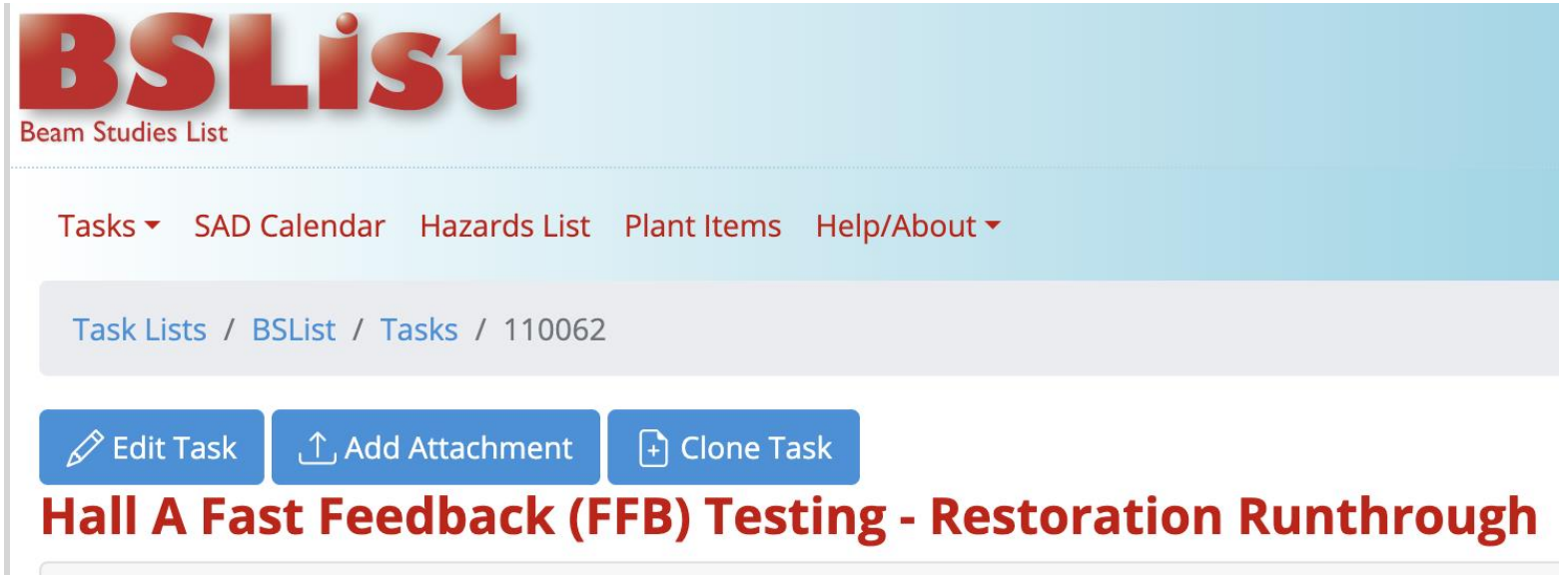
Fast Feedback – Hall C Test

Quick review of test from December 19, 2023



https://tasklists.jlab.org/bslist/tasks/110062

Ryan Bodenstein

2024/01/03

What was the Test?

- Essentially, go through the restoration procedures and make sure it works.
- https://tasklists.jlab.org/bslist/tasks/110062
  - Note: we had to run in Hall C instead, as it was the only hall available for the tests.
- The procedure is here:
  - https://jeffersonlab.sharepoint.com/sites/OpsDocs/Docs/fast_feedback_restore_proc.pdf


Jefferson Lab

Fast Feedback (FFB) Restoration Procedure

Document Number: MCC-PR-11-013

Revision Number: Rev. 8; September 14, 2017

Technical Custodian: Scott Higgins

Estimated Time to Perform: 30 minutes

How’d it go?

- Swimmingly. There were a few parts of the restoration document that needed updating, but because Dennis Turner was present, we could go through the process pretty quickly.
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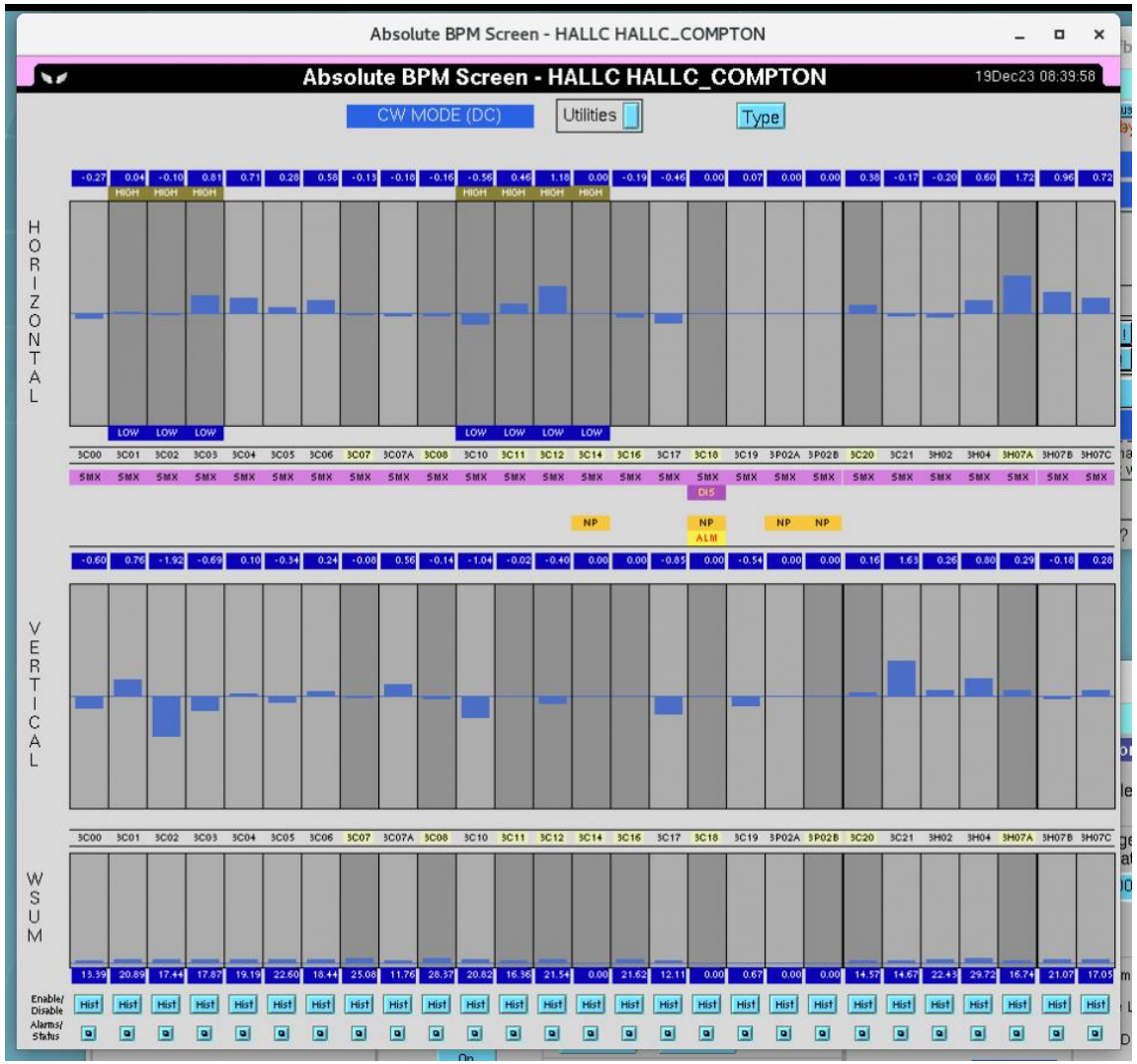

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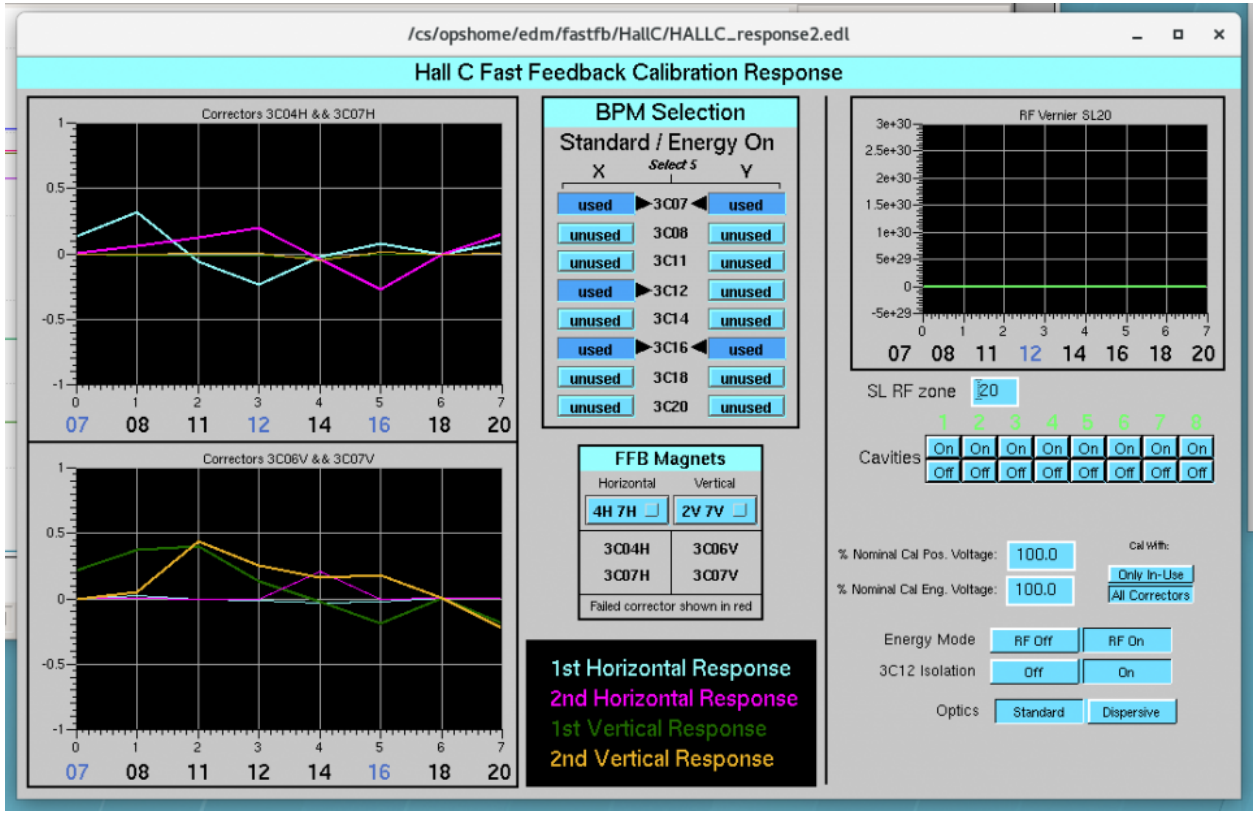

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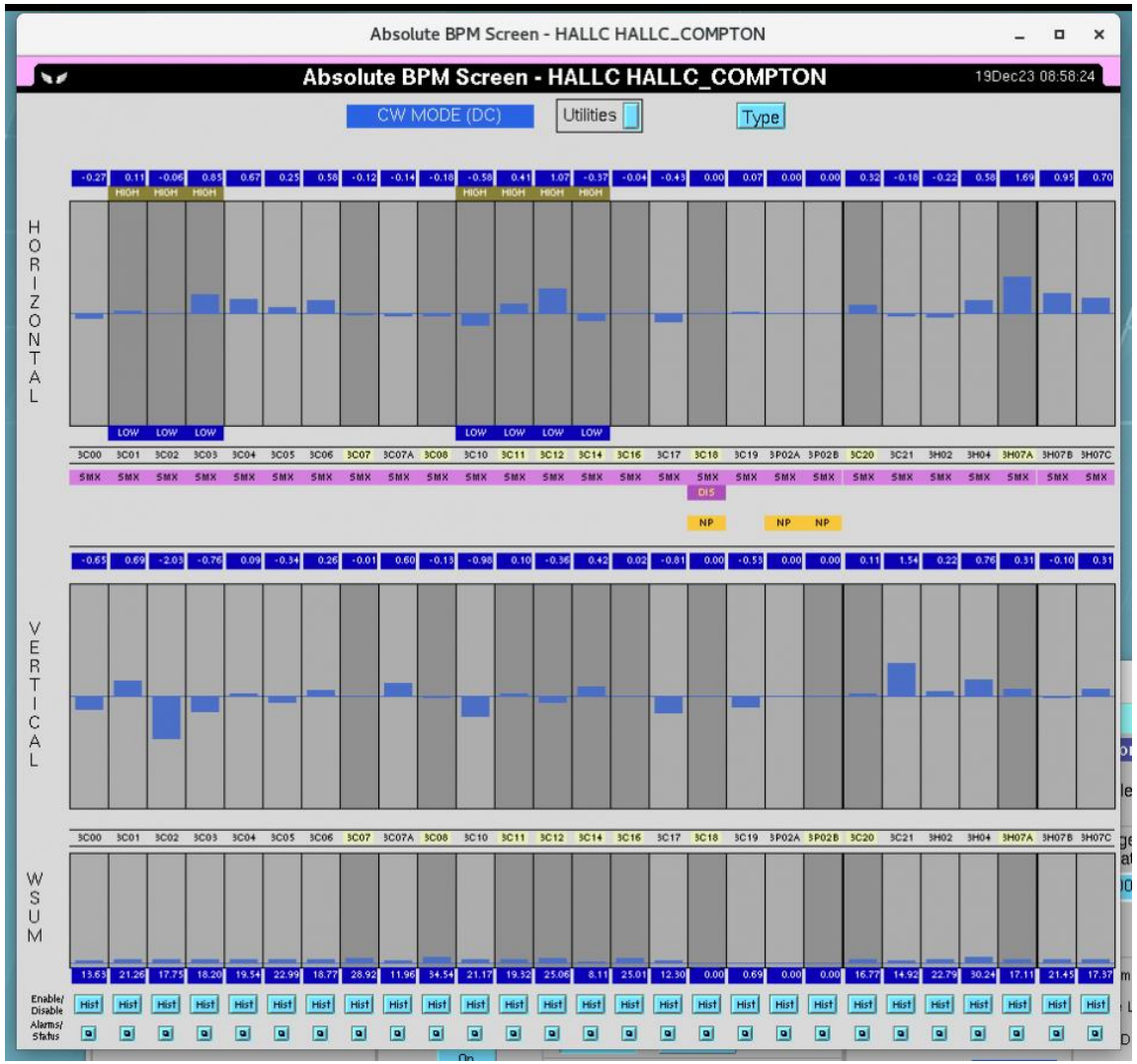

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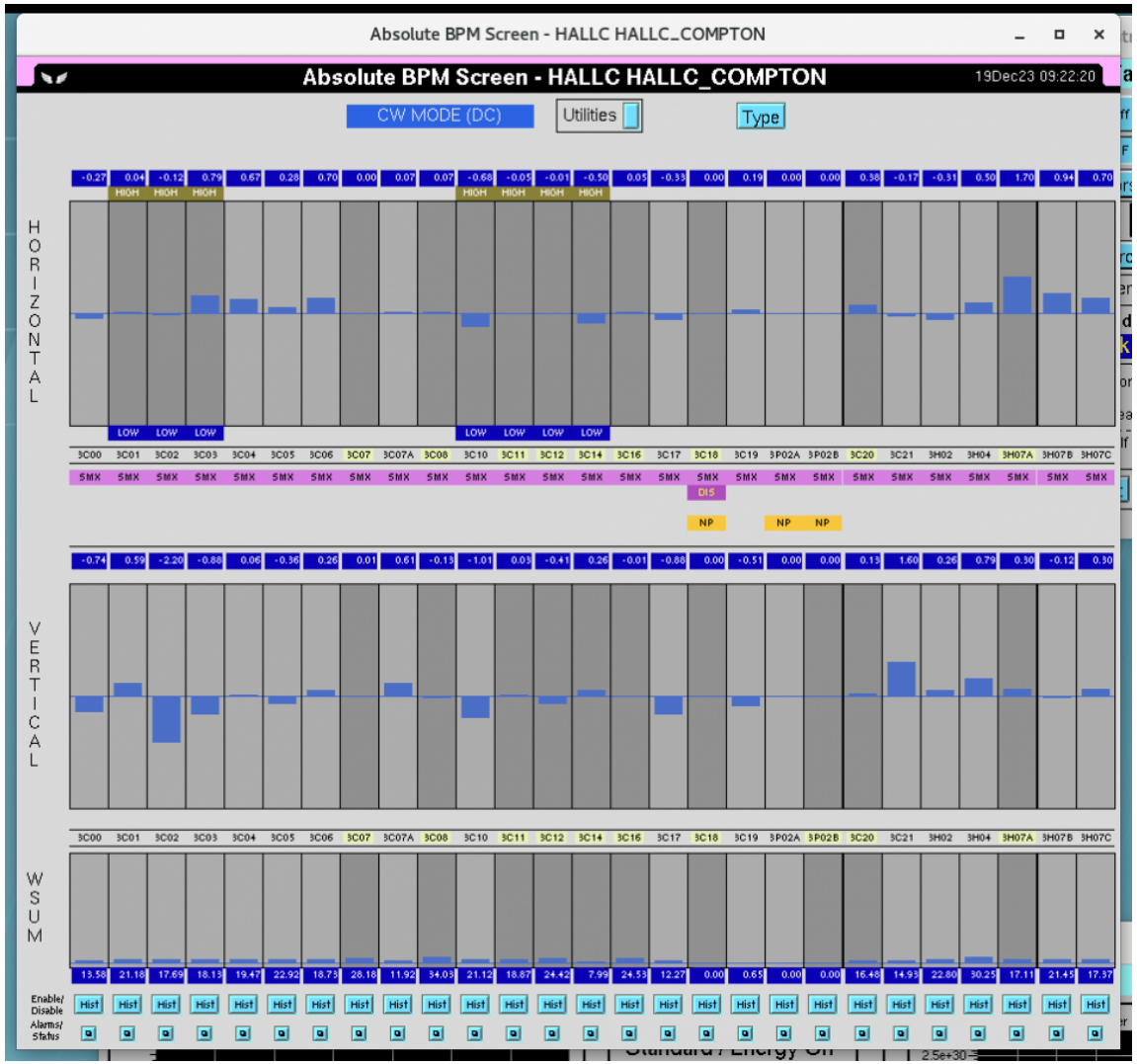
  - After turning on RF Feedback (3C12)



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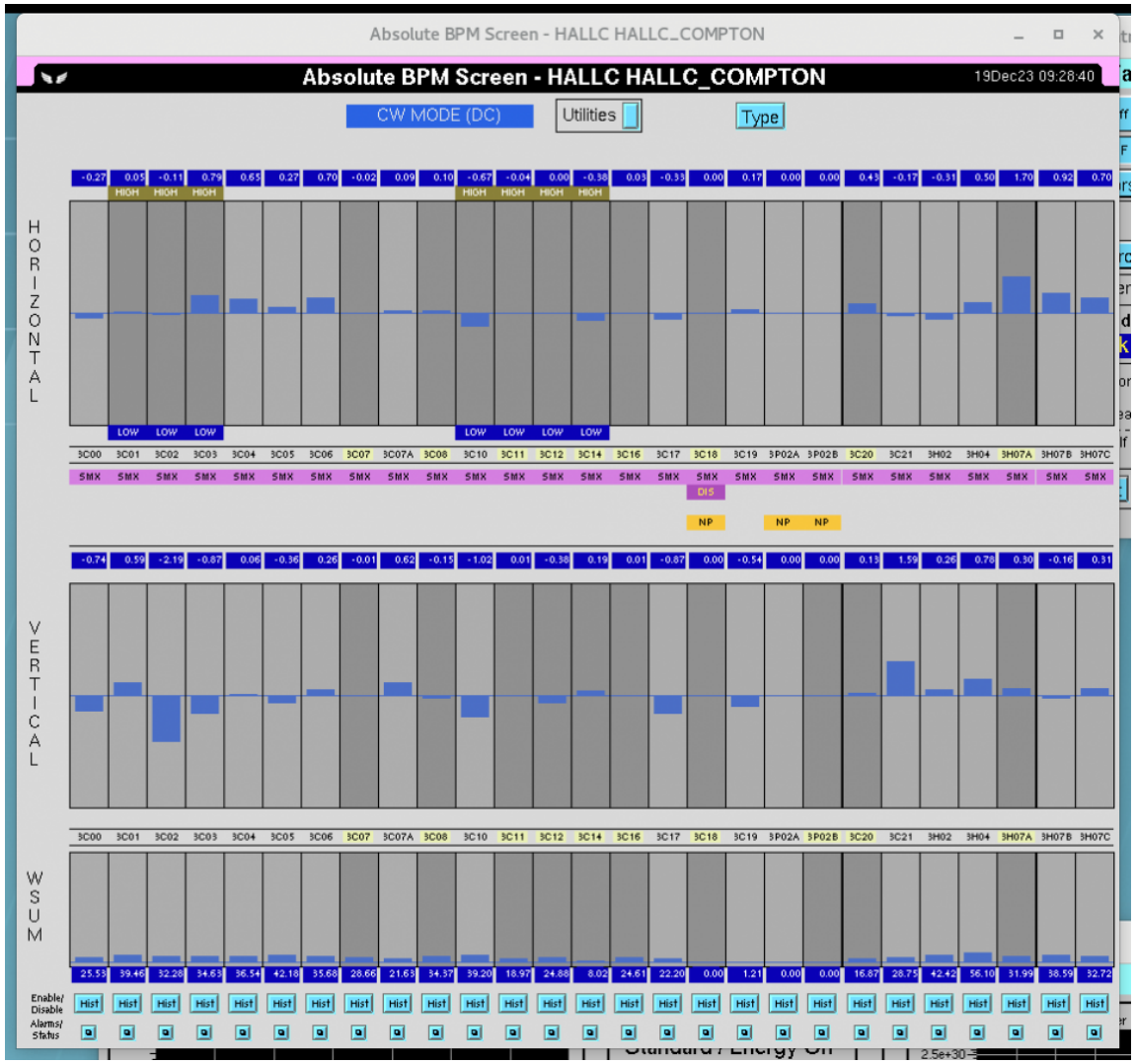
  - After turning on RF Feedback (3C12)
  - After ramping to 10 uA



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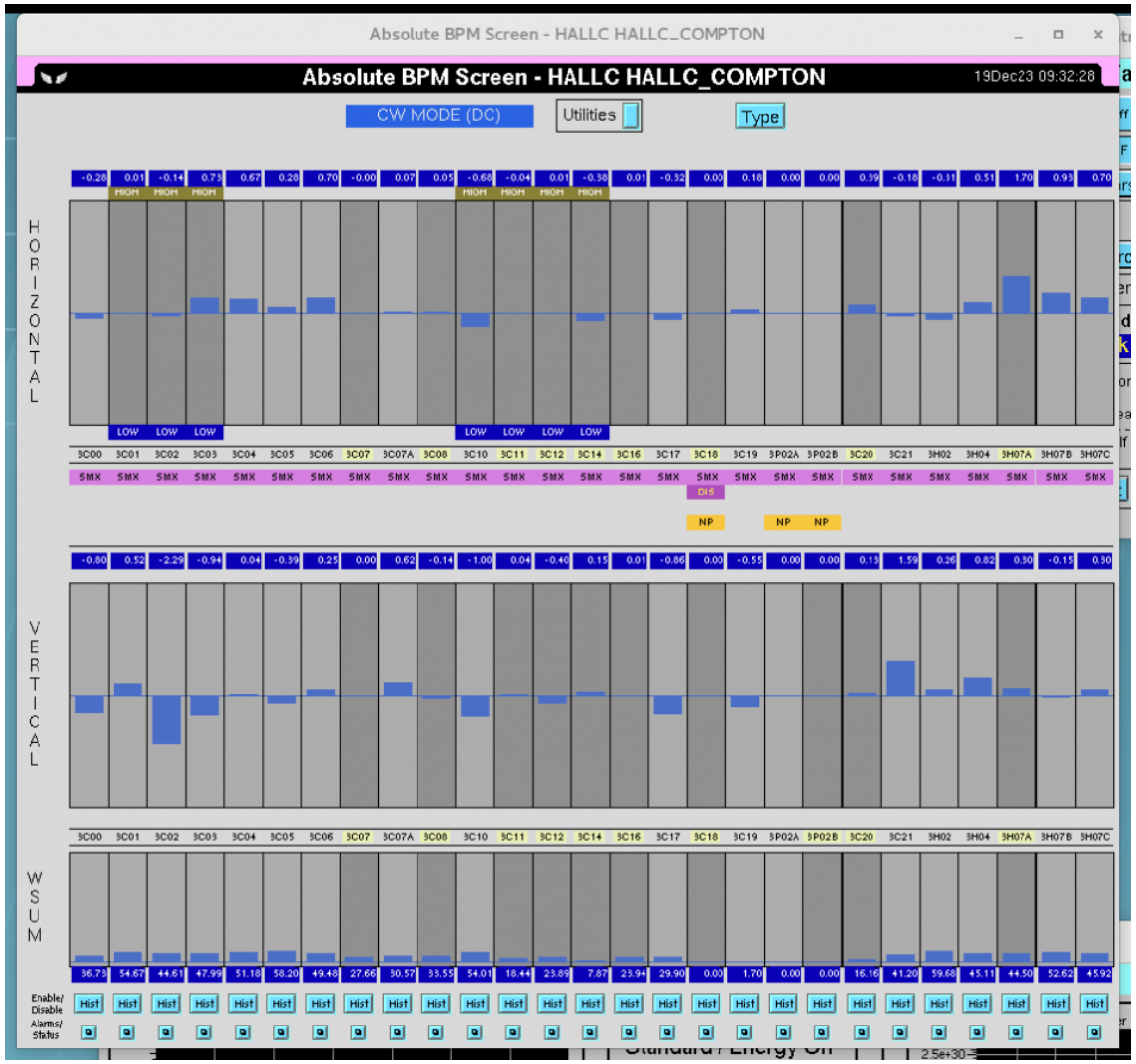
  - After ramping to 10 uA
  - Ramping to 15 uA



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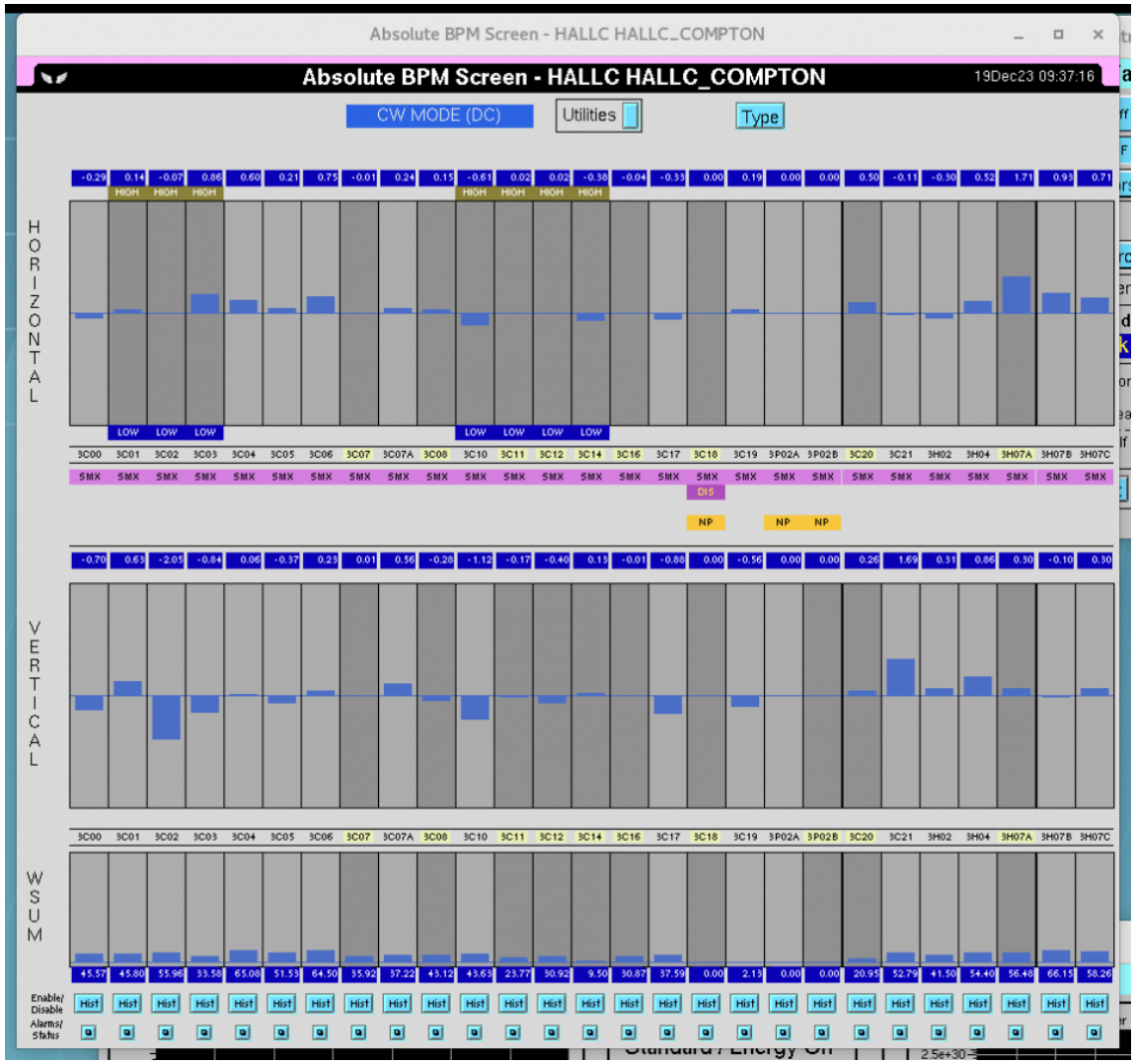

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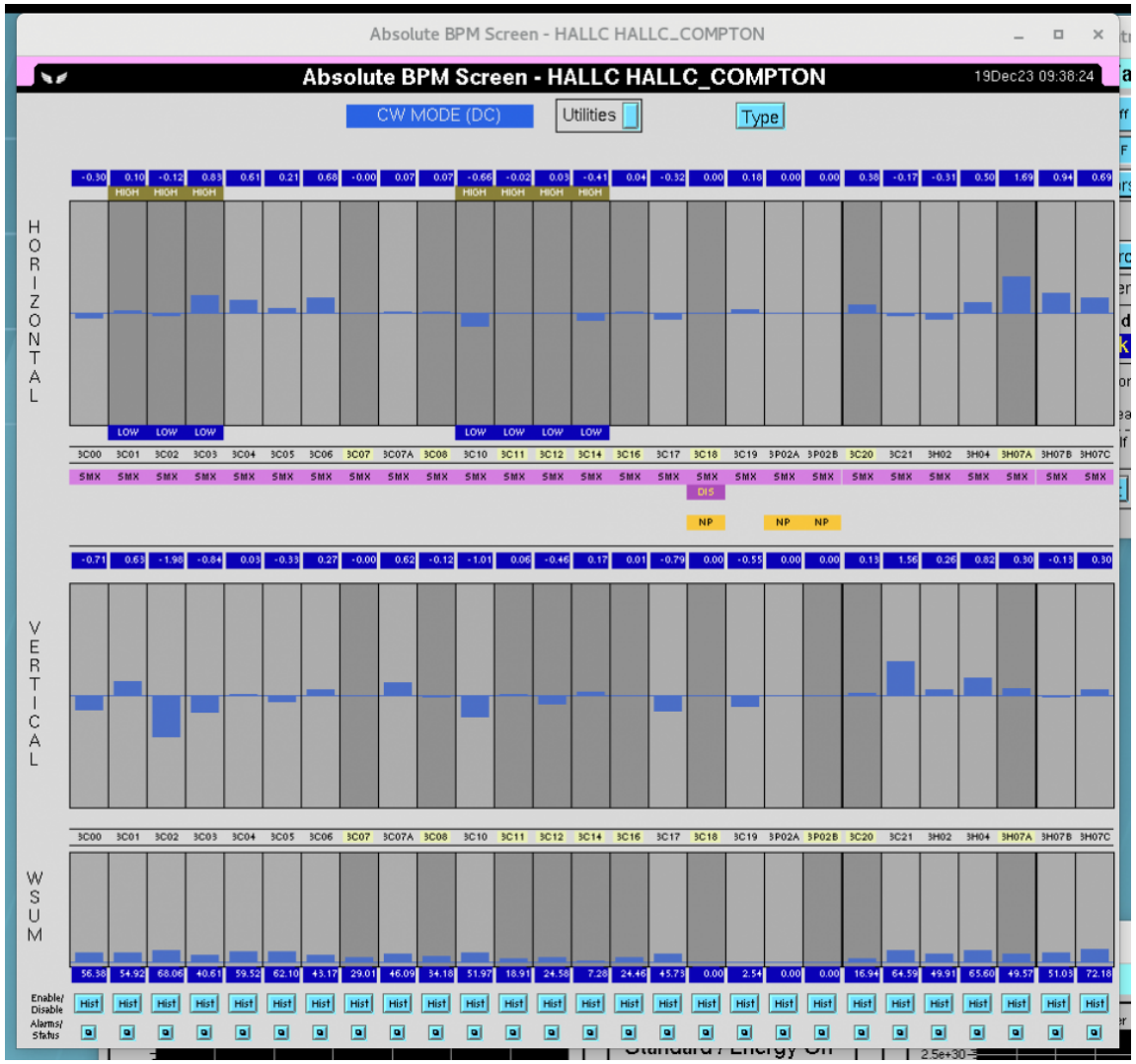
  - 20 uA
  - 25 uA



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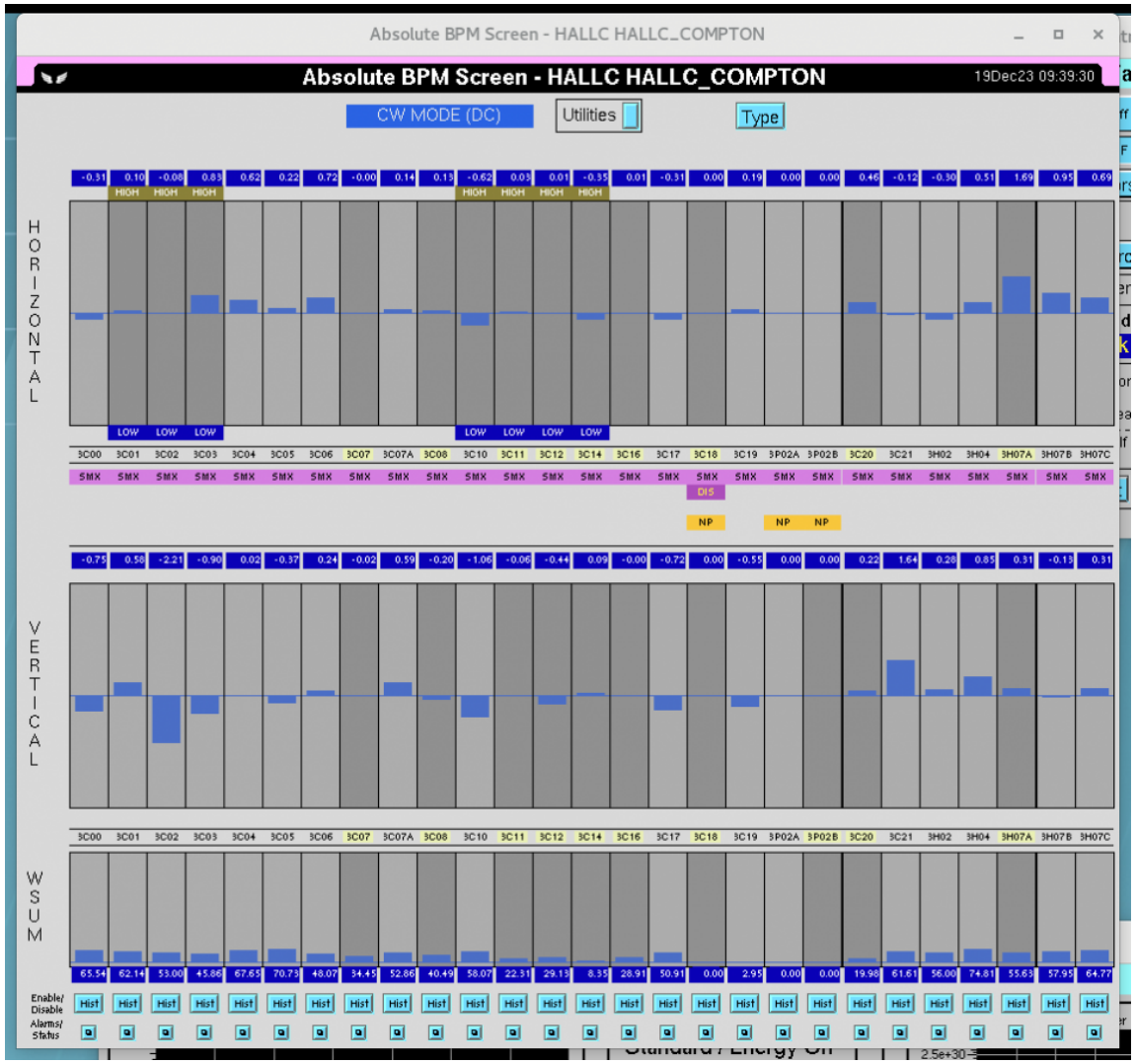
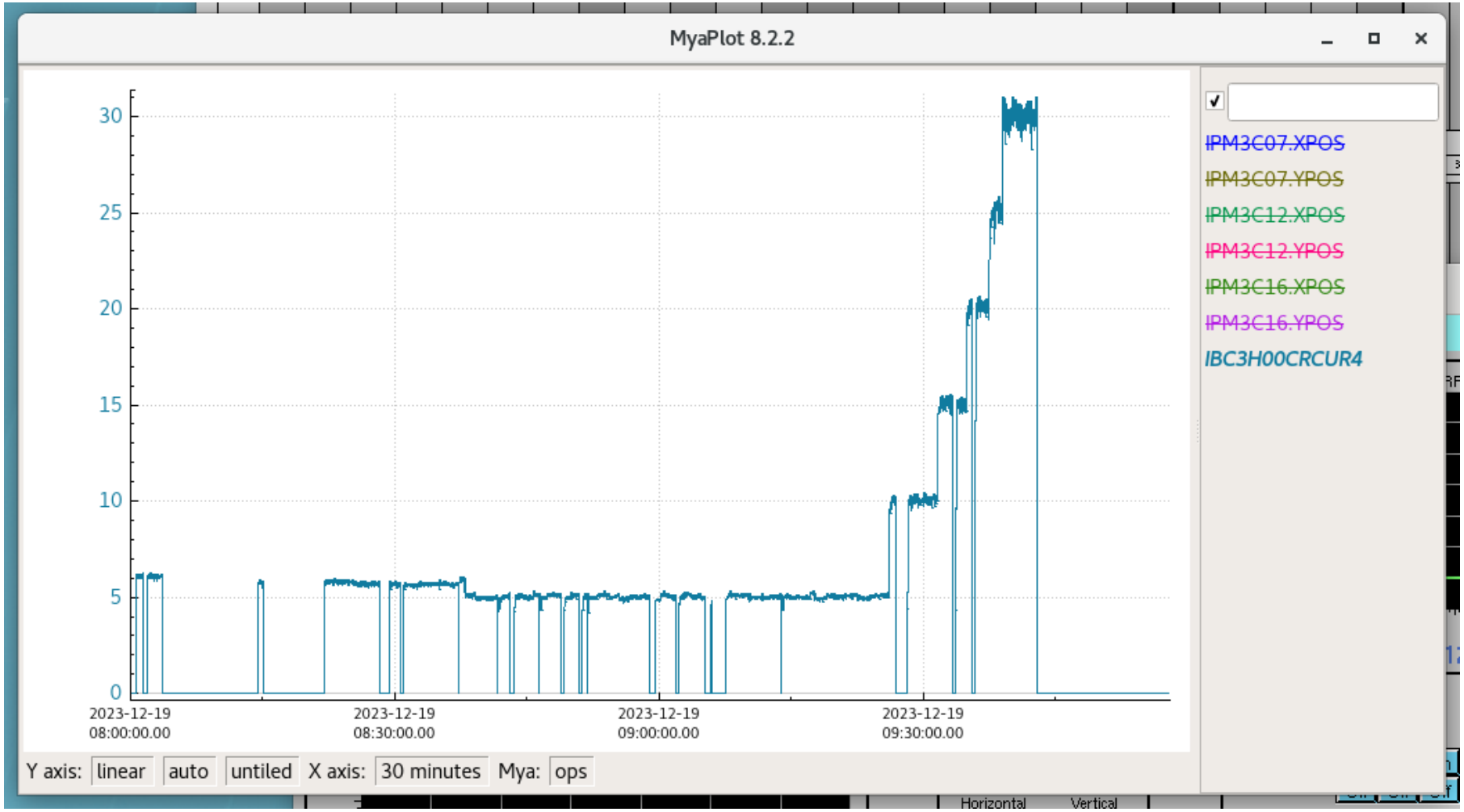
  - 30 uA



A few more details

- Current ramping



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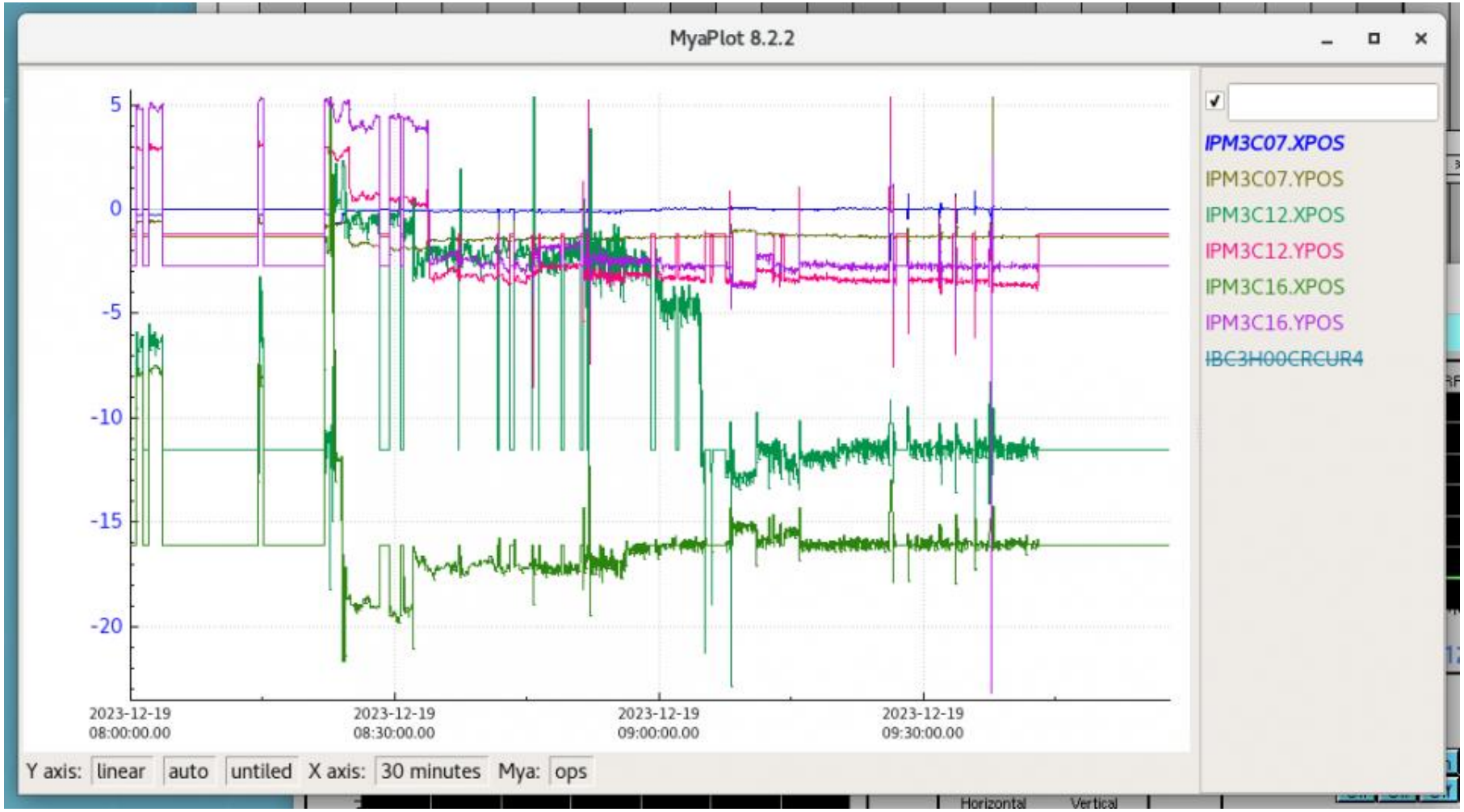
- BPM Readings



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- Current ramping
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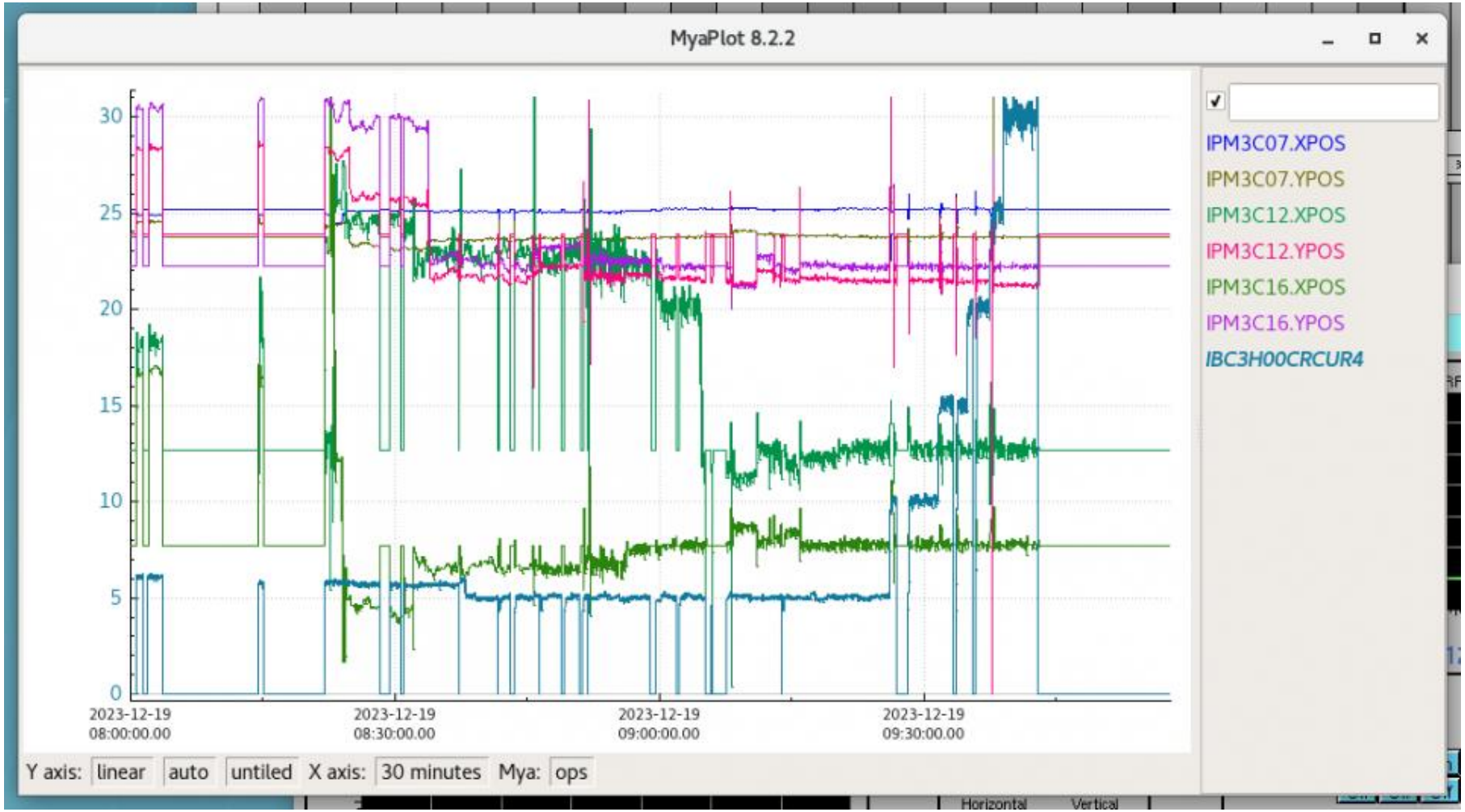

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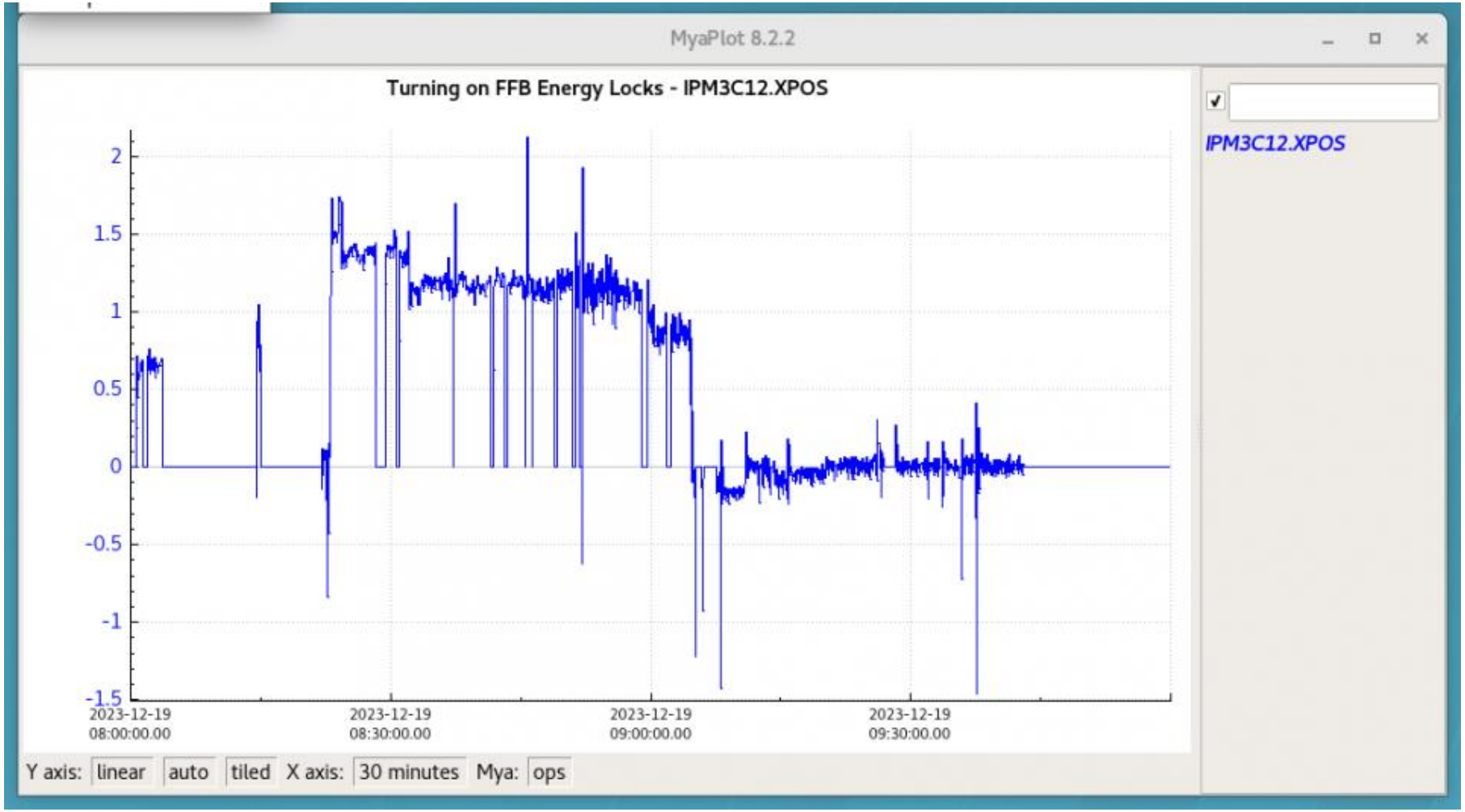
- Energy Locks



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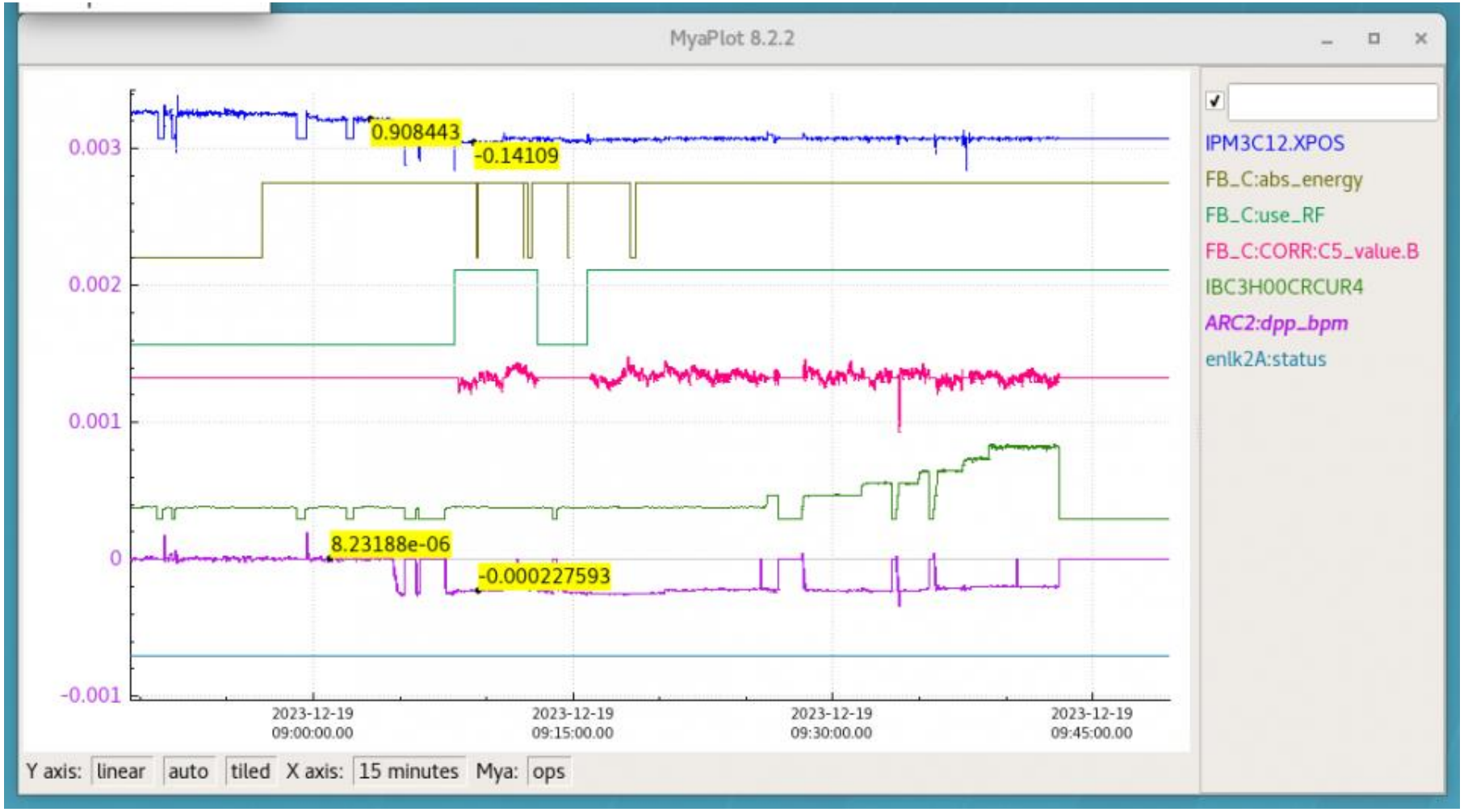
- Energy Locks
- Upon turning on, see small difference with 2A dp/p



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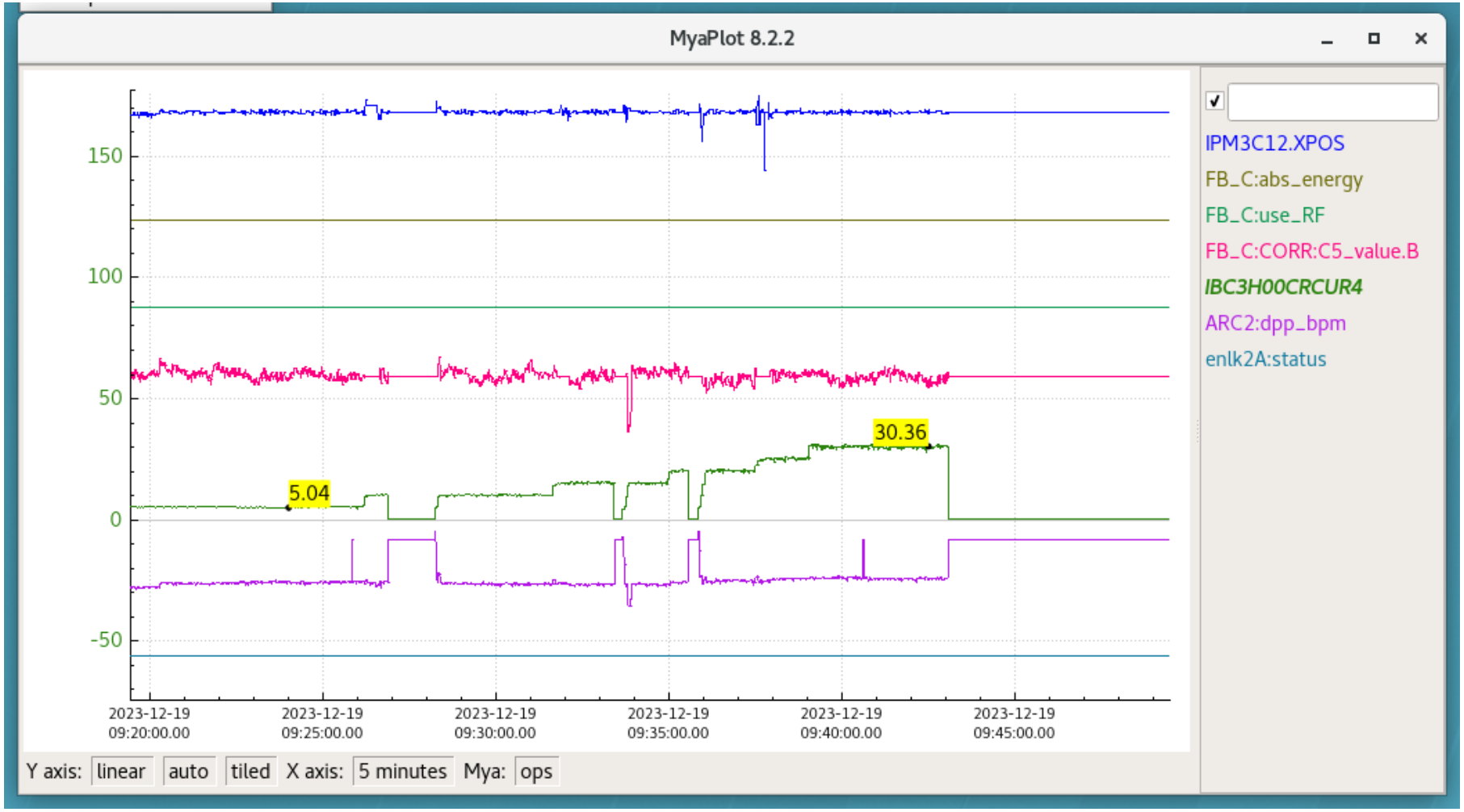
- Energy Locks
- Upon turning on, see small difference with 2A dp/p
- As ramping current, energy feedback persists



What's next?

- Need to perform the FFTs and other analysis available through the FFB system.
  - This test only focused on the startup procedure to make sure things worked.

- Should run FFB during regular operations.
  - This will give insights into long-operation performance of the hardware
  - Will allow for analysis of system (FFTs, etc…)
  - Should allow for more stable beam to halls

- Should run with Hall A, and take relevant data to be sure background levels are appropriate.