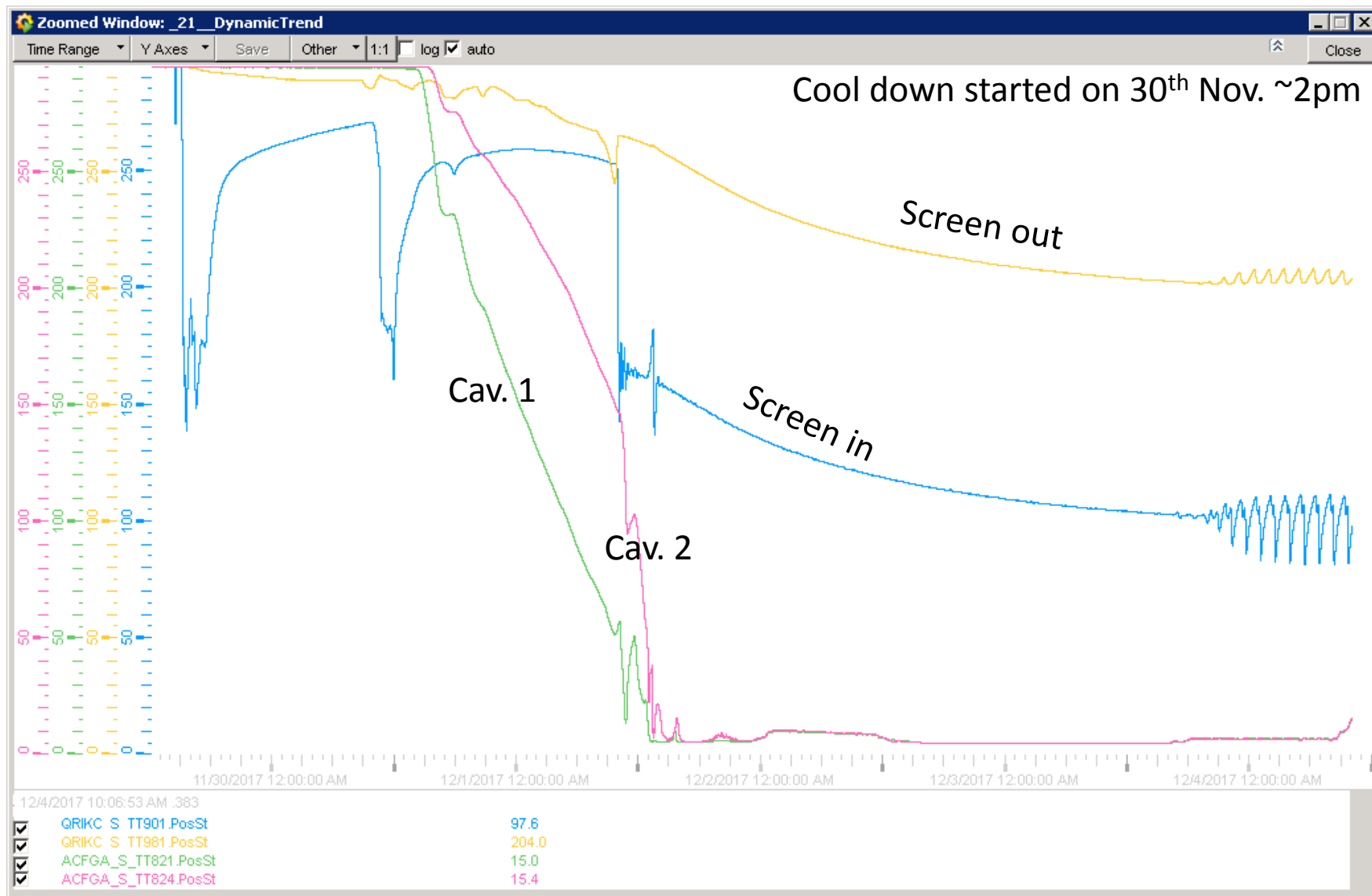


Crab cavities M7 cold commissioning – cryogenic update

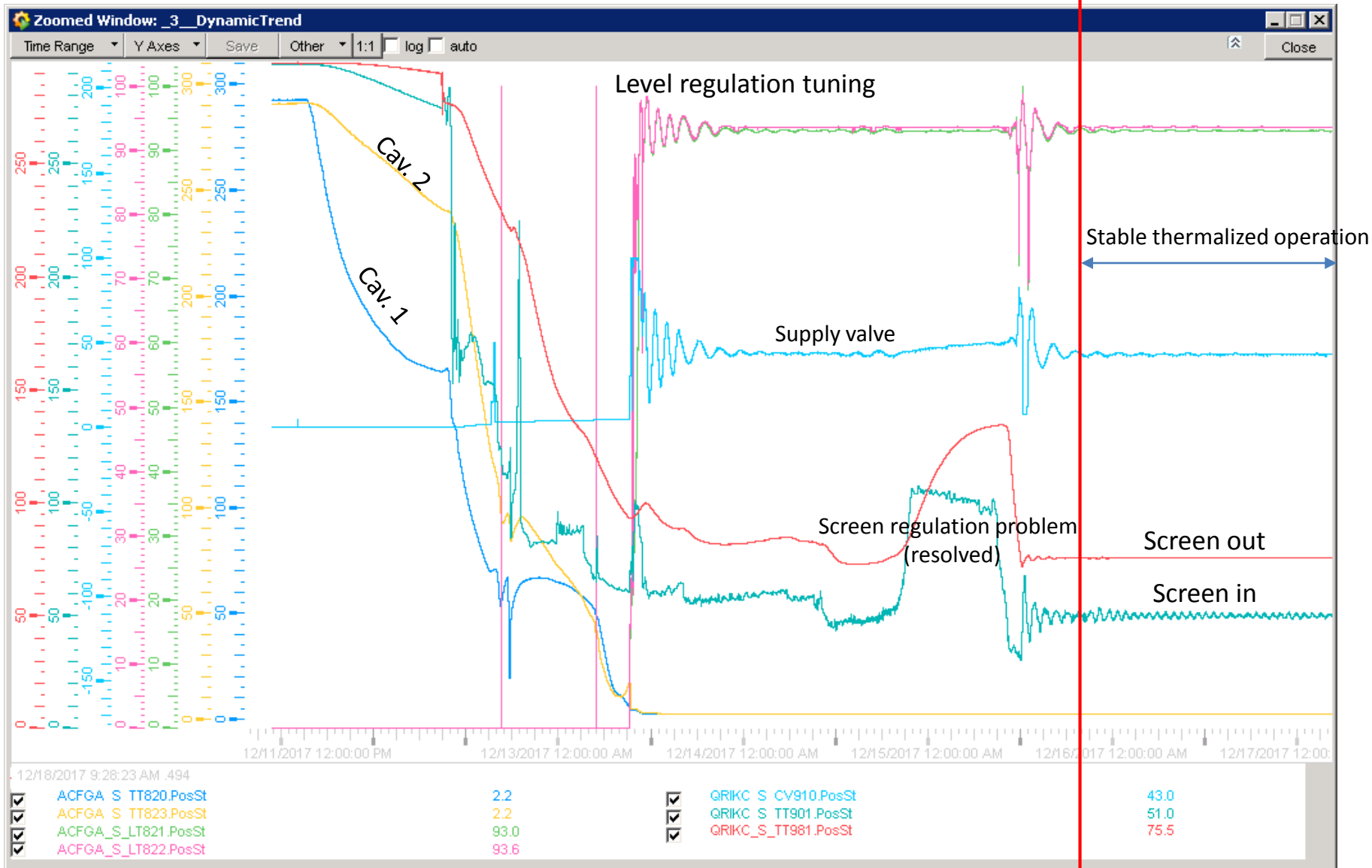
18th December 2017

K. Brodzinski

M7 1st cool down curves – recall

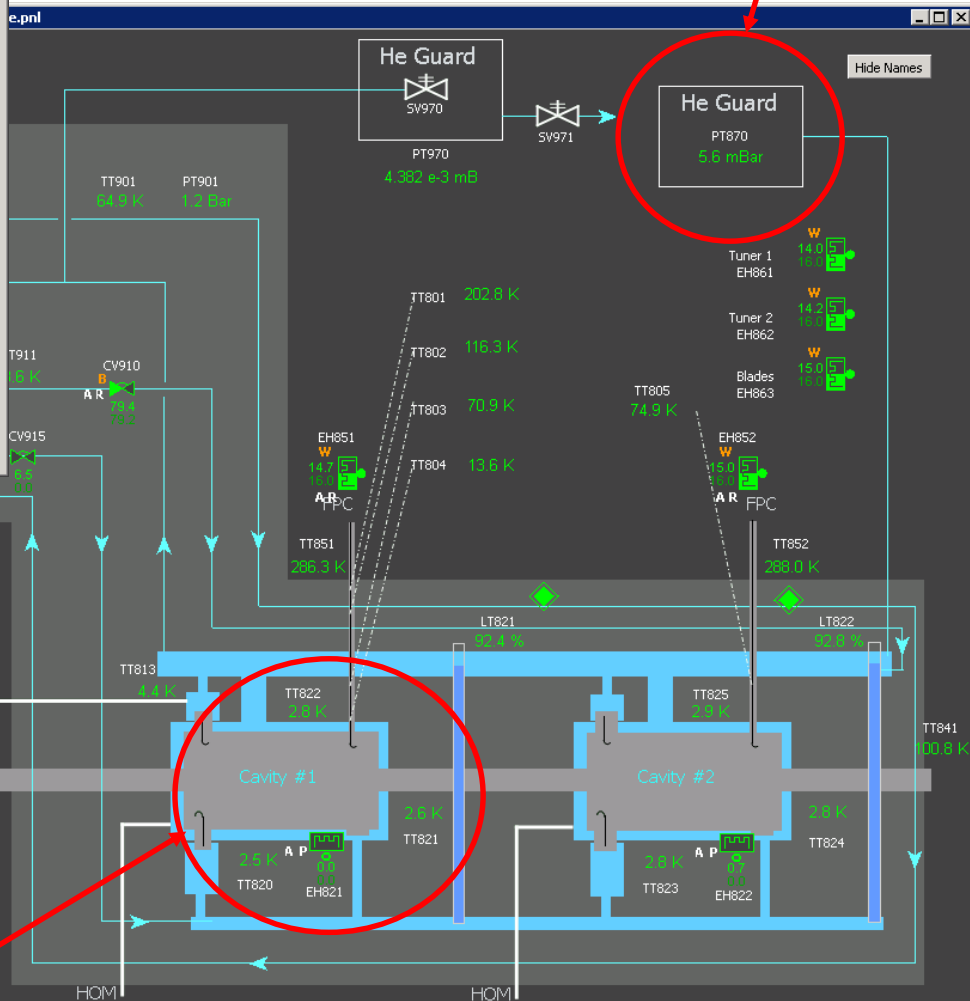
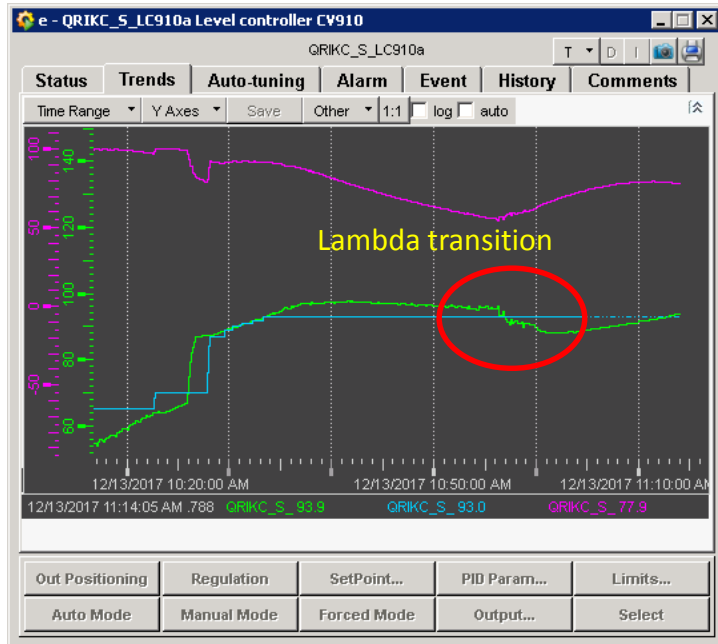


M7 2nd cool down curves



Crabs with superfluid helium

Shifted by 20 mbar -> 25 mbar in reality



TTs shifted because not in liquid -> to be better thermalized or put into the liquid for second prototype

Conclusions and planning

The cool down test and commissioning is very satisfactory for cryogenic operation, some comments (lesson learnt) as from commissioning are listed hereafter.

- Cryogenic hydraulics – globally pipe sizing is correct, inter cavity piping to be improved (diameter > 30 mm, required supply in the middle of two cavities to equilibrate flow shearing between both cavities during cool down),
- Sizing of supply valves correct – OK for SPS operation,
- 2 K heat exchanger works as foreseen – OK for SPS operation,
- Service Box first RD not certified for vacuum operation, correct design developed and tested, to be supplied to CERN by end of January. The back up solution for 2 K operation applied in M7 – it allowed for 2 K commissioning over last week (11-18 Dec.),
- Instrumentation: 2 K TTs – values shifted as screwed on He tank – to be installed in the liquid for 2nd prototype and series production, VLP PT – to be recalibrated before SPS operation – action CRG Juan Casas,

Planned program:

Mo 18th am – RF activities

Mo 18th pm – heat load measurement and the module emptying, then warm up till 22nd Dec.

Thanks to all participants of this first cold commissioning of the Crab module !