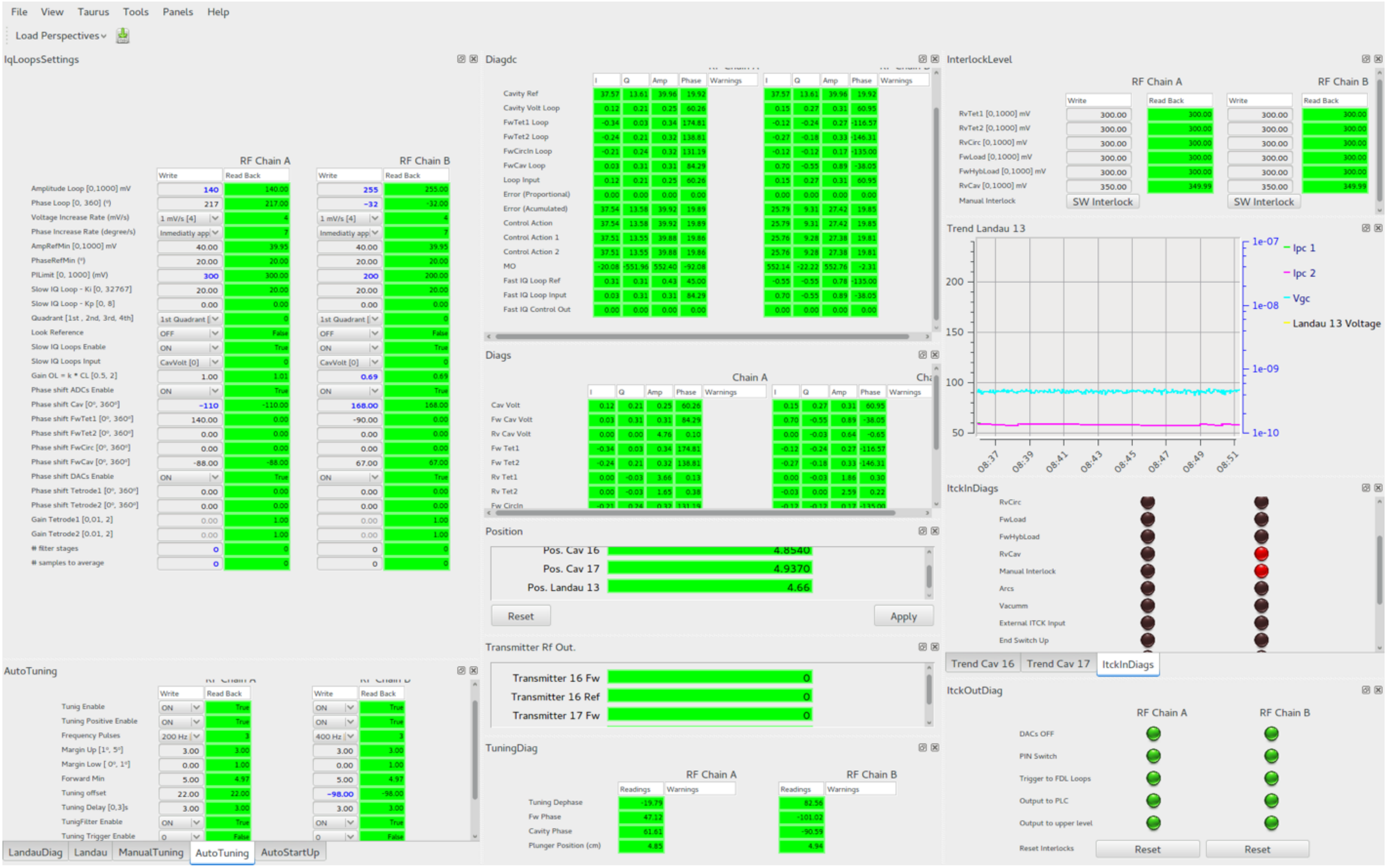
- Hardware Device:
  - Amptek Tango device with buffered acquisition
  - Libera Tango device — Debugged and fully configured by ansible
  - First usage of the Pilatus LIMA device

- Virtual Device:
  - Magnet Tango device Physics unit, cycling, …
  - Facade devices for PLC controlled device: Temperature sensor, …

- Services:
  - 1rst Software Continuous Scan with Sardana
  - Logging and Alarm Tango Device + Elastic search+ Kibana
  - 1rst HDB++ installation

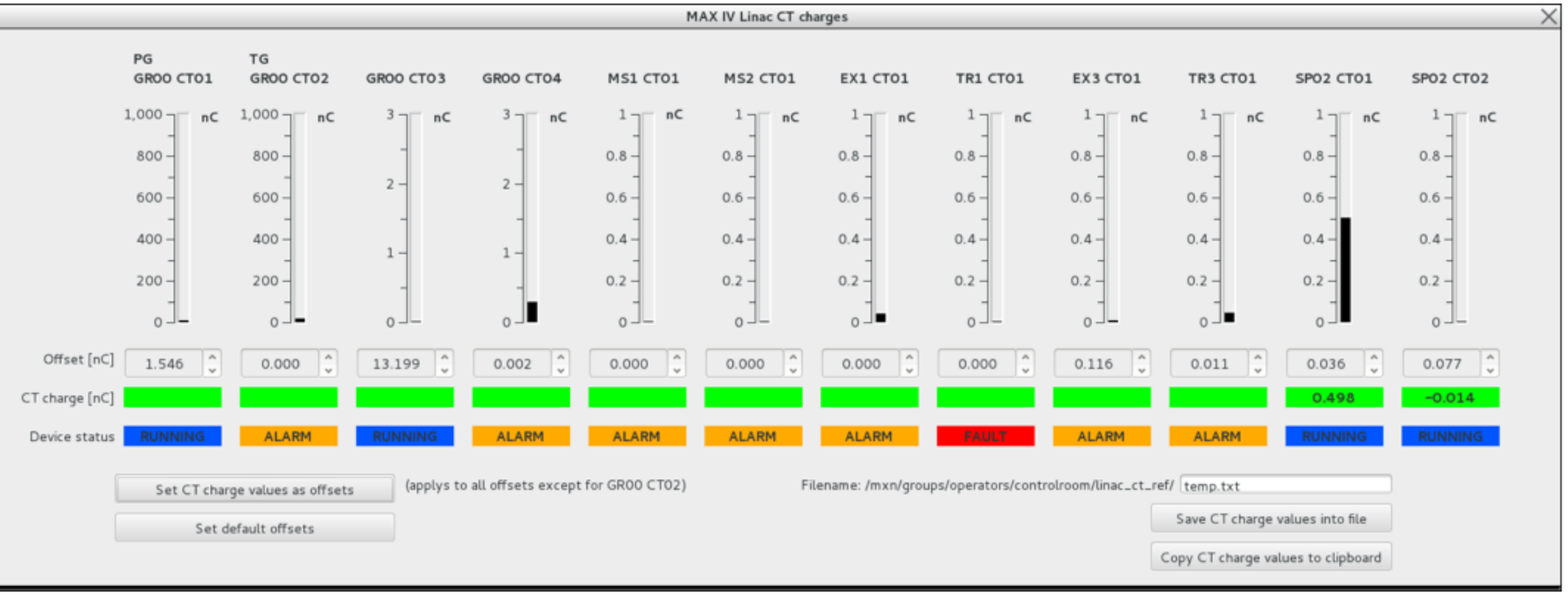


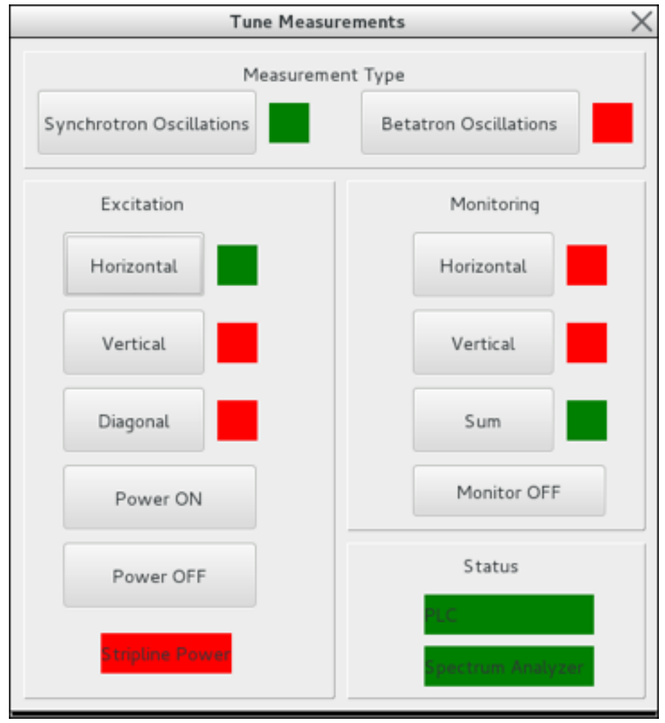
LLRF Expert GUI



Screenshot of the 3 GeV LLRF first station

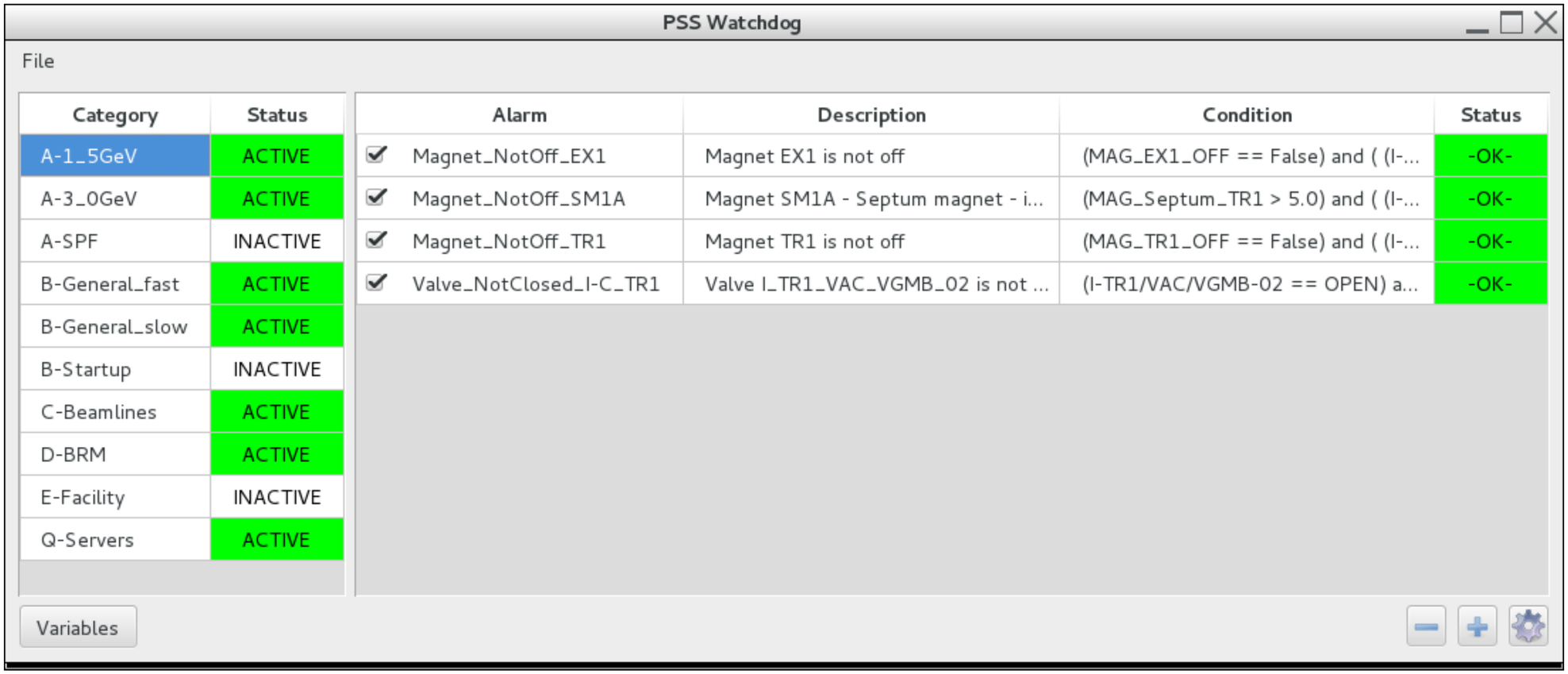
Operator “home made” Interface





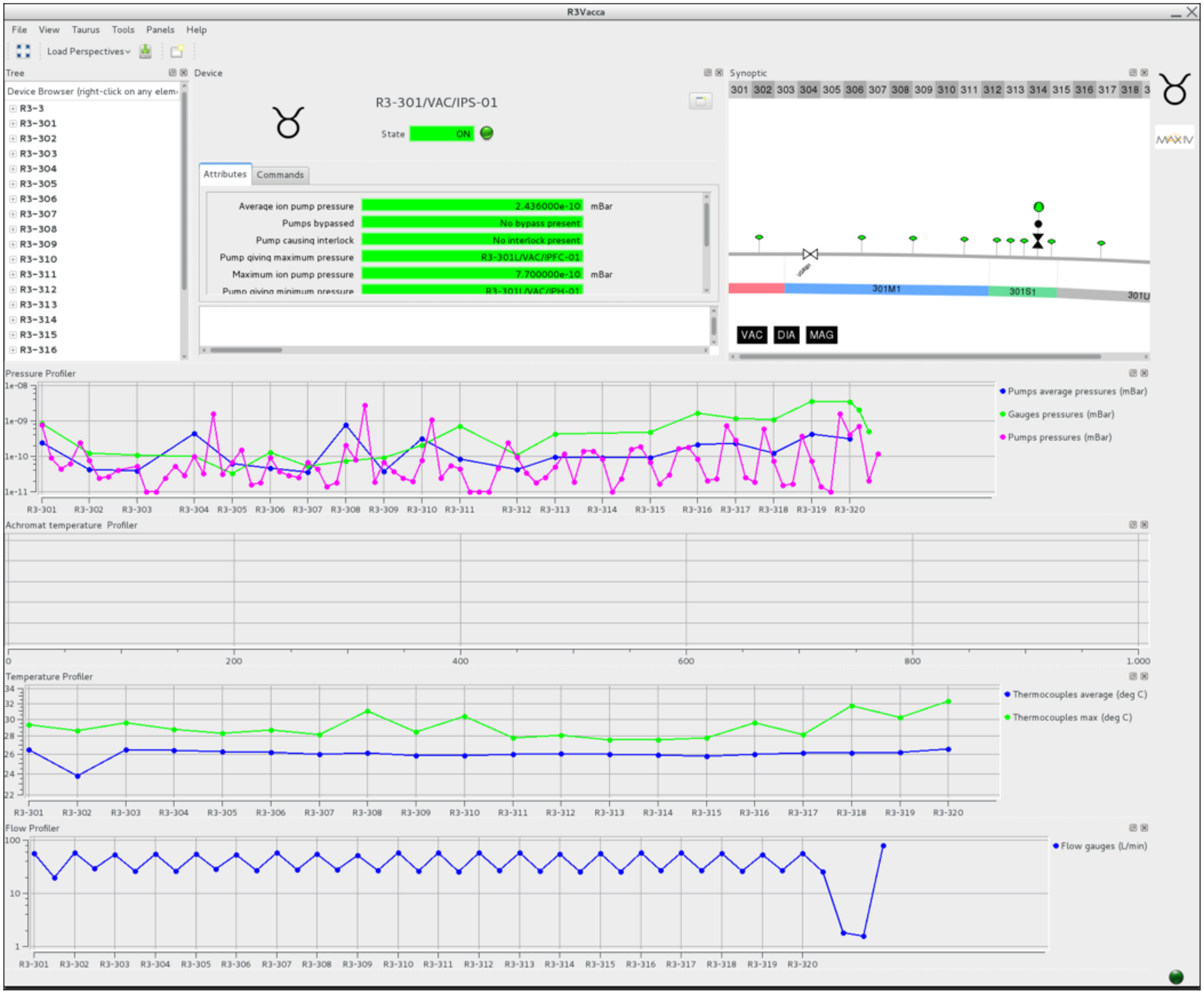
Screenshot of the Linac Current Transformers and 3 GeV Tune meas.

Soft PSS Watchdog (PyAlarm based)



Screenshot of the Watchdog User Interface.

VACCA + Synoptic



Screenshot of the 3 GeV ring VACCA User Interface.

StateGrid Web App

StateGrid 0.7.7 3 GeV ring

3 GeV ring

	VAC R Pumps	VAC R Valves	VAC FE Pumps	VAC FE Inserts	MAG	PSS	RF	TIM	DIA	DIA BPM	DIA Inserts	WAT	
301	4/5 ON	5/5 CLOSE	ON		2/145 OFF		2/2 RUNNING	ON	26/26 ON	11/11 ON	4/4 ON	15/15 ON	301
302	4/5 ON	2/2 CLOSE	ON	2/2 CLOSE	143/143 ON				29/31 ON	10/10 ON		15/15 ON	302
303	4/7 ON	2/2 CLOSE	ON	2/2 OPEN	143/143 ON				32/32 ON	10/10 ON		15/15 ON	303
304	4/5 ON	2/2 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	1/10 FAULT		15/15 ON	304
305	4/4 ON	2/2 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	10/10 ON		15/15 ON	305
306	4/5 ON	2/2 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	10/10 ON		15/15 ON	306
307	4/5 ON	2/2 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	10/10 ON		15/15 ON	307
308	4/4 ON	2/2 CLOSE	ON	2/2 CLOSE	143/143 ON				34/34 ON	10/10 ON		15/15 ON	308
309	4/5 ON	2/2 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	10/10 ON		15/15 ON	309
310	4/5 ON	2/2 CLOSE	ON	2/2 CLOSE	2/145 OFF			ON	32/32 ON	10/10 ON		15/15 ON	310
311	1/7 ALARM	4/4 CLOSE	ON	2/2 OPEN	143/143 ON				32/32 ON	10/10 ON		15/15 ON	311
312	4/5 ON	2/2 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	10/10 ON		15/15 ON	312
313	5/5 ON	4/4 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	2/10 ALARM		15/15 ON	313
314	1/5 ALARM	4/4 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	1/10 FAULT		15/15 ON	314
315	5/6 ON	4/4 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	10/10 ON		15/15 ON	315
316	4/5 ON	4/4 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	10/10 ON		16/16 ON	316
317	4/5 ON	4/4 CLOSE	ON	2/2 CLOSE	143/143 ON		2/2 RUNNING		30/30 ON	1/10 FAULT		16/16 ON	317
318	4/5 ON	4/4 CLOSE	ON	2/2 CLOSE	143/143 ON				30/30 ON	10/10 ON		16/16 ON	318
319	4/5 ON	4/4 CLOSE	ALARM	2/2 CLOSE	143/143 ON		2/2 RUNNING	ON	30/30 ON	10/10 ON		16/16 ON	319
320	6/7 ON	4/7 CLOSE	ON	2/2 CLOSE	143/143 ON				32/32 ON	10/10 ON		16/16 ON	320
PLC		20/20 RUNNING			40/40 RUNNING							RUNNING	PLC
Alarm					ON	ON							Alarm
Global								1/4 RUNNING		ON			Global

Screenshot of the overall state of the 3 GeV ring User Interface.

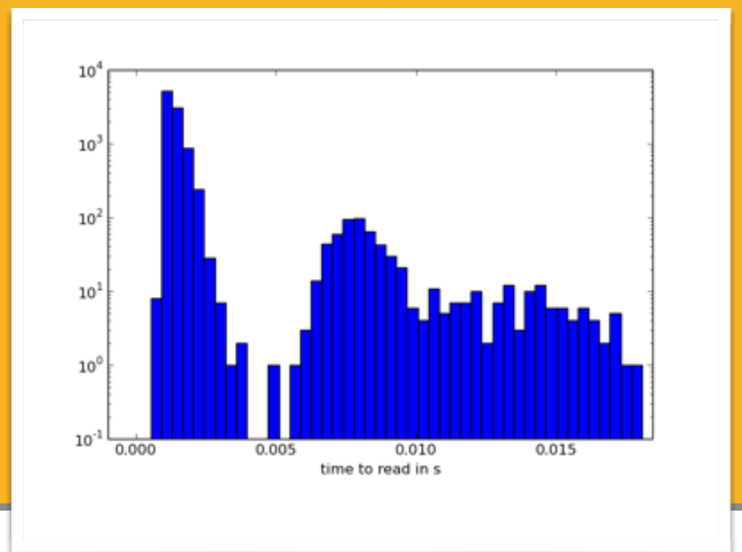
100 Hz Software Fast Archiving

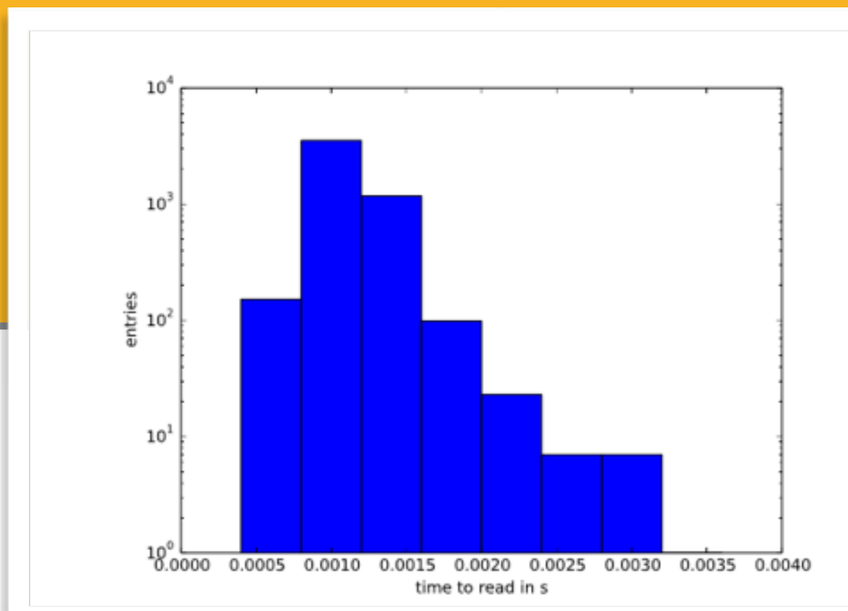
MOPGF049
ICALEPCS 2015

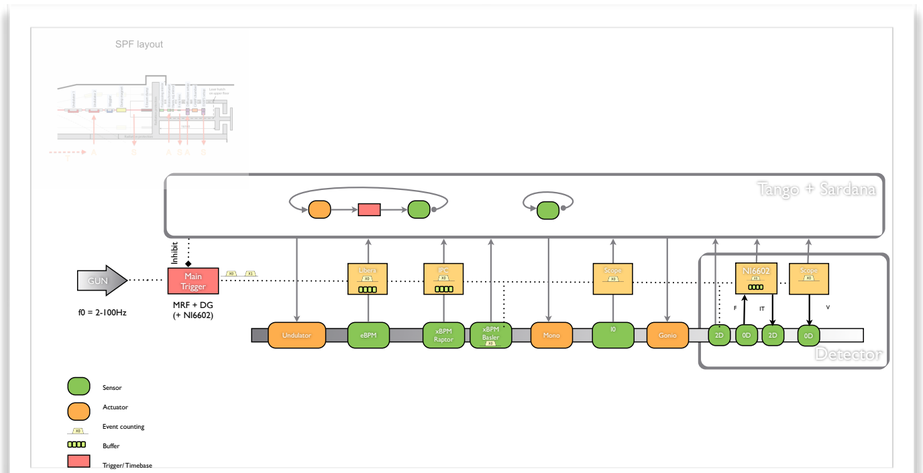
Based on trigger/ event

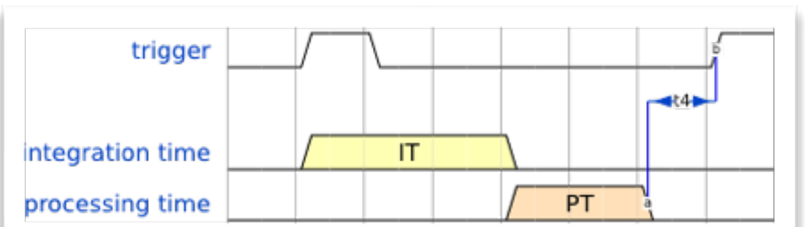
Deployed: **Libera** and R&S Scope (99.9%) Events at 100 Hz

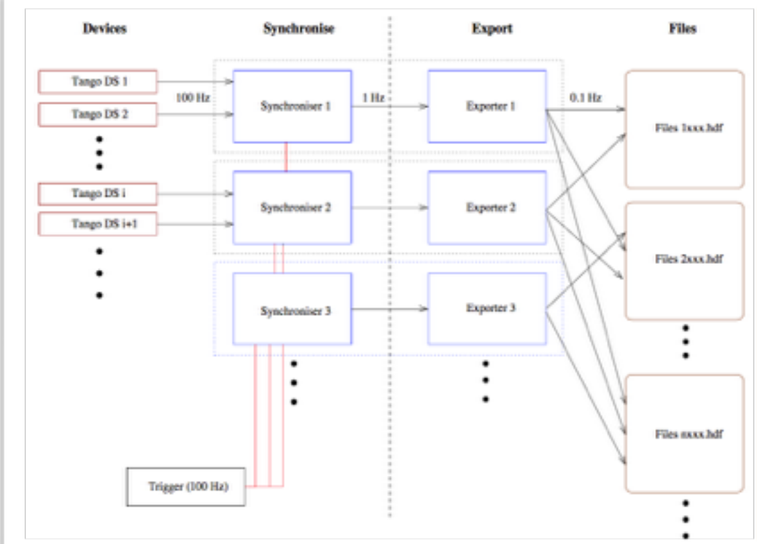
HDF5 file (500GB/week)











Web based tools

WEM309
ICALEPCS 2015

In Ops

Alarm log with PyAlarm, Kibana and Elastic Search

Synoptic with SVG and Javascript

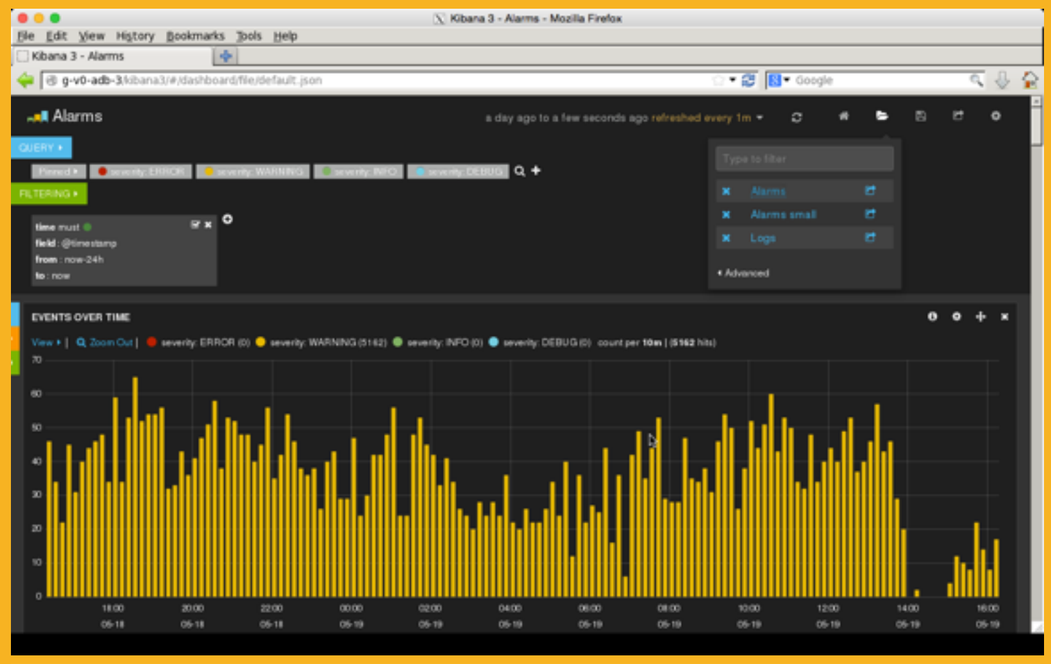
Archive viewer

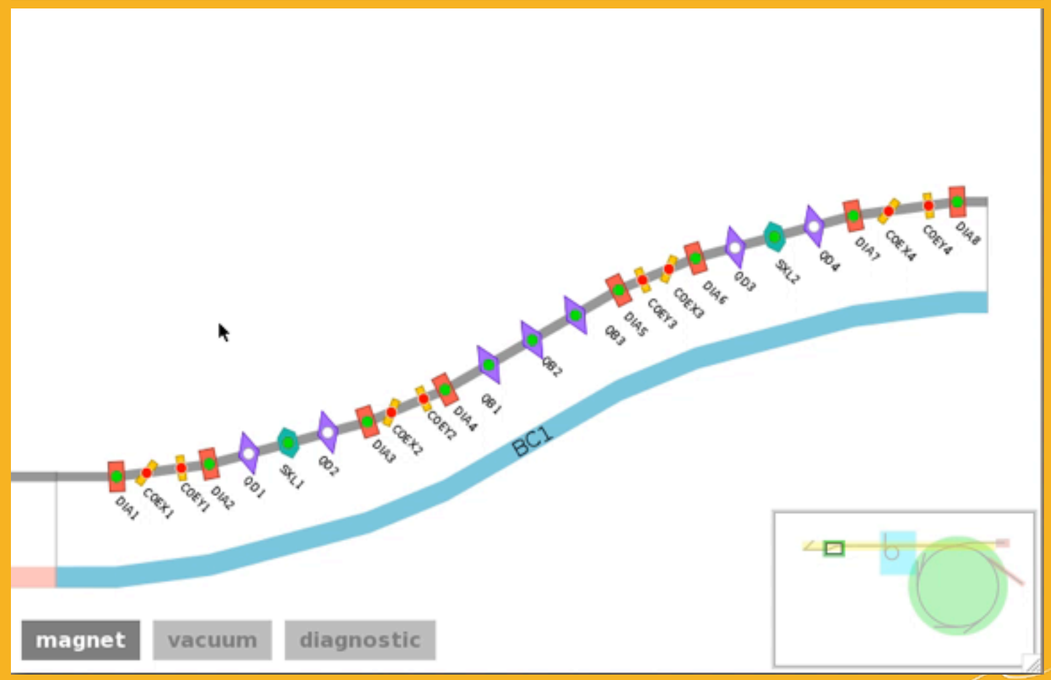
In Dev

Synoptic full web

MxCube: 3 people (MAXIV and Soleil) on Web and Sardana

Tango REST api





MAXIV

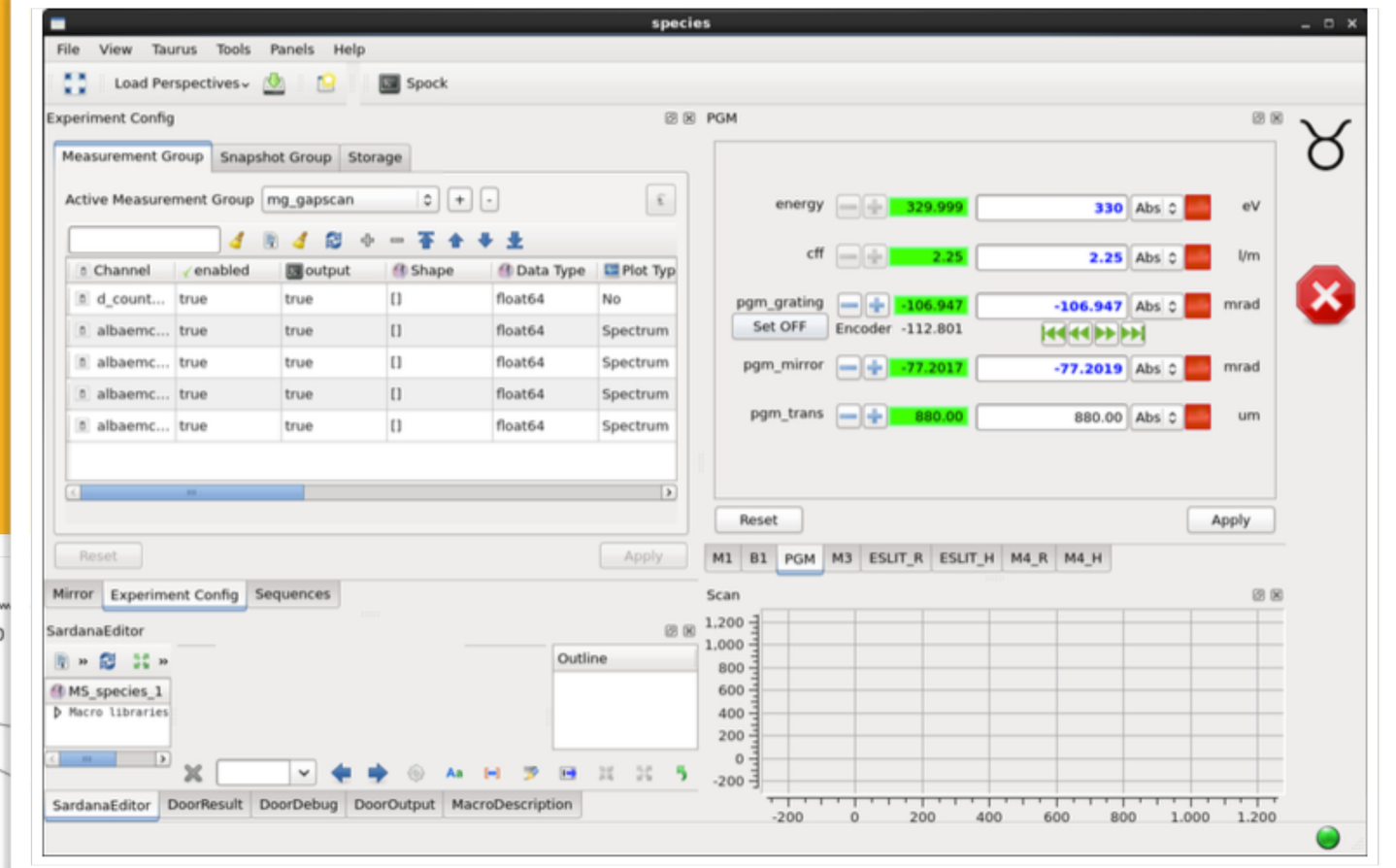
SPECIES BEAMLINE (MAX-lab)

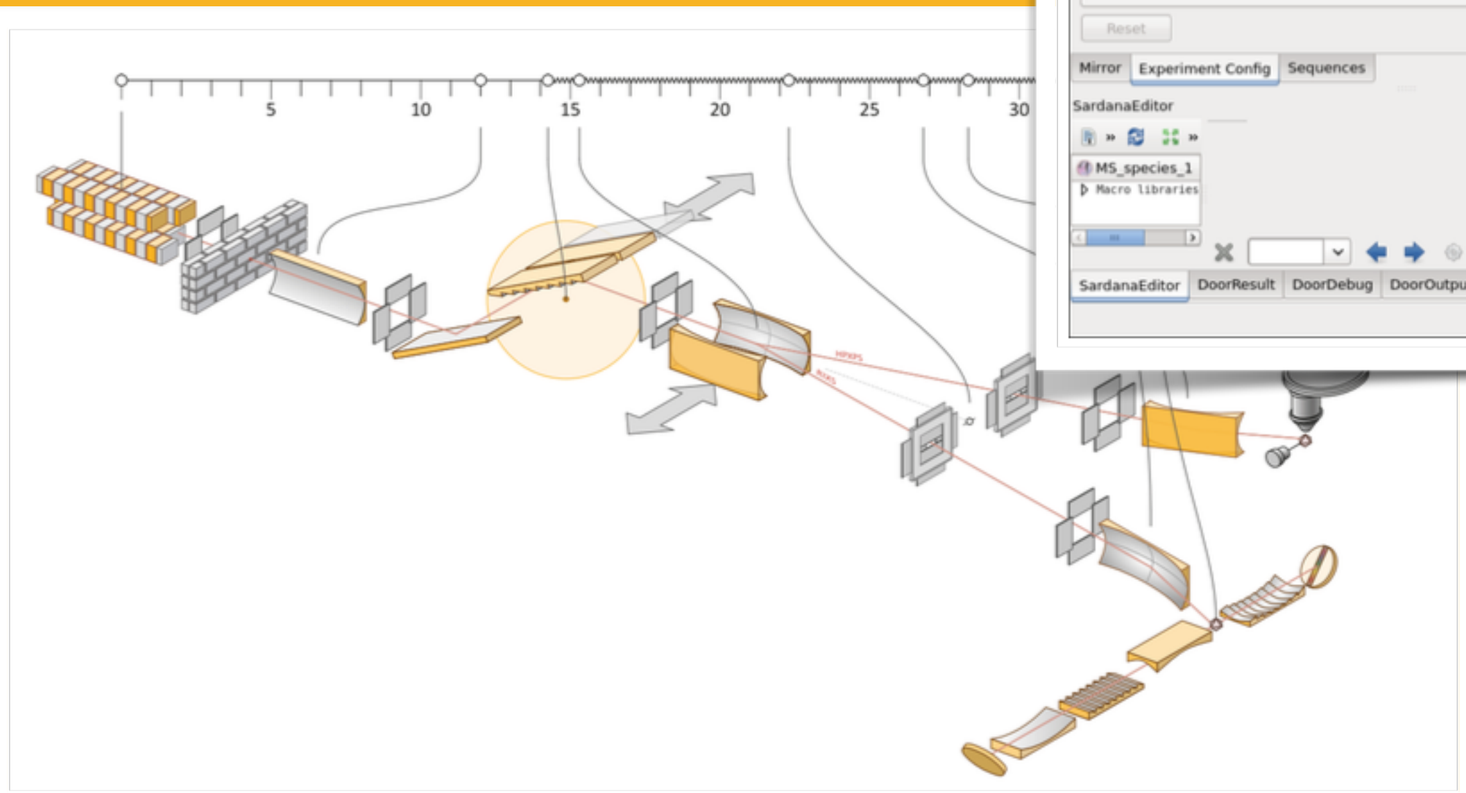
MOPGF065
Poster Session
Monday all day

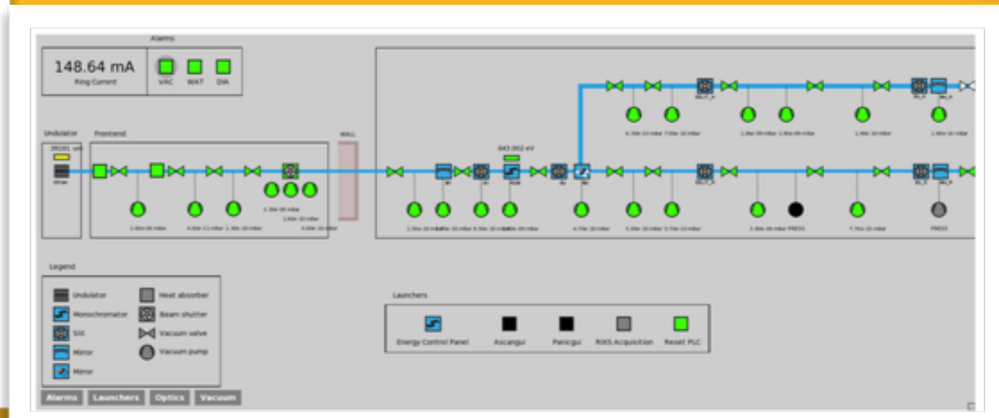
Icepap CMS

sardana

+ Heideman correction



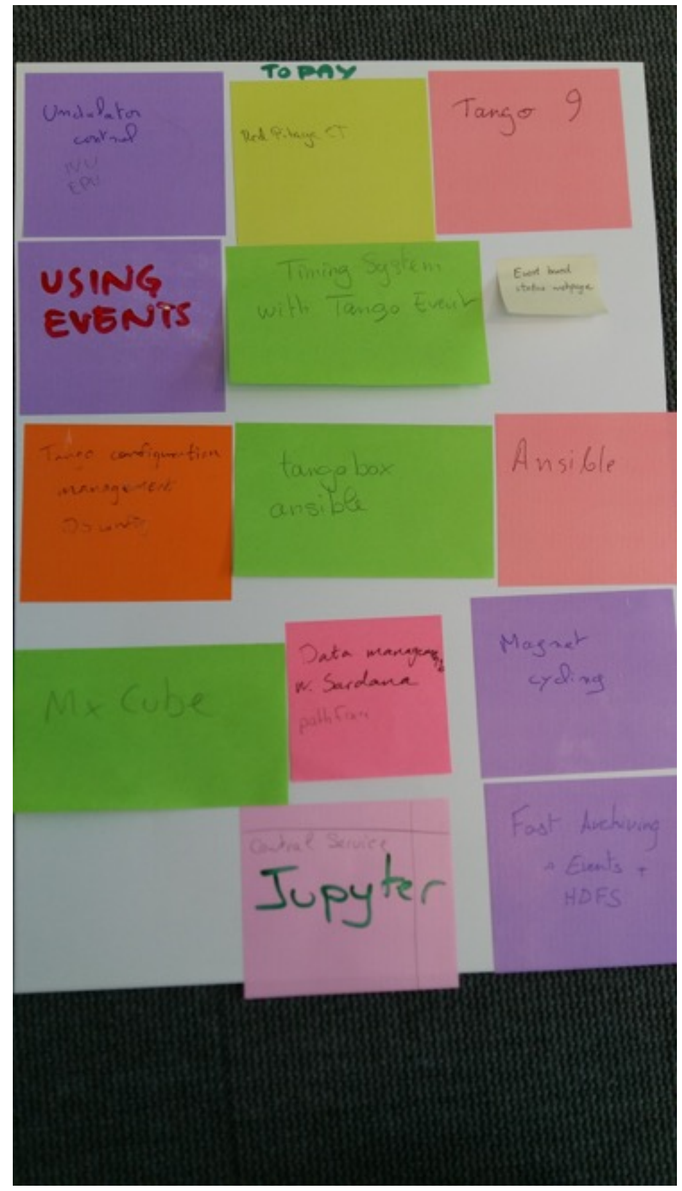




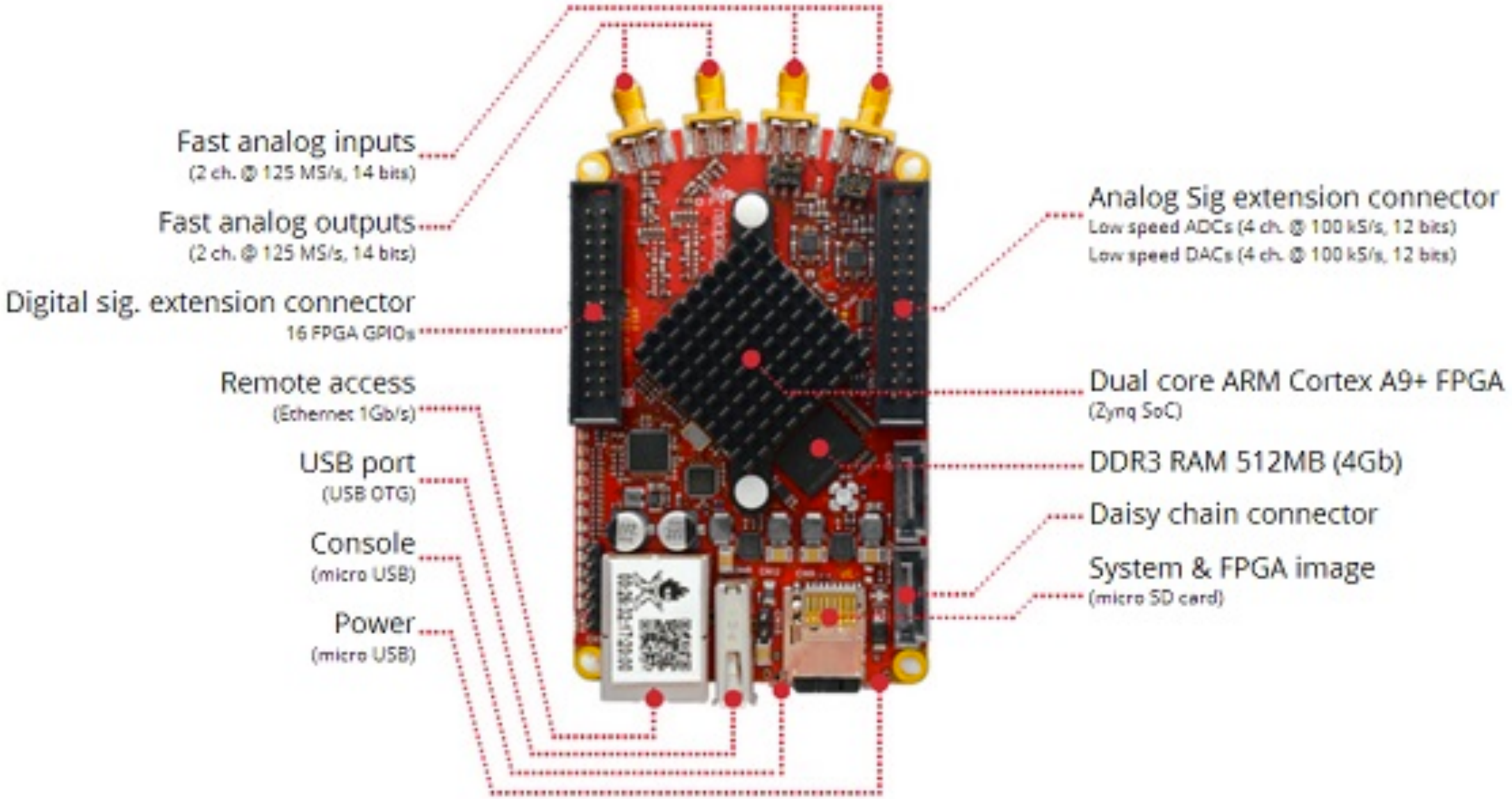
TODAY

- Hardware device:
- IVU & EPU Undulators with Sardana
- MRF Timing System with Tango Event

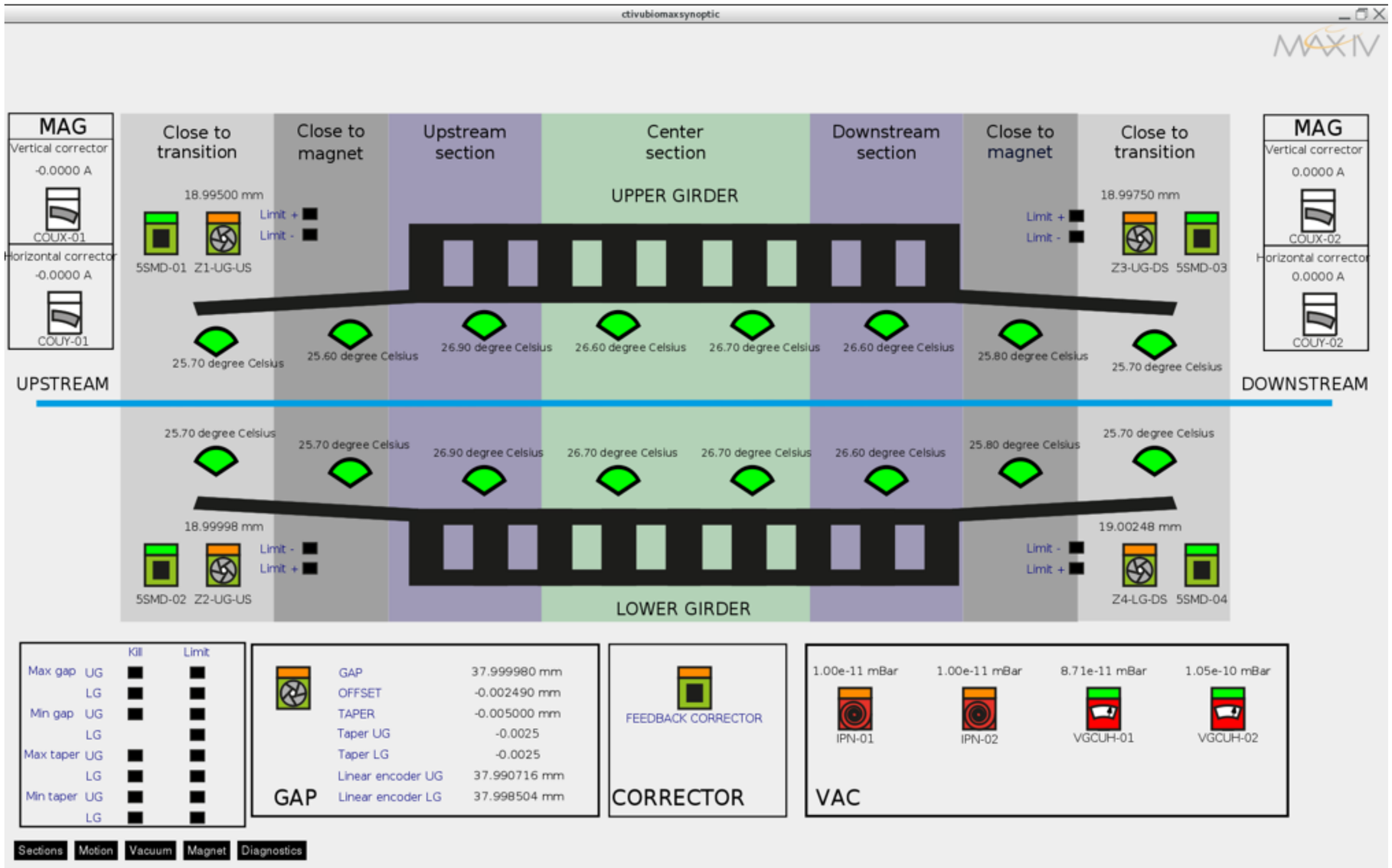
- Tango 9 and PyTango9 release
- Full Event Strategy
- Service:
  - Event Based Status Webpage
  - Tango configuration management with DsConfig
  - CentOS7 Tangobox with Ansible (https://github.com/MaxIV-KitsControls/tangobox-ansible)
  - Sardana Data Management with PathFixer
  - Jupyter



Red Pitaya Current Transformer

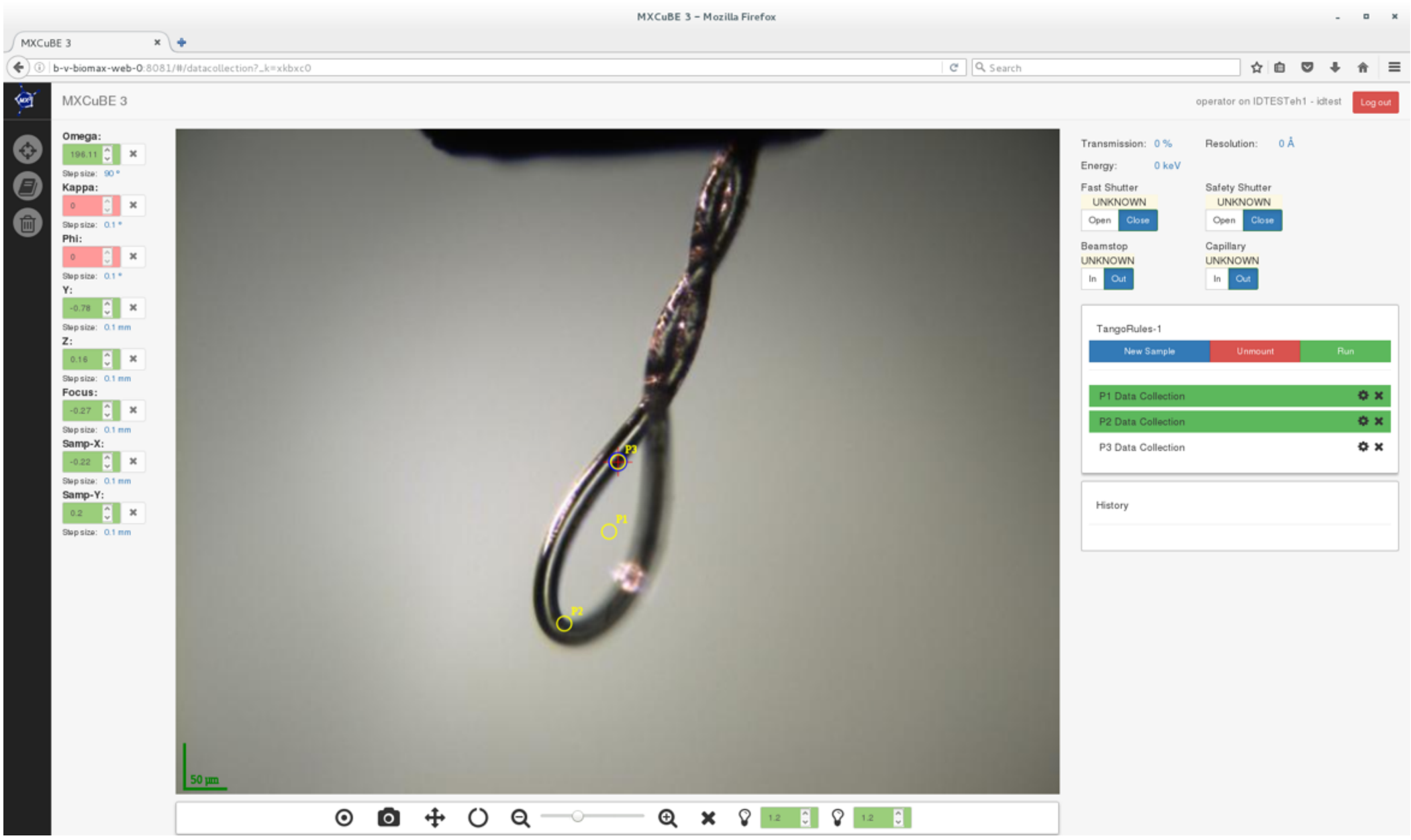


ID Expert Interface



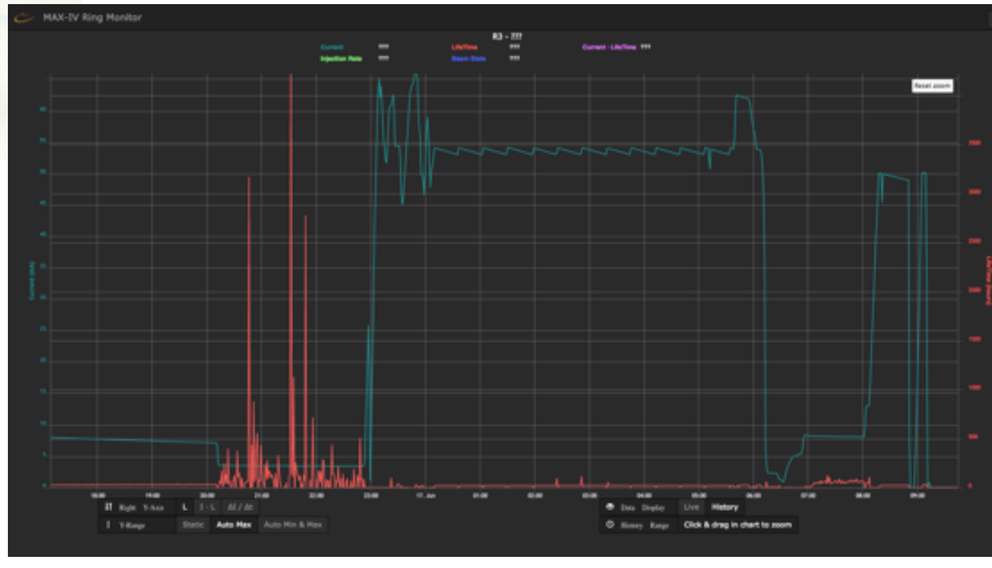
Screenshots of the Biomax In Vacuum Undulator expert interface.

MxCube3



Screenshots of the MXCuBE v3 (http://mxcube.github.io/mxcube/) user interface.

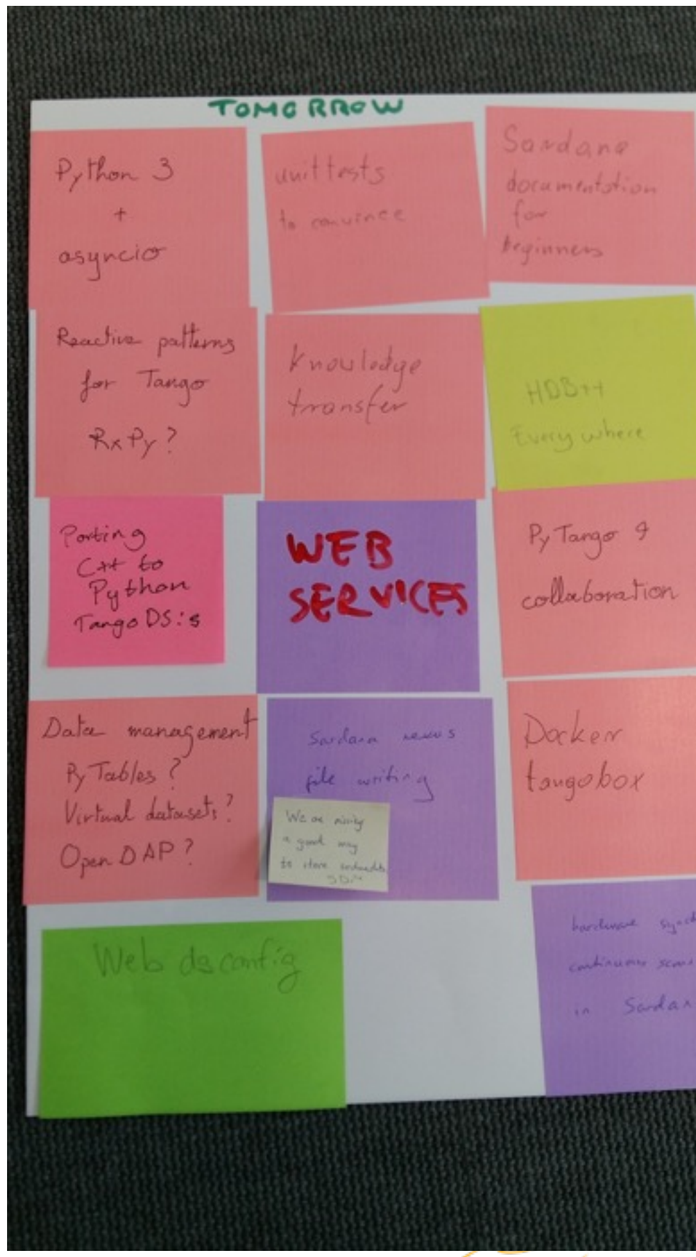
Machine Status



Screenshots of the Machine Status (http://status.maxiv.lu.se/) web interface.

Tomorrow

- Python 3 + AsyncIO
- Convince the community to use Unit Tests
- Sardana documentation for beginners
- Reactive patterns for Tango RxPy
- Knowledge Transfer in the community
- HDB++ everywhere
- Porting to C++ to python Tango DS
- More and more web service
- PyTango9 collaboration
- PyTables, HDF5 virtual datasets, OpenDAP in data management
- Sardana Nexus file writing
- Docker Ansible Tangobox
- Web DsConfig
- Hardware continuous scan in Sardana



Sardana + Jupyter

File Edit View Insert Cell Kernel Widgets Help | Python 2

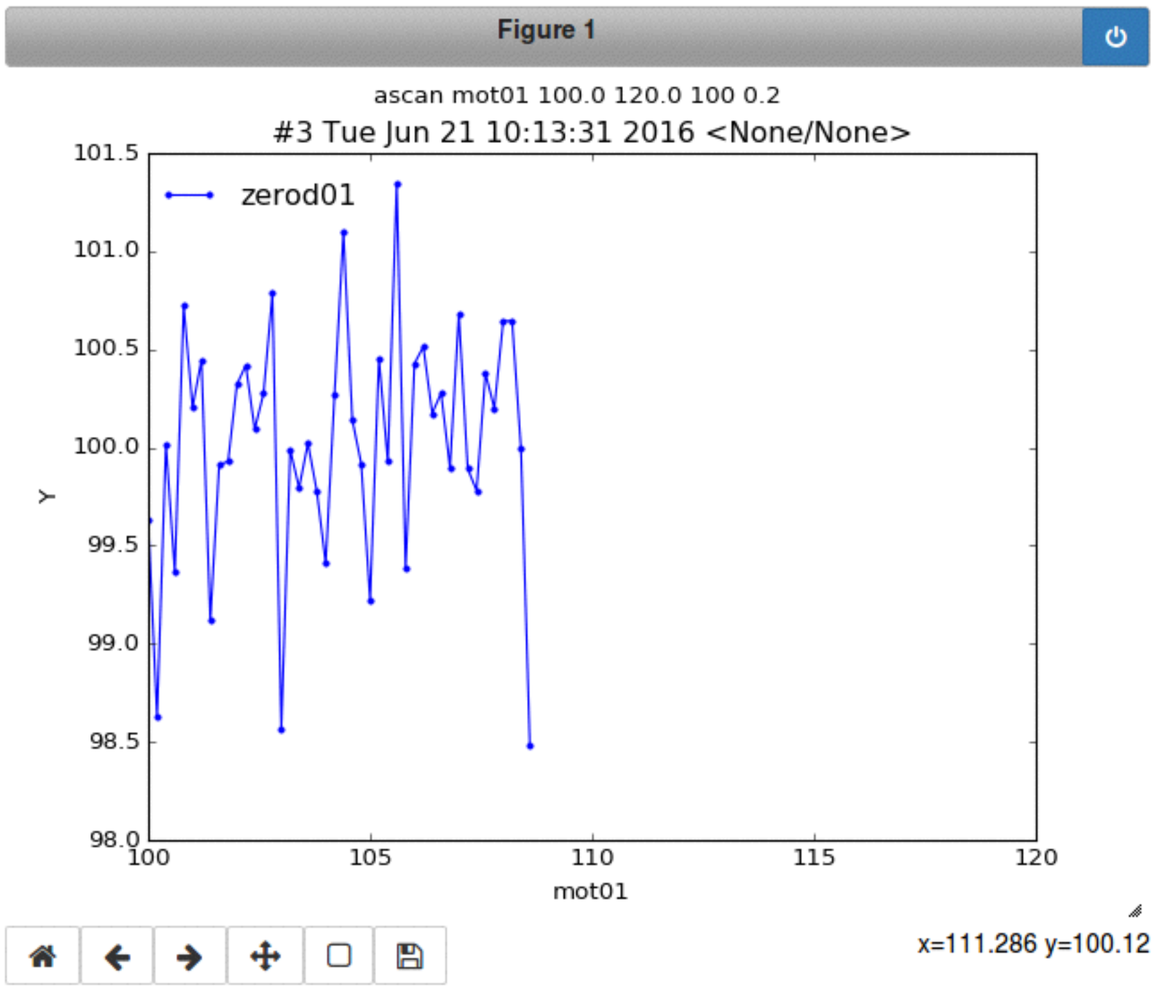
```
t = scan.Tricorder("door/3/1")

t.run_macro("senv JsonRecorder True")
```

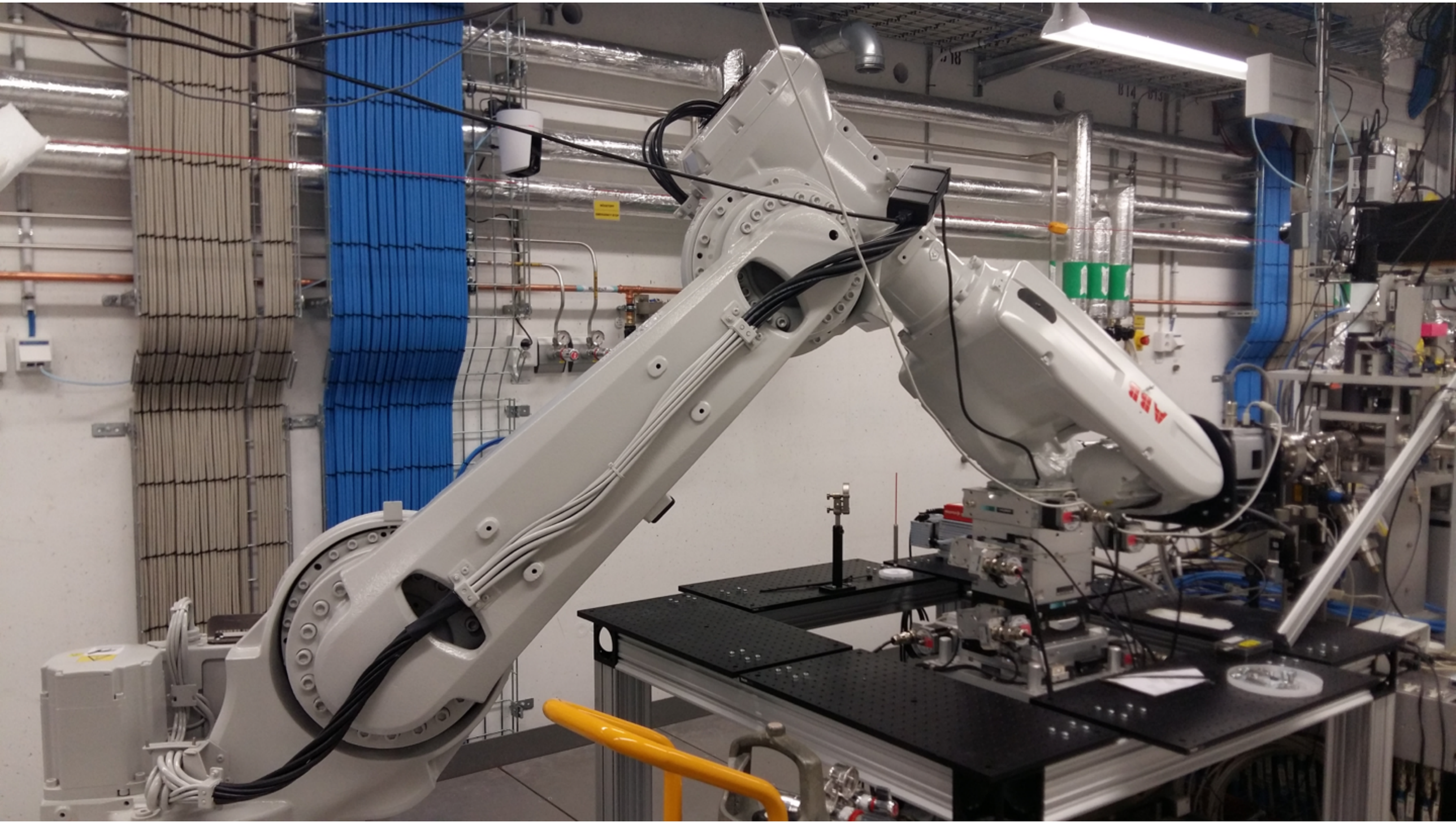
Out[2]: MacroWrapper(**senv JsonRecorder True**)

In [5]:
```
ascan mot01 100 120 100 0.2
```

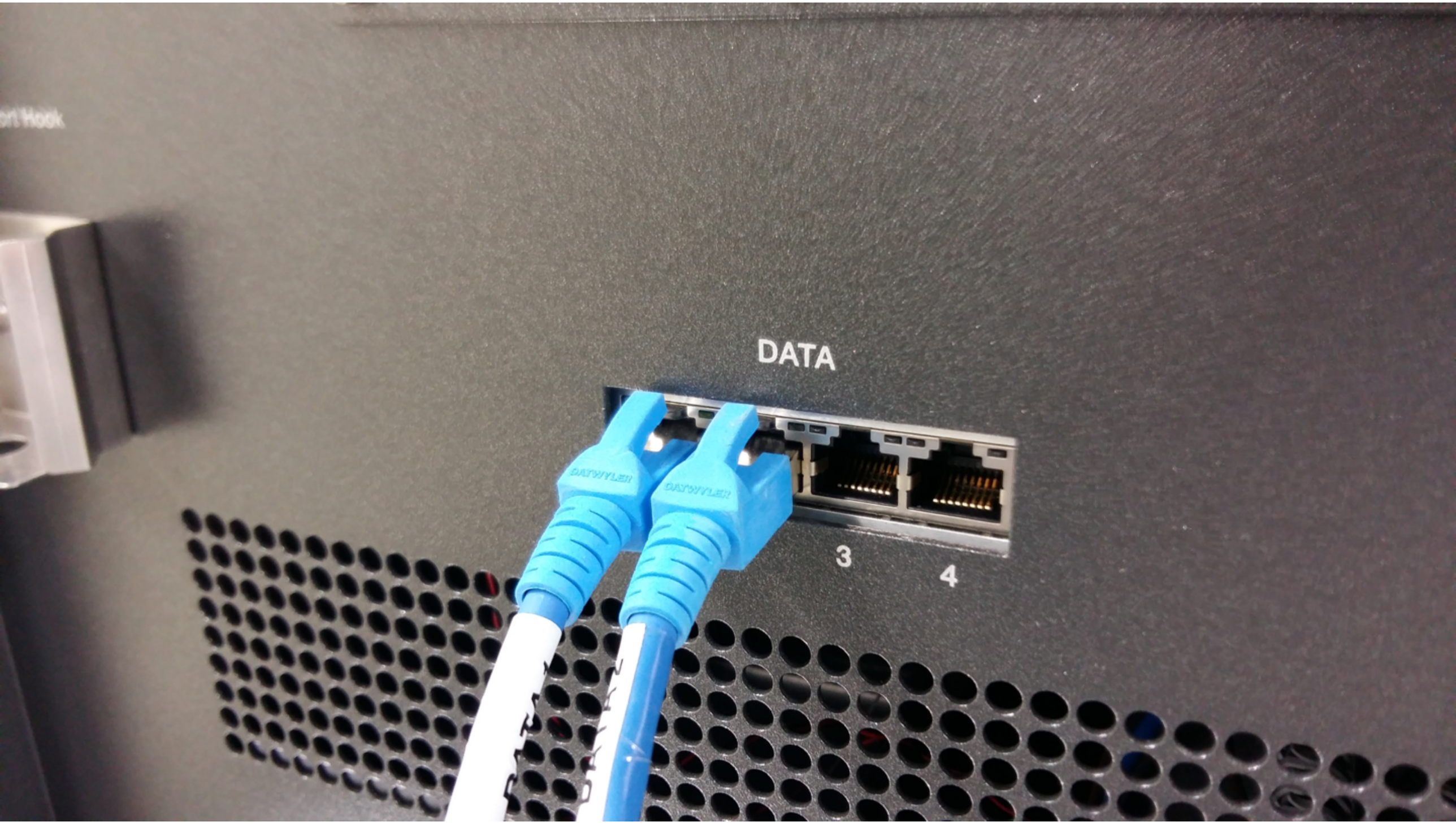
Out[5]: MacroWrapper(**ascan mot01 100 120 100 0.2**)



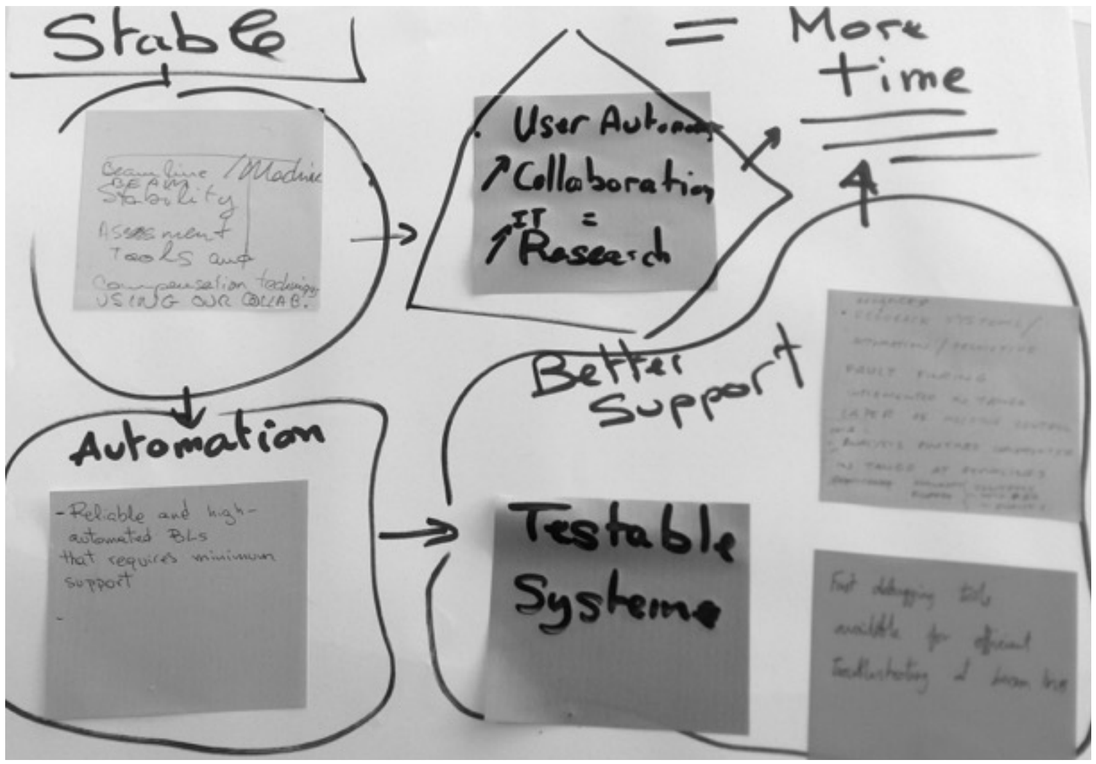
Robot, Piezo, Fly Scan, …

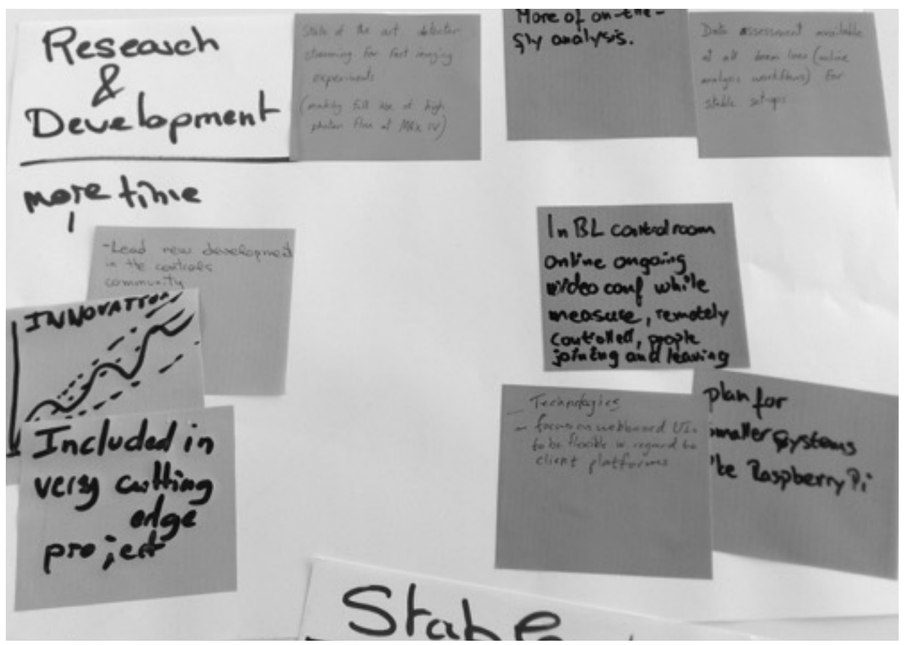


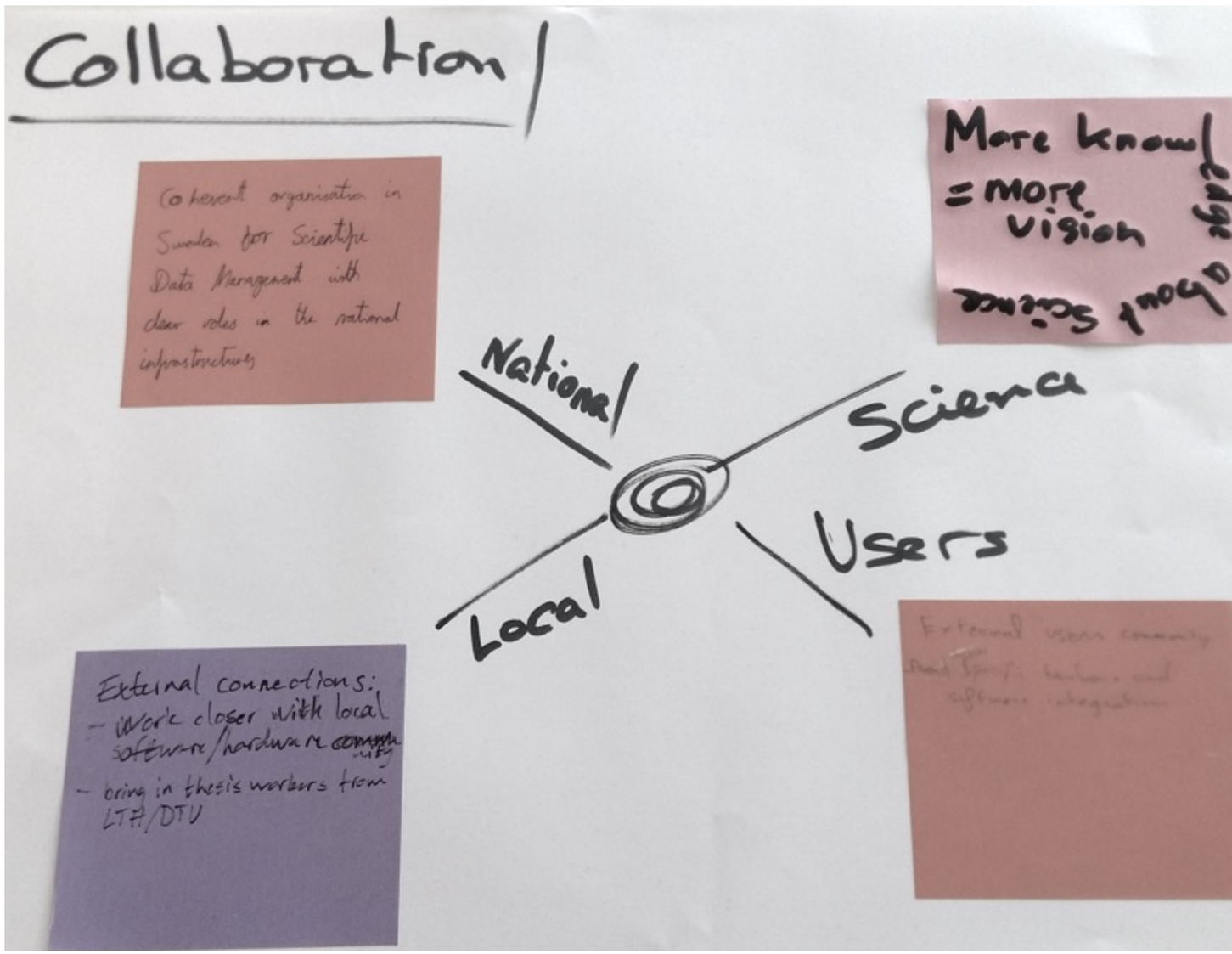
Data Streaming



KITS Strategy








Lean
Vision
Agile

Thanks all for your contribution to this big success.

Now, let's have a big party tonight!

Collaboration

ESRF The European Synchrotron

ALBA

SOLARIS NATIONAL SYNCHROTRON RADIATION CENTRE

NEXEYA

SOLEIL SYNCHROTRON

COSYLAB

DESY

MAX IV