

TB Meeting 16.12.2015

Participants: Dmitry, Doris, Alex, Adrian

Planning for TB'16

- TB21 is presumably going to be booked for us ([Doris Eckstein](#)) for the weeks 23 and 24 (June, 6-19th), 42 and 43 (Oct., 17-30th);
- Ppls for this TB: Dmitry, Doris, Adrian, Paul (80% sure), Matteo (50% sure), Anastasia /new PhD student of Doris and Hendrik/ (50% sure);
- Sensors to be measured: Epi100P(irr. $1.3 \cdot 10^{16} \text{ cm}^{-2}$) and ... ;
- Two weeks in prior to TB have to be taken for lab tests;
- Meeting (Dmitry and Adrian) with Alex on 20.12 at 10.00 by the Alex' office;
- Dmitry is at CERN for the Trk DOC shifts during the weeks 13 and 16 (27.03 - 04.04.2016 and 17-25.04.2016).

Thoughts about sensors for future tests

- The sensors' size for future tests will be $1 \times 1 \text{ cm}^2$, PCB size is $5 \times 5 \text{ cm}^2$. Phase I guys can be asked for these PCBs because they use exactly them. NB! PCB design and manufacturing takes up to 3 months, so one has to think quite in advance to the experiments/TB/etc.
- Box for future TB tests should be modified, we can have a look to the box which is in use for the Phase I tests and get some ideas for us;
- We shall probably transport the TB equipment (e.g. supplies, chiller etc.) to the DESY e-lab to avoid shipment issues each time we want to have beam time.

ANALYSIS

1. High number of clusters on the telescope was observed when no clusters were detected on DUT and CMSPixRef. This can be related to the high DAQ rate which was observed during the beam time. Such events should be excluded or maybe used for telescope alignment.
2. Clustering efficiency, i.e. the ratio between the number of events when clusters were detected on telescope as well as on the DUT and CMSPixRef. with respect to all events from the considered data sample, is $\sim 2\%/199$ out of 10000 events/ (run000012.dat, run000013.ped, run000224.raw, sample@-1000V, 0 deg. inclination, no annealing, -30 deg. C) - too low! E.g. the efficiency for the June's data was up to 30%. This can be related to used TDC cuts (from 25 to 45 ns - these cuts were set as default in the steering-template, so wasn't any reason to use them).

Tasks:

- Check how many clusters will be detected per telescope plane w/o taking DUT and CMSPixRef. to account -> [Unknown User \(kislrdm\)](#), [Unknown User \(perieanu\)](#)
- Check the efficiency of the CMSPixRef. and compare to the one estimated by the on-line analysis (it was in average $\sim 45\%$, see Sep-Oct'15 TB logbook) -> [Unknown User \(kislrdm\)](#), [Unknown User \(perieanu\)](#)
- Dump the raw data and check how many events do we have before any processing like comcode subtraction, clustering etc. -> [Unknown User \(kislrdm\)](#), [Unknown User \(perieanu\)](#)
- Use PMTs to cut the events out from the geometry point of view -> [Unknown User \(kislrdm\)](#), [Unknown User \(perieanu\)](#)
- Check if there's multiple-hit events after the DUT -> [Unknown User \(kislrdm\)](#), [Unknown User \(perieanu\)](#)
- Make final comparison between the Eda's and Thoma's code using run(s) w/o CMSPixRef. from the June-July'15 TB (see [June-July'15 TB logbook](#)), check the way Eda's implemented the comcode subtraction to the code -> [Unknown User \(kislrdm\)](#), [Unknown User \(perieanu\)](#)