ANSWERS To
nBLM PDR1.1 REVIEW

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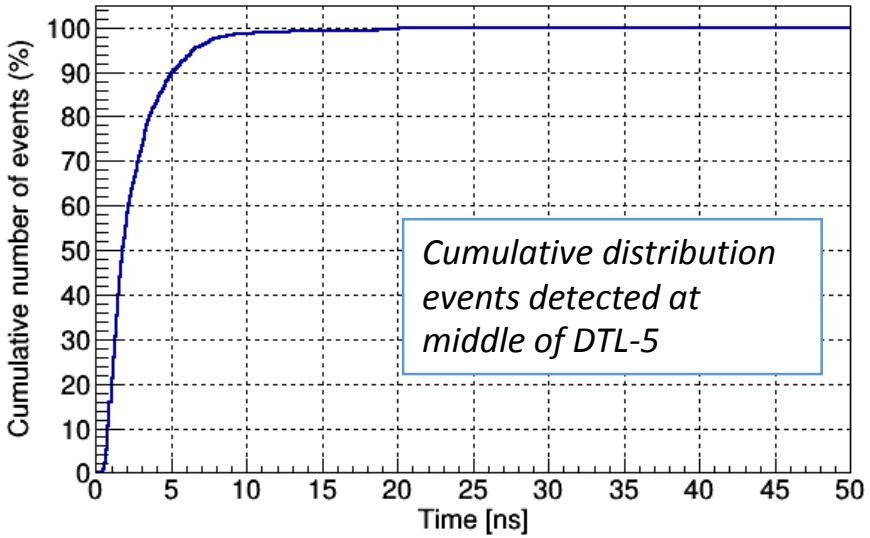
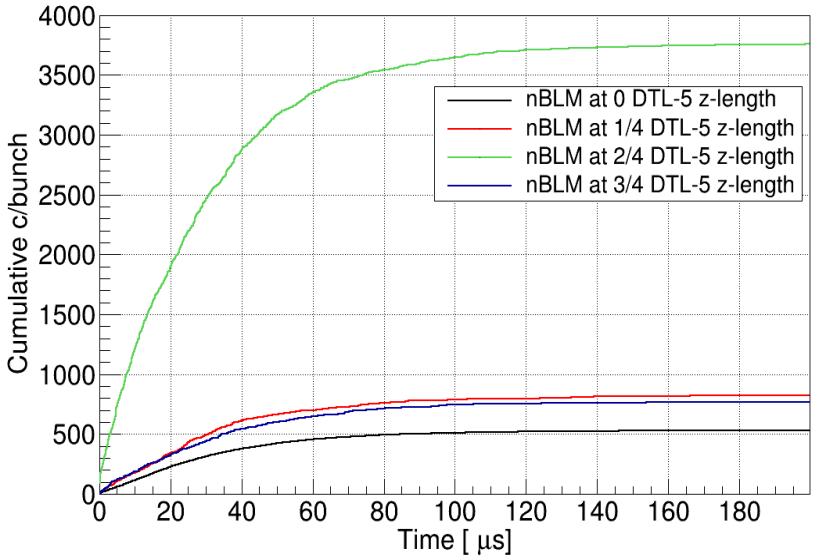
Comments

- Is it possible to build up statistics with fast detector such that over many pulses, to have loss vs time with very good time resolution?
  - Detector has the response to do it (ns)
  - Uncertainty due to the difference in the flight path depending on the source of the loss. If coverage dense, then better resolution.
  - Probably 100 ns resolution can be realistic
- What is the time resolution of the slow detector? This is important for optimizing linac tune with pulses in diagnostics mode.
  - 100% of events detected in 100 µs, already ~10% in 10 µs (4cm polyethylene)



ESS loss scenario as input in fast detector



ESS loss scenario as input in slow detector

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Comments

- Consider if the fast module can be eliminated?
  - Needed to have some loss structure information but to be decided with ESS
- It was not clear how to estimate the RF-induced photon background?
  - Test with cryogenics modules at CEA
  - Test at LINAC4
  - Test with RF cavities at ESS during its commissioning? Don't know if the nBLM electronics will be ready
- Does CEA have enough information on the radiation environment to the electronics?
  - Probably not enough because positions of detectors not fixed

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Actions/Recommendations

- ESS Lund team should send list of standard gas handling systems to Saclay Controls.
  - ☑ We had a VC in May 2017, approved use of Swagelok. ESS working on list of components, waiting document.
  - CEA has sent a list of possible cards, Waiting approval
- ☑ Saclay team should provide the Lund team the expected pulse shapes for software development
  - Sent pulses for neutrons and for sparks in November 2016
  - Sent Requirements document describing signal and possible analysis in May-2017
- ☑ Saclay team should provide the Lund team the expected resolution and voltage level for digitizer selection
  - Decision on digitizers in April, use of ADC_3111
- There should be a follow up on the Linkoping contact.
  - ToDo
- ☑ Take advantage of cryomodule tests at Saclay to test detector. Consider including ion chambers in this test along with nBLMs
  - Foreseen after summer
- ? Consider a test at SNS, maybe supported by Sasha Zhukov?
  - Not foreseen in the project's budget