Analysis of BOR/BCM data for beam aborts: Comparison of two cases

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- Thanks to H. Nakamaya, S. Terui

- Acc. Lab., KEK, Jun. 23, 2021

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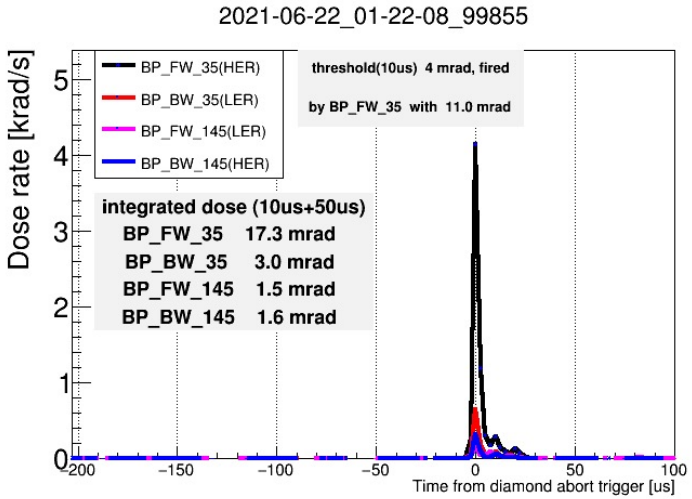
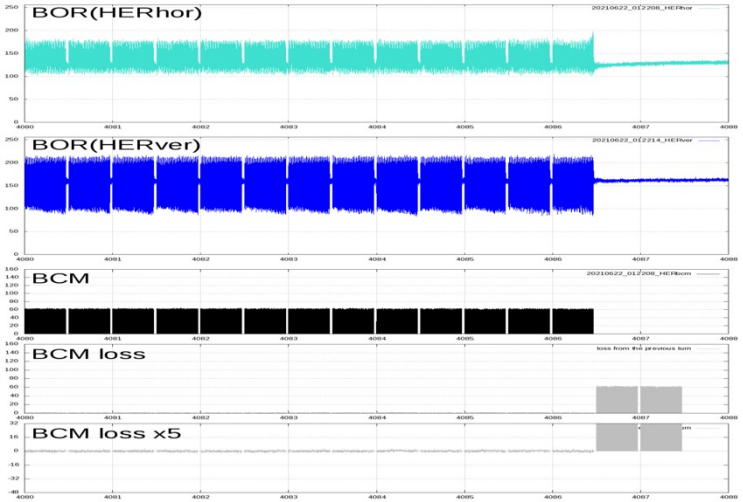
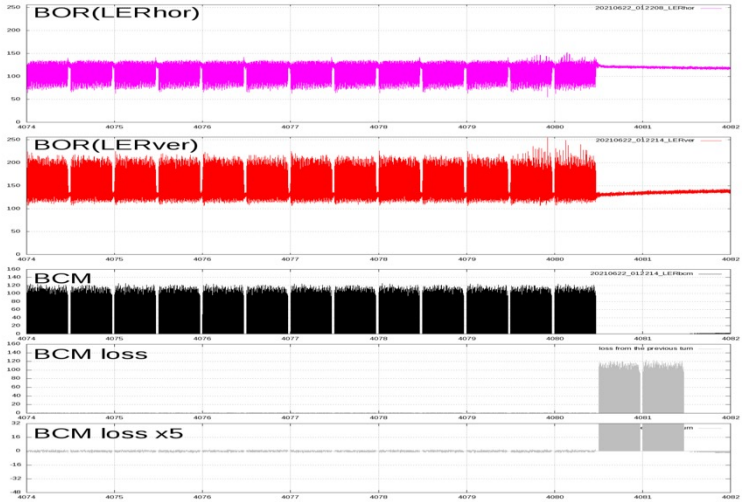
- **Abort both**
- **Belle2 CLAWS +diamond +D10-3**
- **638+787mA 1174 bunch**
- **113+34mRad/s**







Ref. http://kekb-co-web.kek.jp/doc/Image/BELLE/abort_summary/web/abortlist.html

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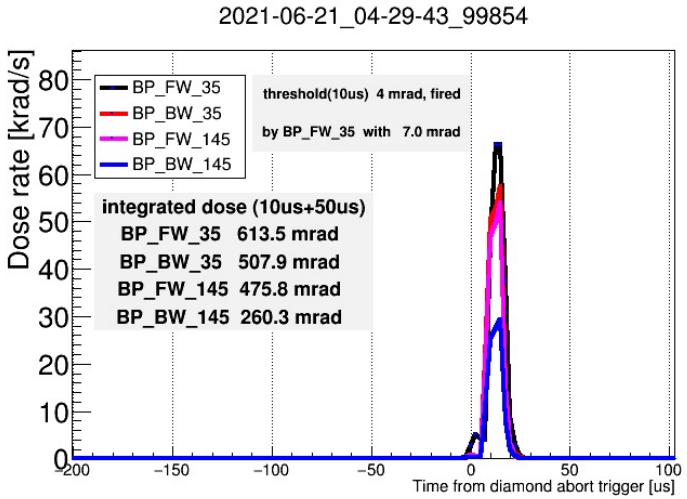
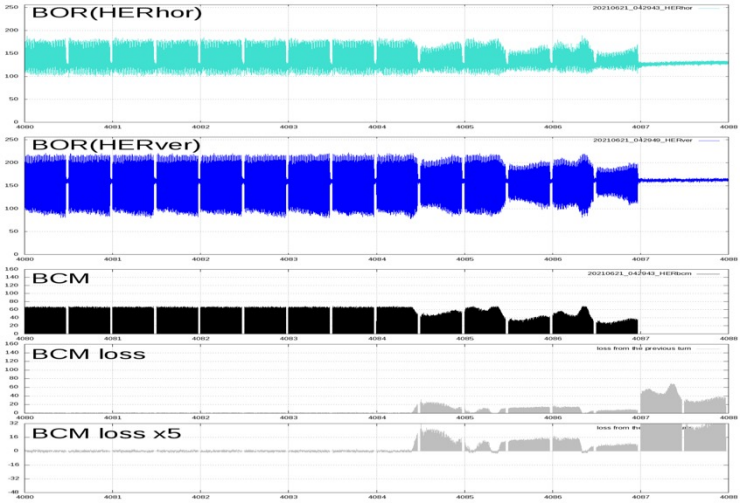
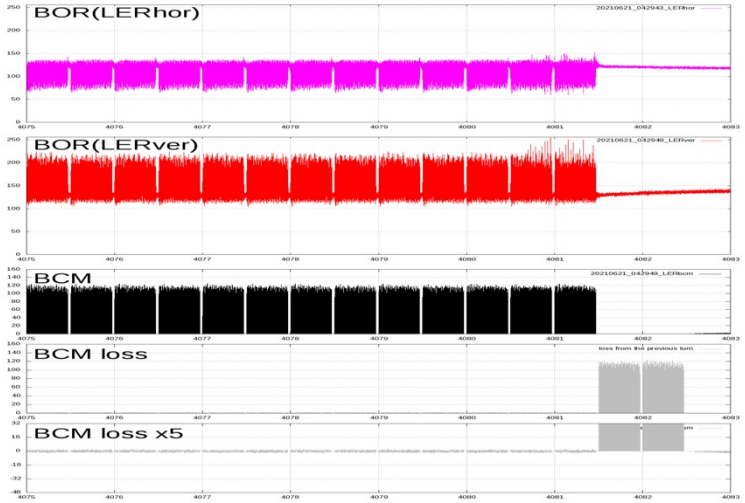
- **Abort both**
- **Belle2 CLAWS +diamond +D10-3**
- **679+834 mA 1174 bunch**
- **185+91mRad/s**







Ref. http://kekb-co-web.kek.jp/doc/Image/BELLE/abort_summary/web/abortlist.html

BCM/BOR data: HER

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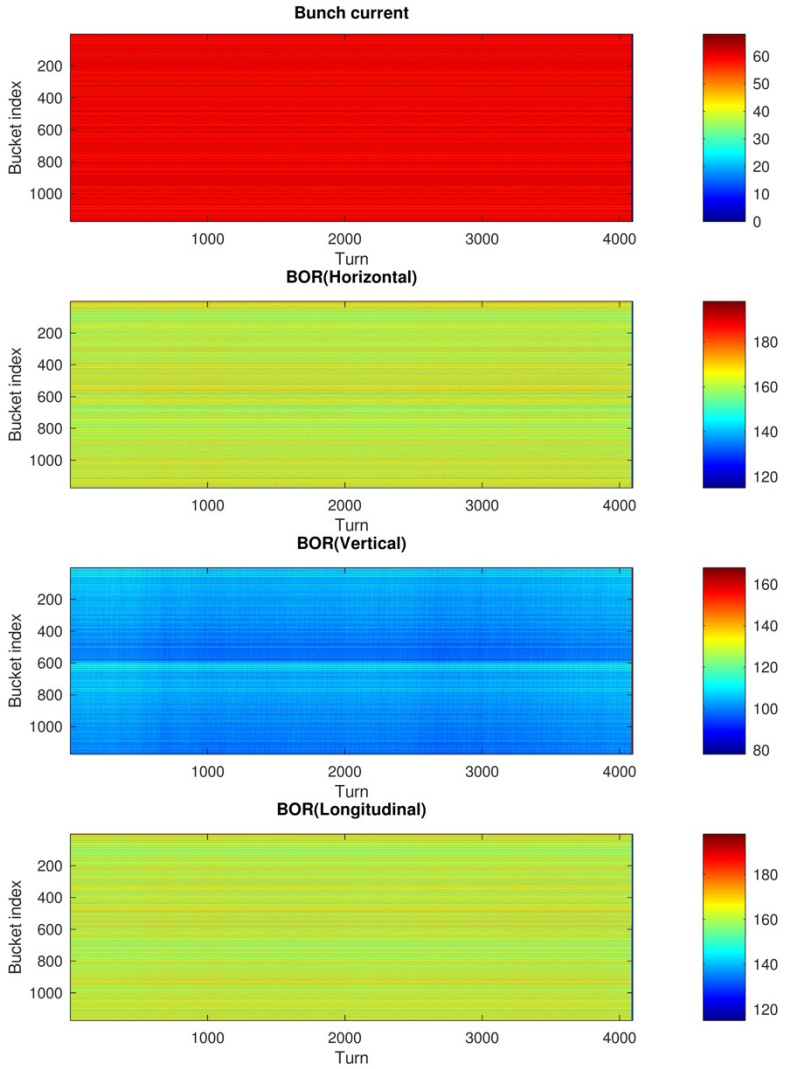

4096 Turns of data

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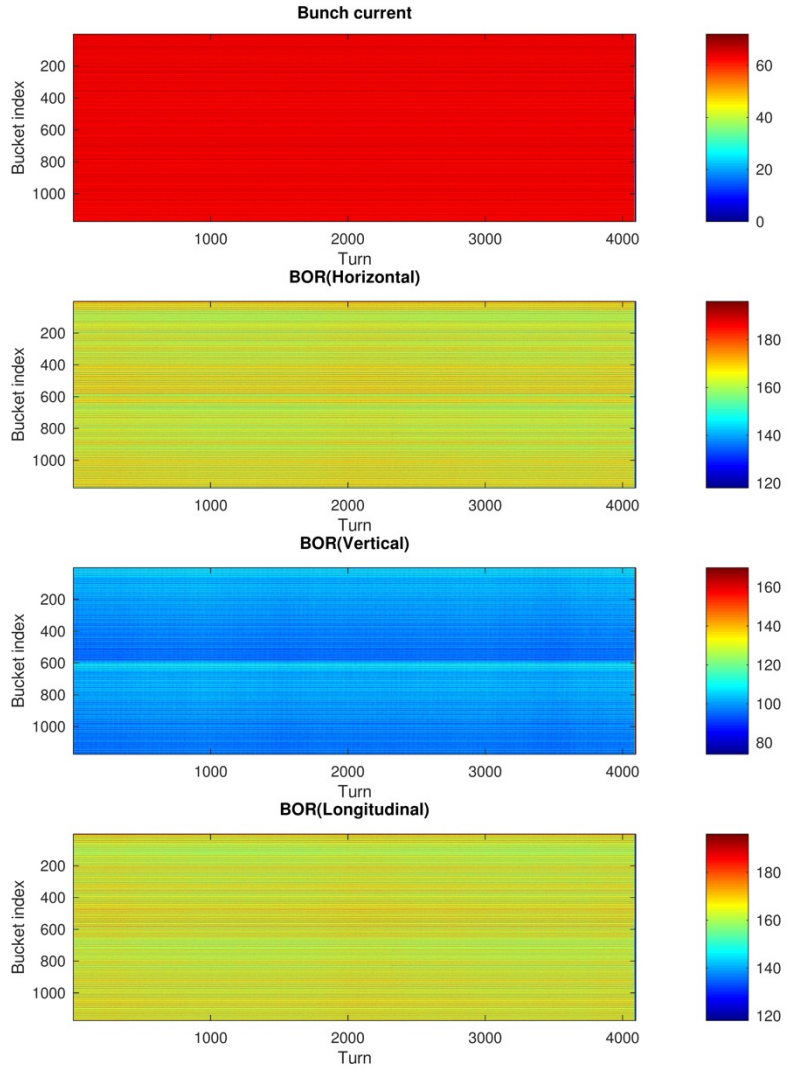

BCM/BOR data: HER

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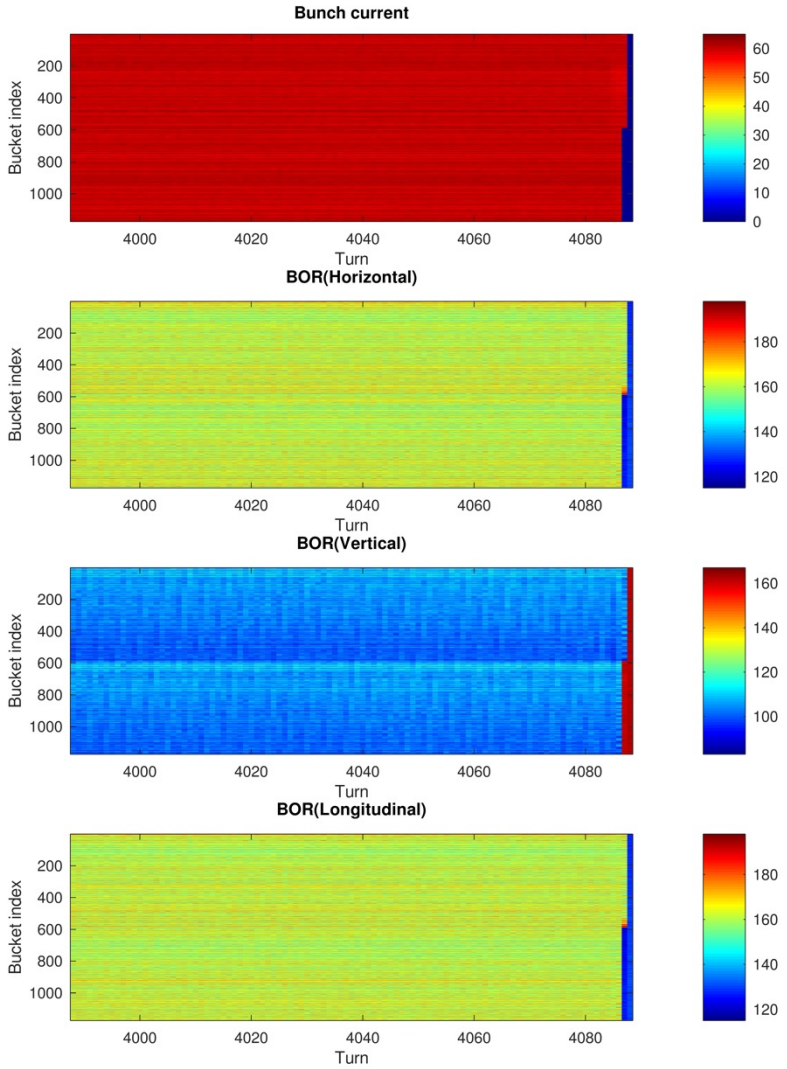

100 Turns of data before abort

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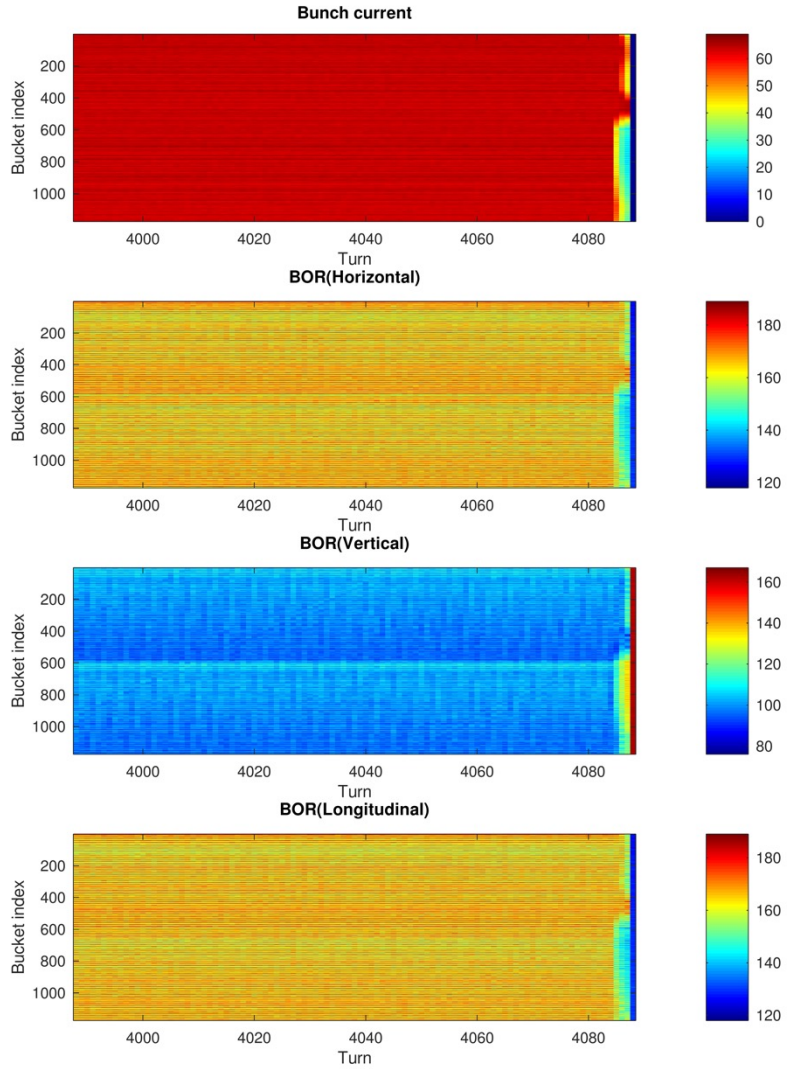

BCM/BOR data: HER

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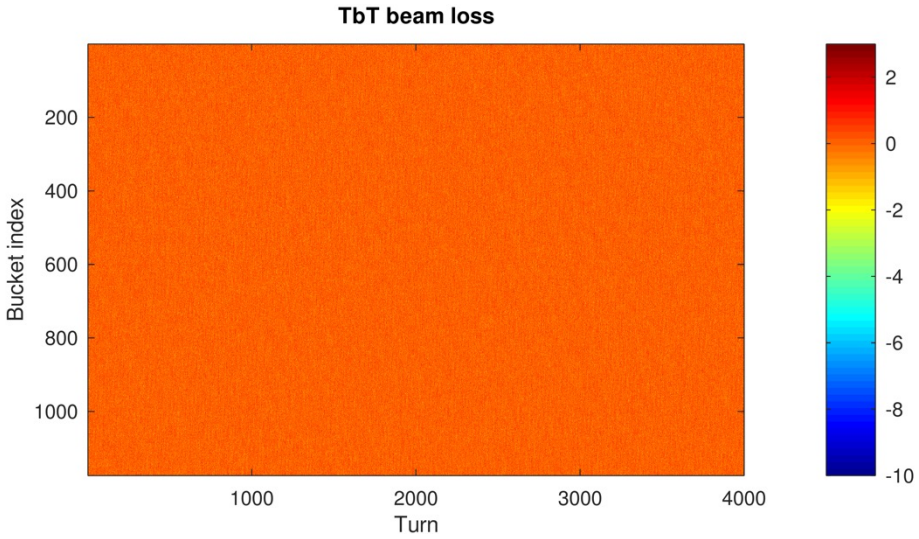

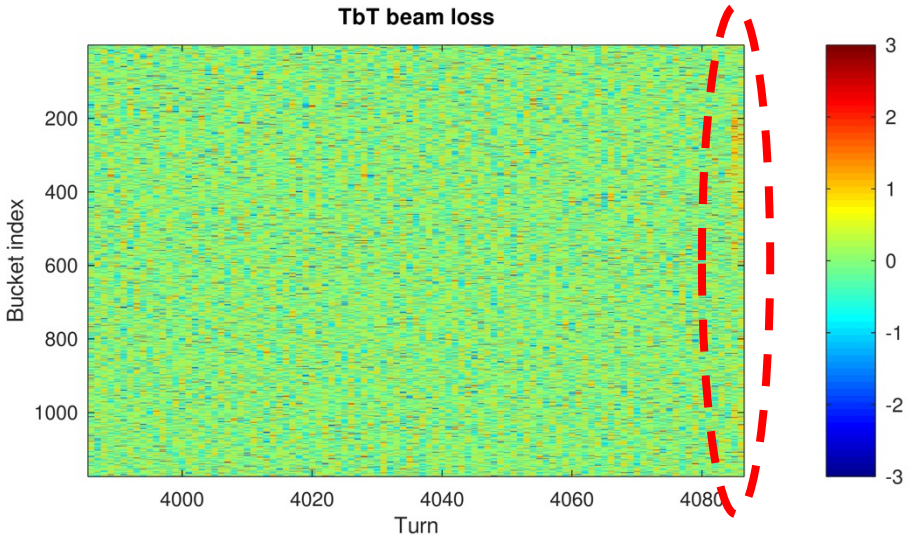

Sudden beam loss in 2 turns before abort triggered

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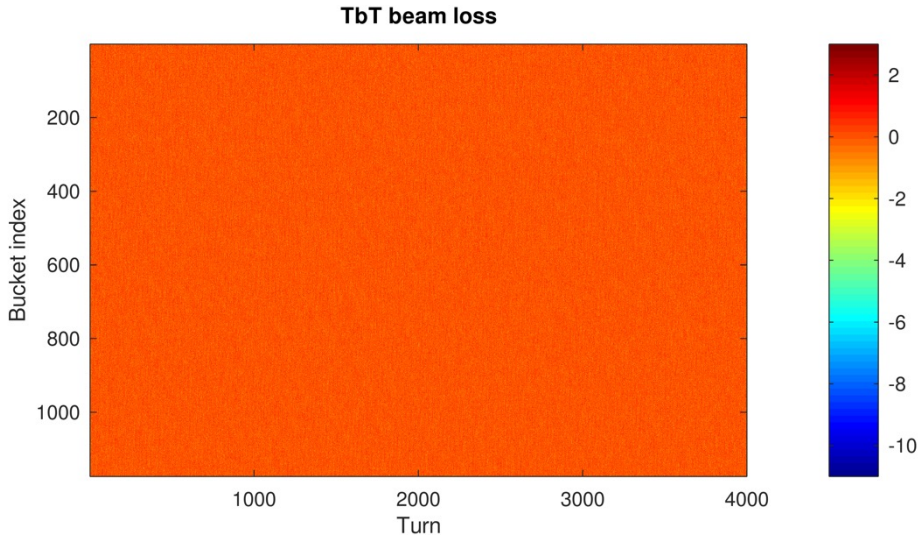

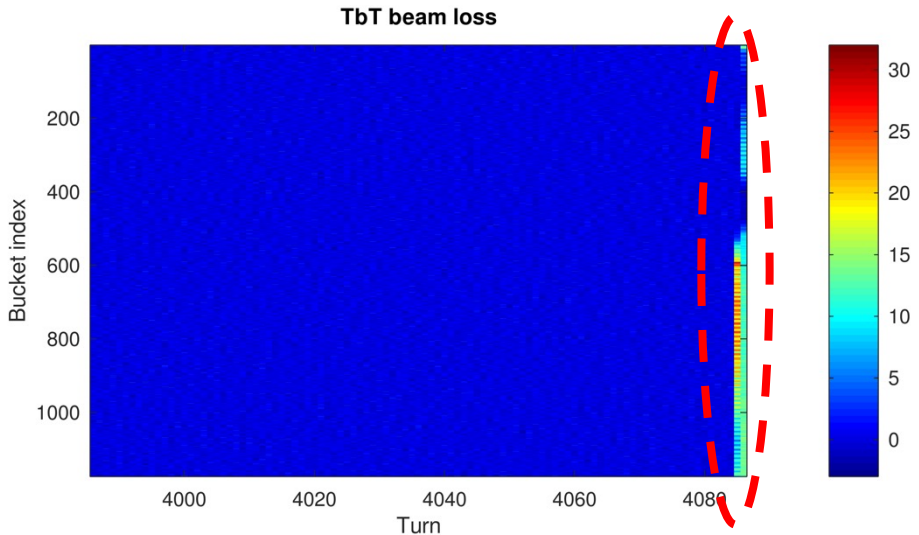

BCM/BOR data: HER

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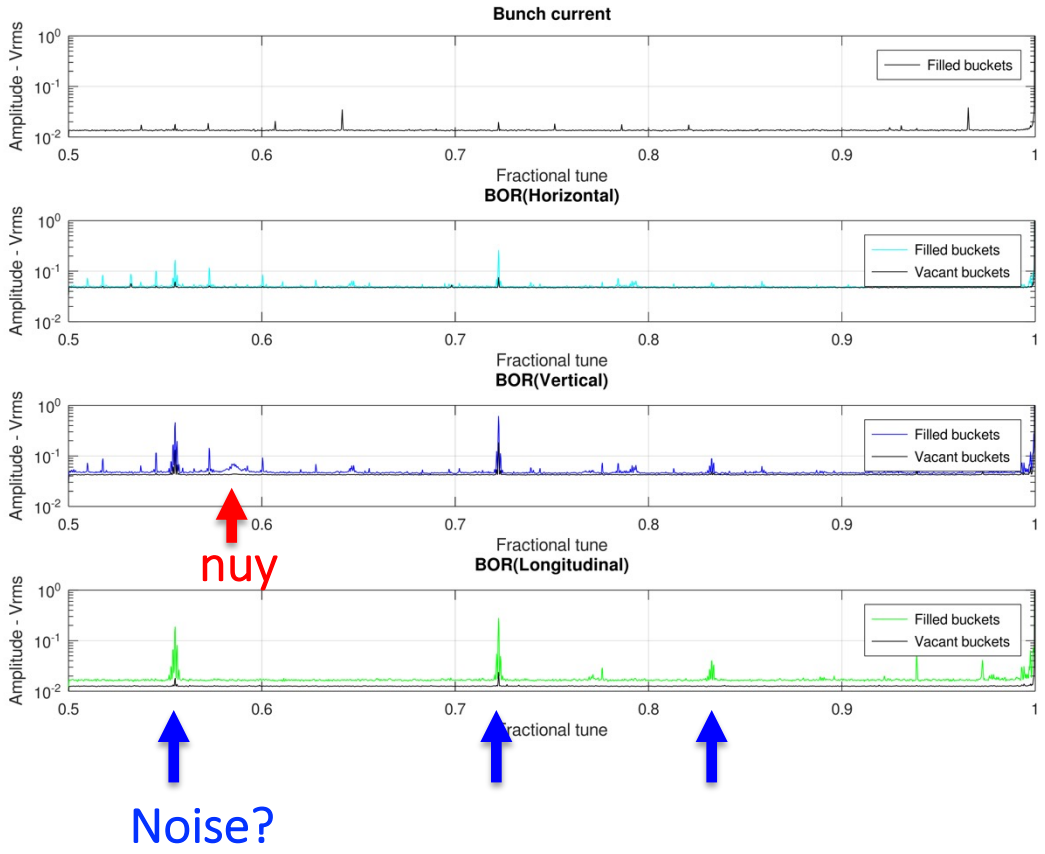
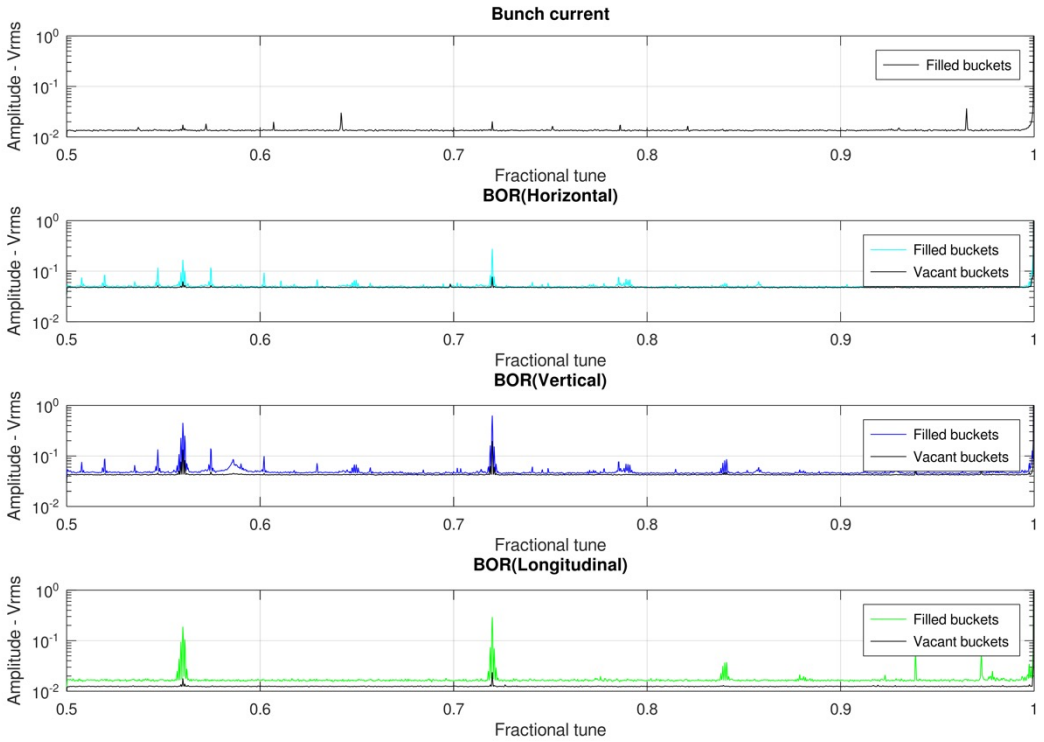
Beam spectrum: FFT of TbT data for each bucket
Average over all filled and vacant buckets separately





BCM/BOR data: LER

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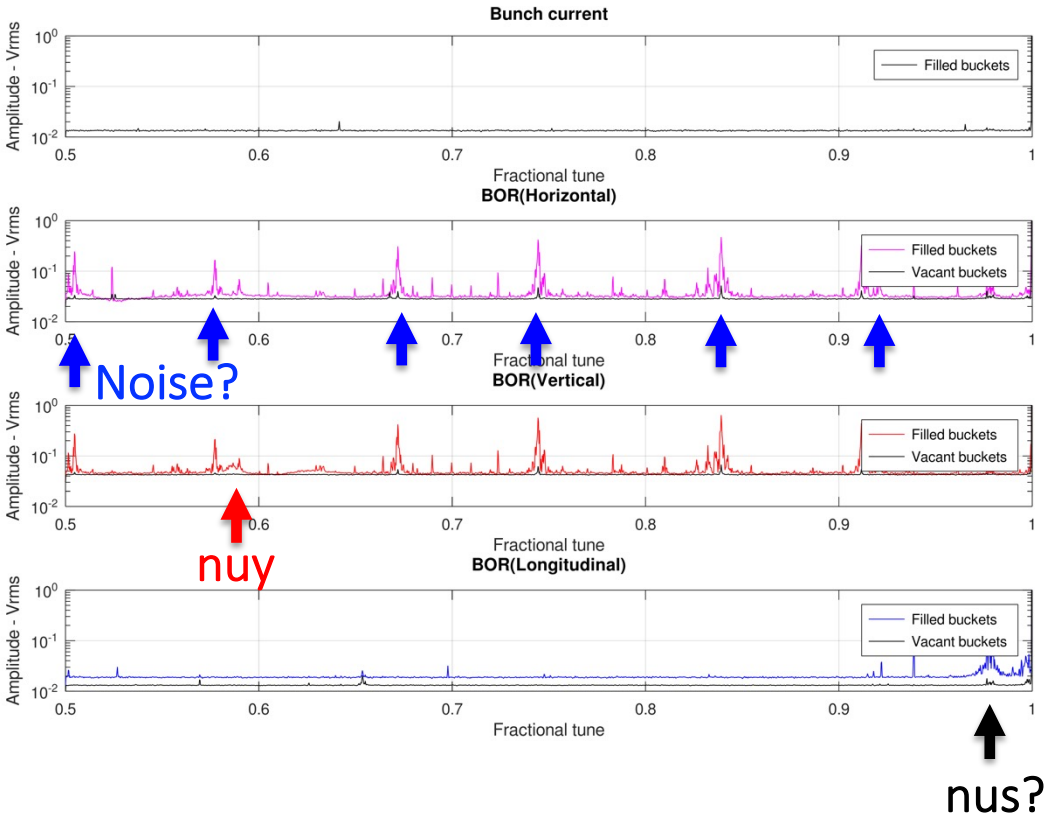
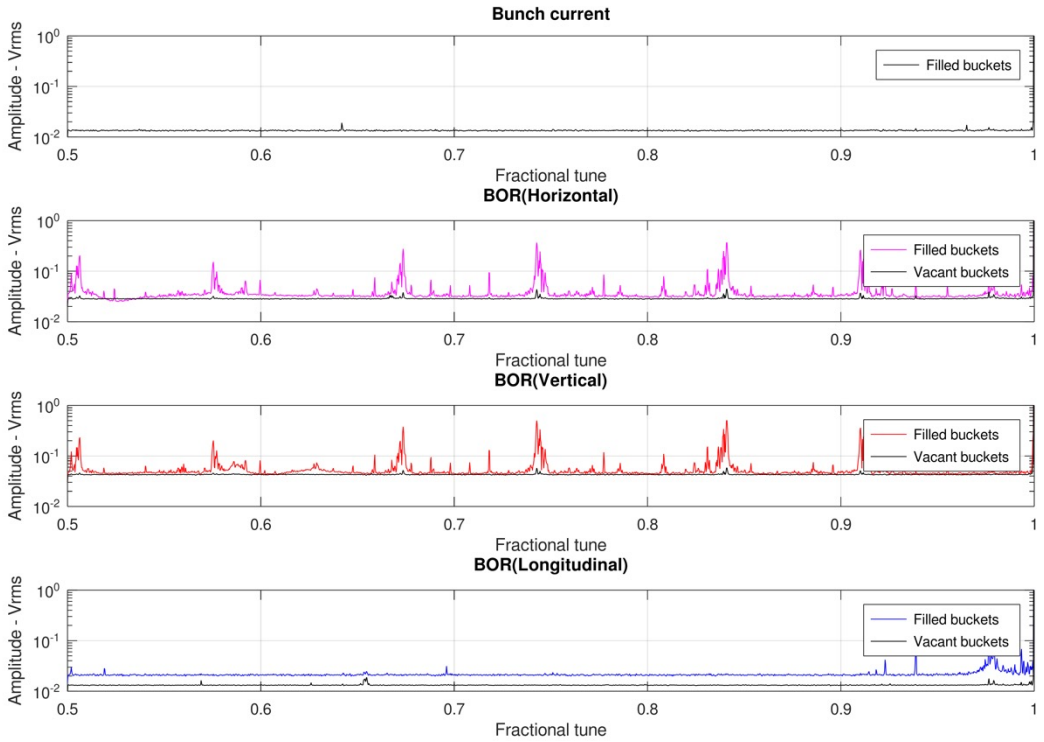
Beam spectrum: FFT of TbT data for each bucket
Average over all filled and vacant buckets separately





Summary

* The two aborts were triggered by sudden beam loss in 2-3 turns
* The sources of the beam loss seem to be the same? But what are the sources for the sudden beam loss?
* Before the sudden beam loss, the beams look to be quiet (judged from smooth TbT beam loss and very similar beam spectra)