COSMICS IN XS1

LOUIS HELARY (DESY), WITH HELP FROM RAJENDRA, STEFAN SCHMITT AND MANY OTHERS.

LUXE SIMULATION MEETING - JULY 6TH 2021

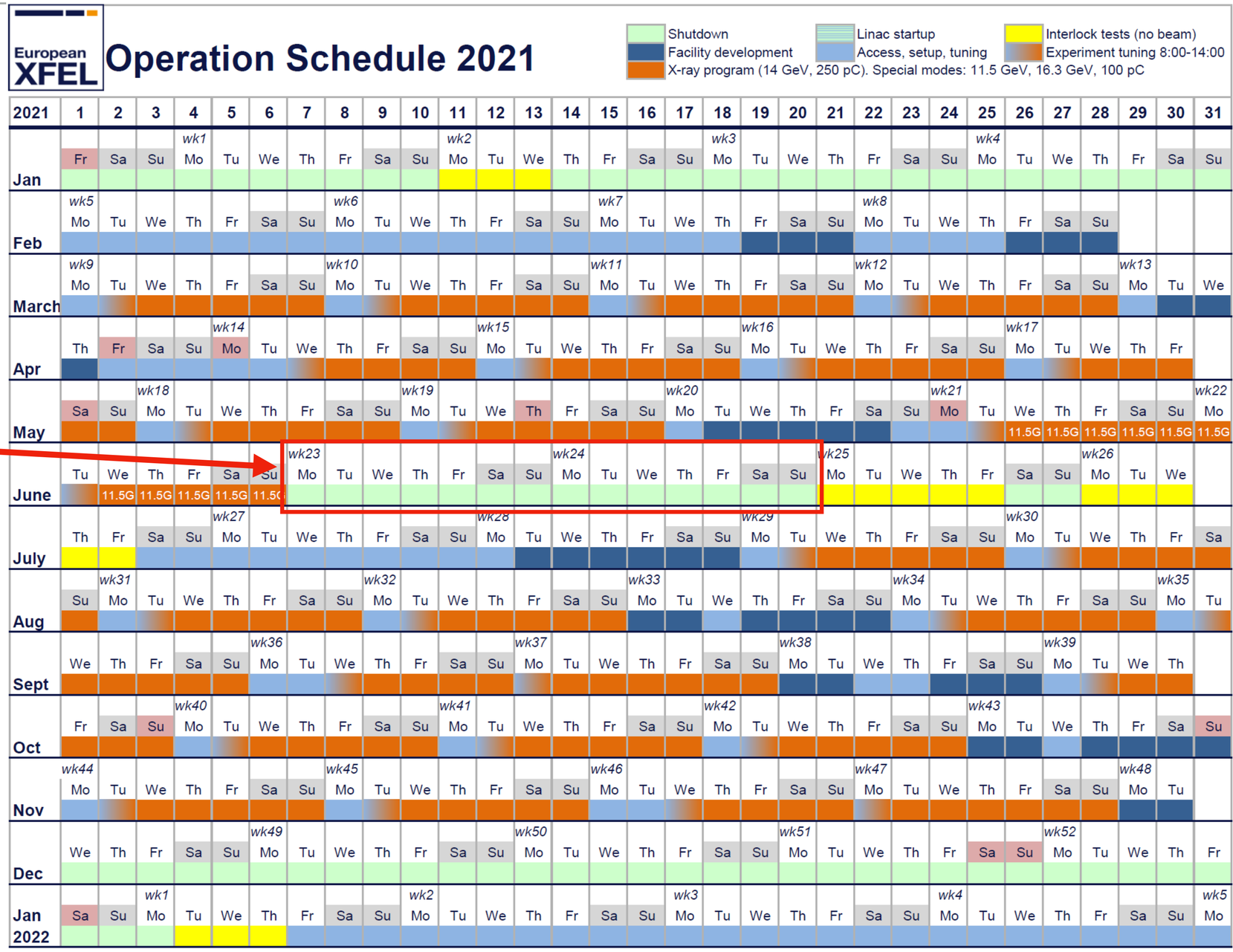
XFEL SUMMER SHUTDOWN

Getting the accesses and dosimeter was relatively easy.

Still did not managed to get transponder..

Sent a mail to Sven Mohr (D5), but no answer so far.

2 weeks access (summer shutdown)

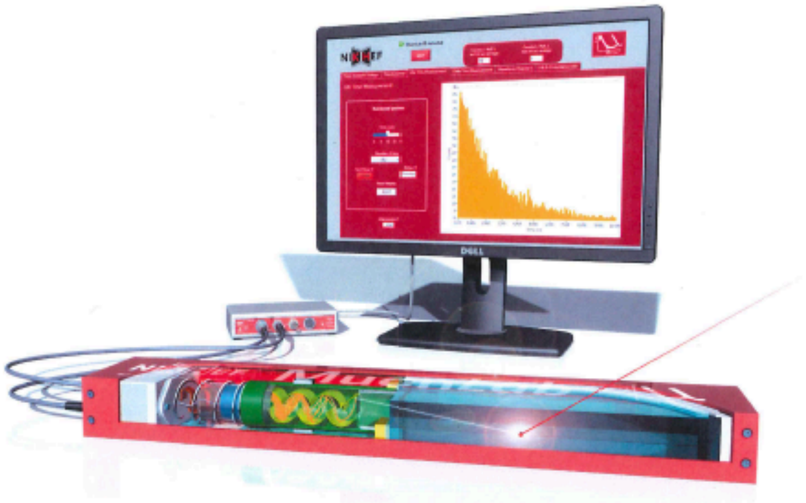


NIKHEF

MuonLab

Tabletop instrument for hands-on experiments on muons and electrons

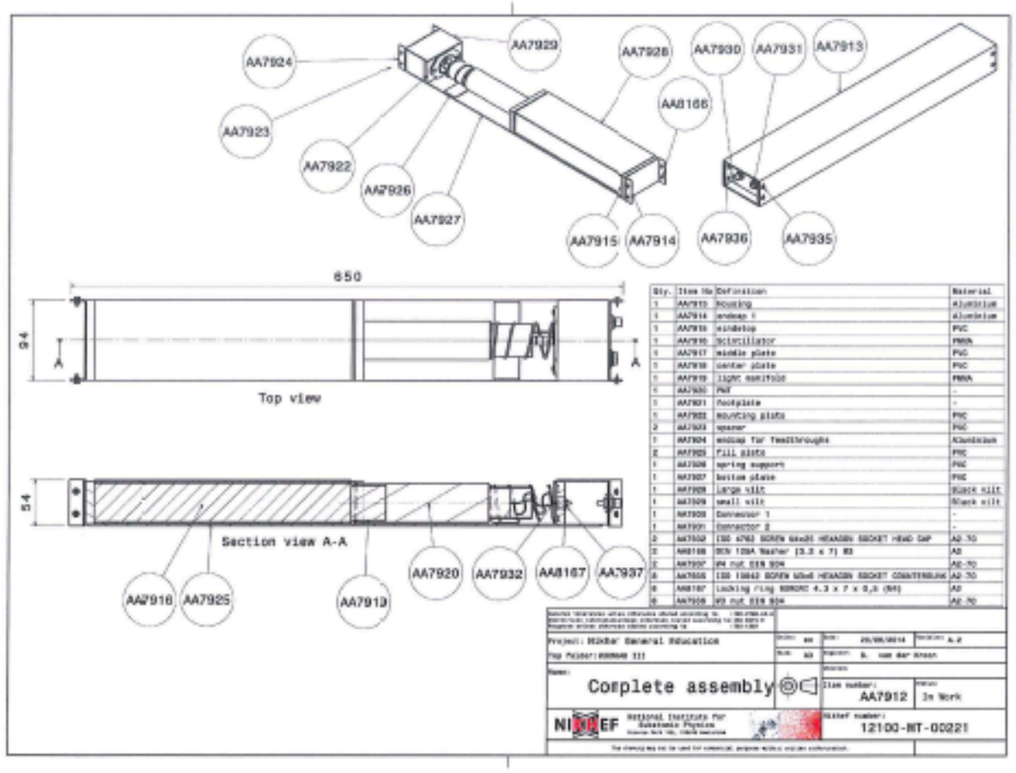
Nikhef
Science Park 105
1098XG Amsterdam
020-592 5015
june 2014



Detectors:

Plastic scintillator 30 x 9 x 5 cm^3 (with PMT R580) or 40 x 9 x 5 cm^3 (with PMT R6094)
Photomultiplier Hamamatsu R580 or Hamamatsu R6094

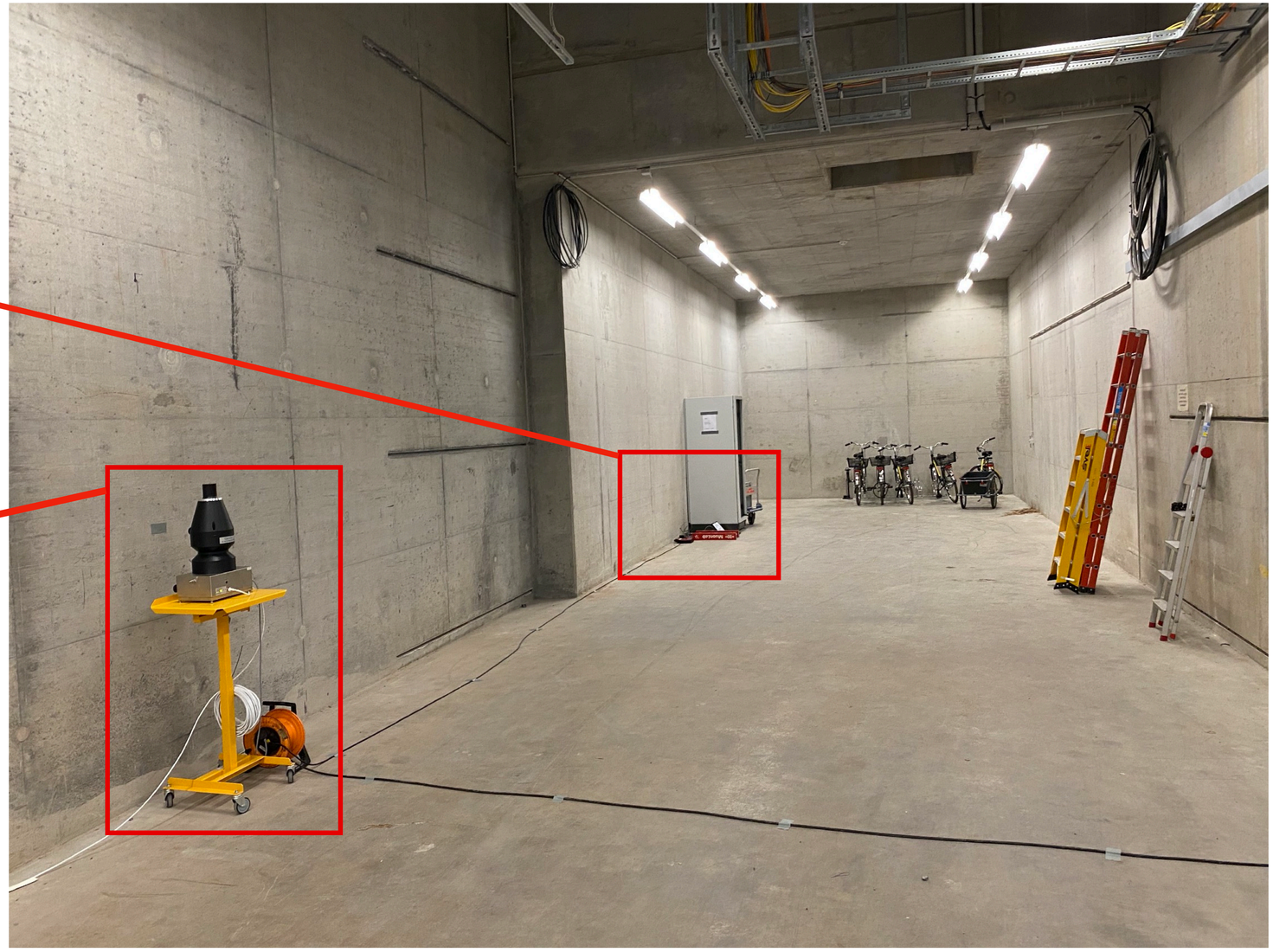
Complete assembly of R580 detector (with R6094 some minor modifications)



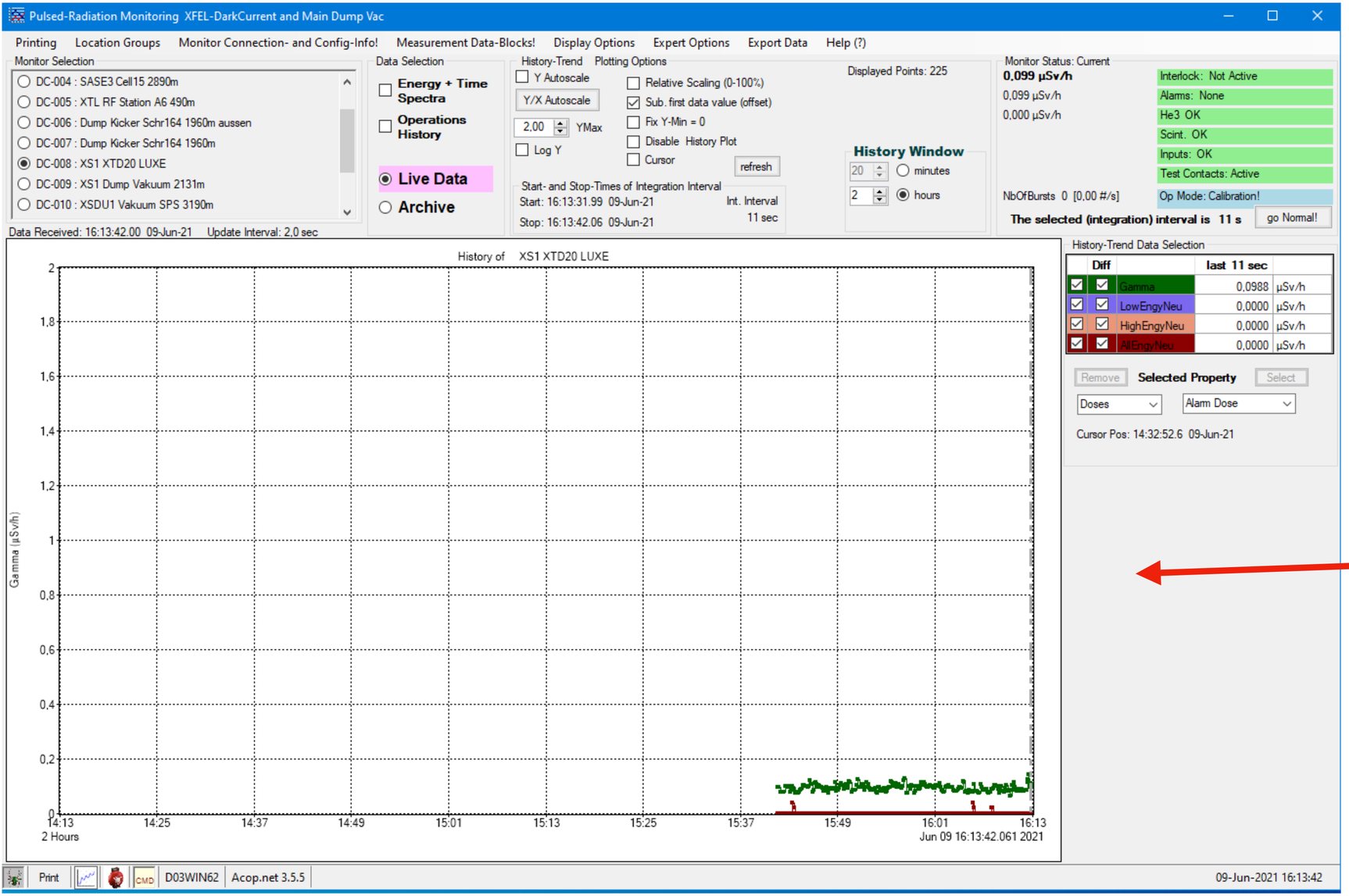
Rather simple to use, but challenging to make it work (needed a 32 bit labview version,)

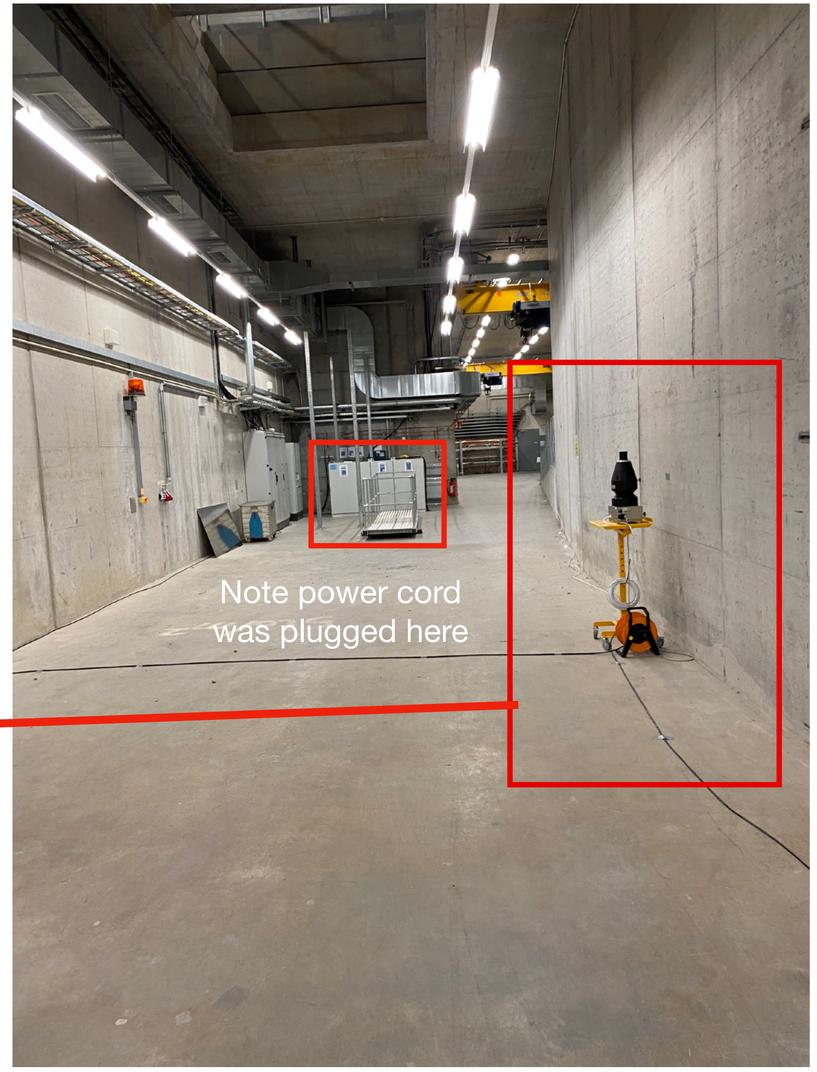
WHERE ARE THE DETECTORS?

Would have prefer to put scintillators here:
but unfortunately power cord not long enough



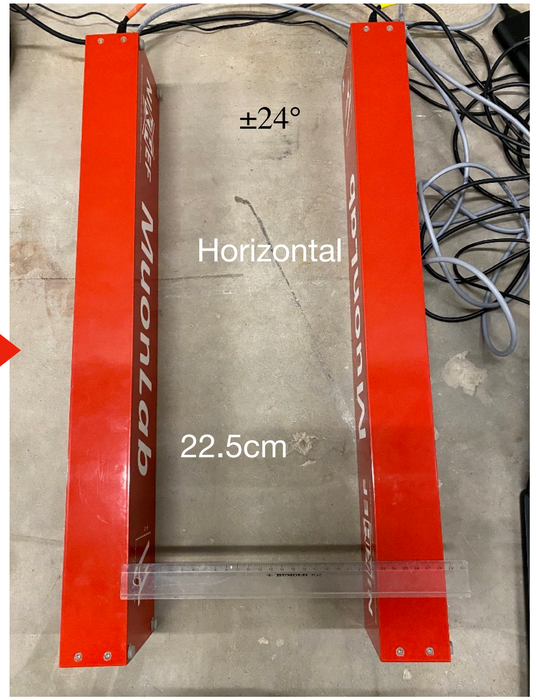
SIDE NOTE NEUTRON DETECTOR

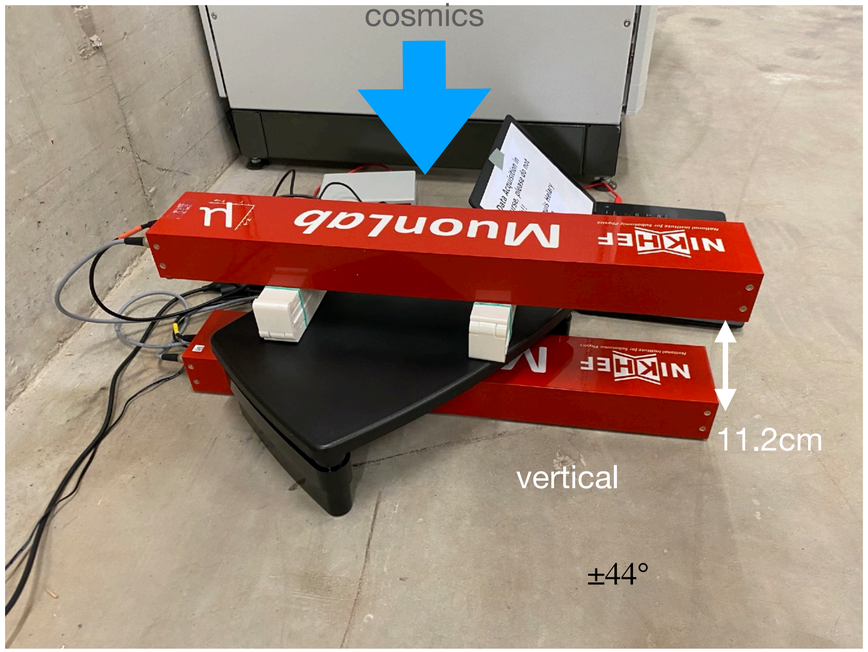


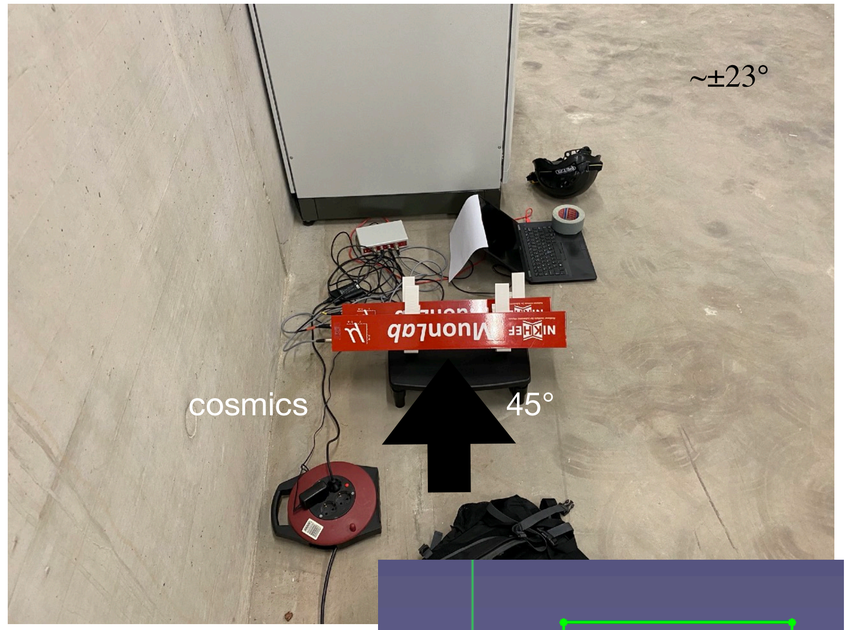


These are the informations we should be able to access from D3(neutron with different energy threshold and gamma from dump).

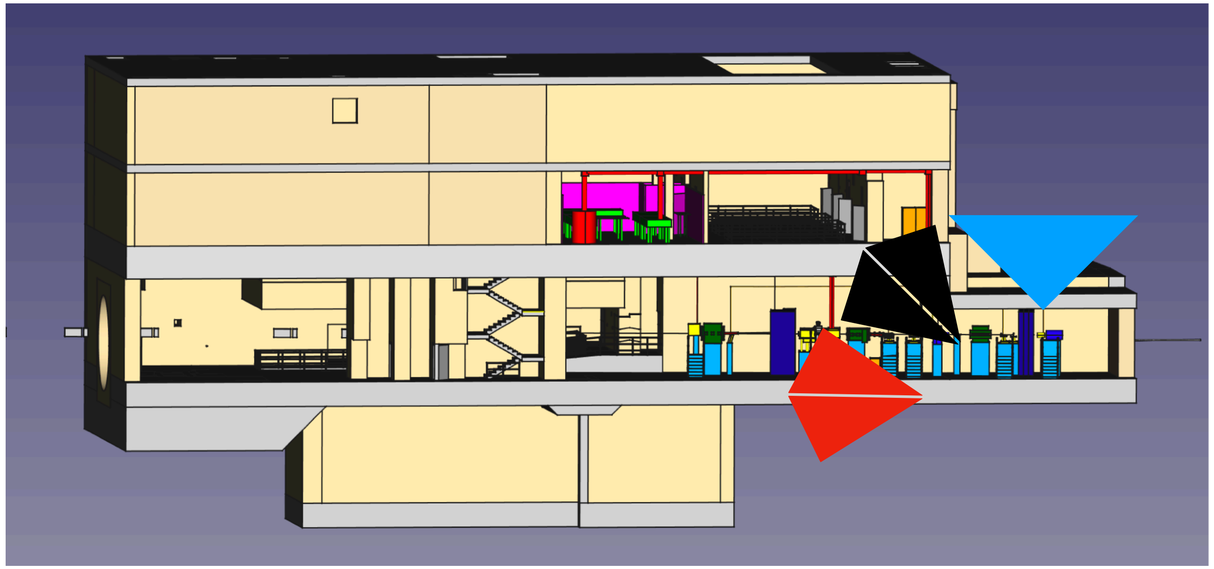
XS1 SETUP

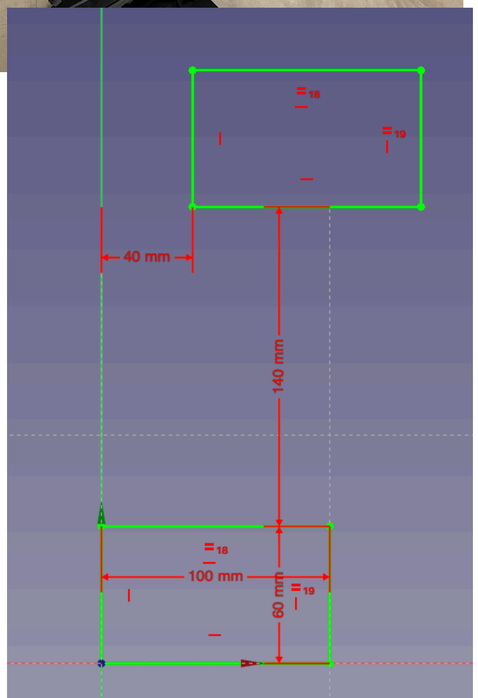




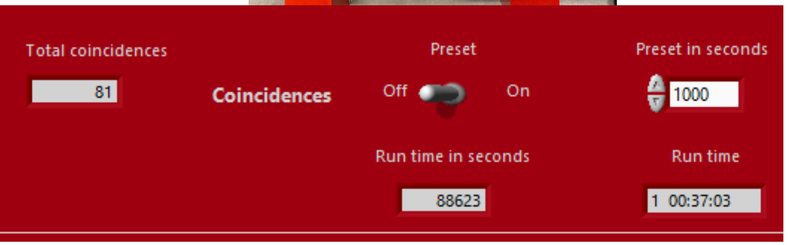


So unfortunately solid angle of 3 configuration is quite different.



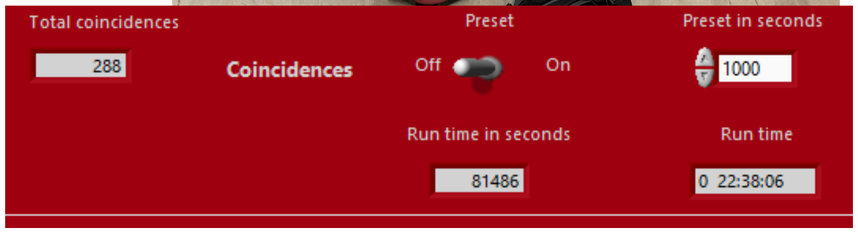


TIME MEASUREMENT AND COUNTS

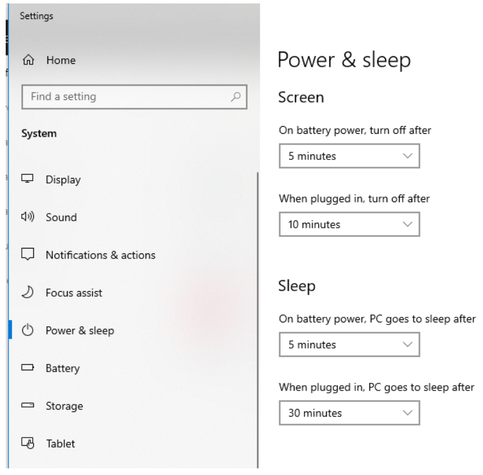


corrected time : total horizontal run: 37min 20s.
(81 coincidence in 2240s -> 0.036+-0.004 cosmics/sec).

corrected time : total vertical run: 37min 4s.
(763 coincidence in 2224s -> 0.343+-0.013 cosmics/sec).

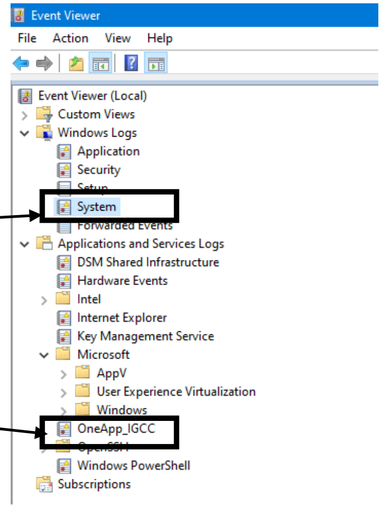


corrected time : total 45 degree run: 32min 33s
(288 coincidence in 1953s -> 0.147+- 0.008 cosmics/sec)

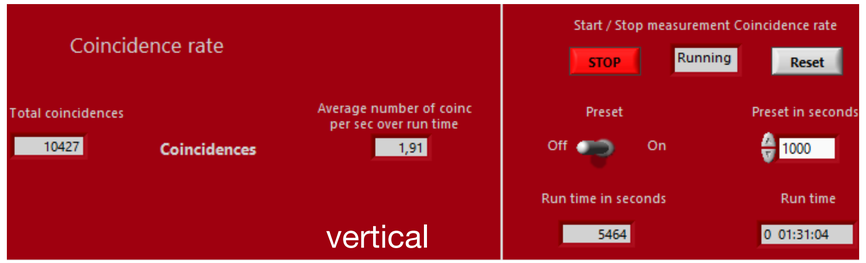


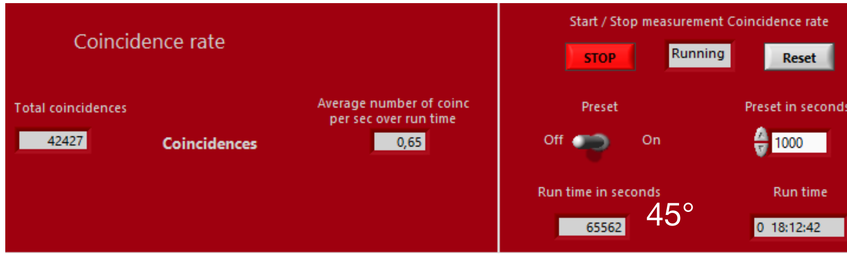
By default windows laptop
goes to sleep after 30min of inactivity even if plugged in…

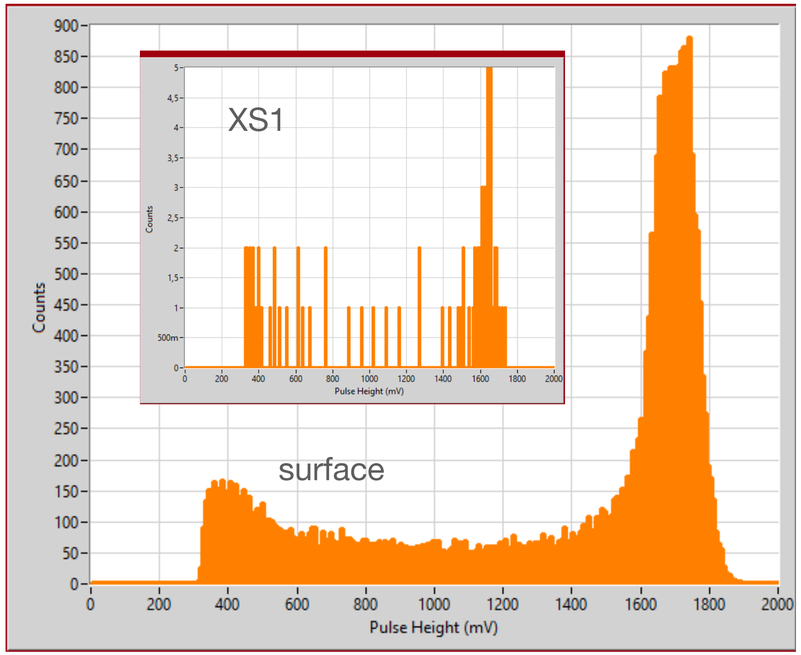
System log contains time at which computer goes to sleep,
OneApp_IGCC log contains time at which windows woke up.

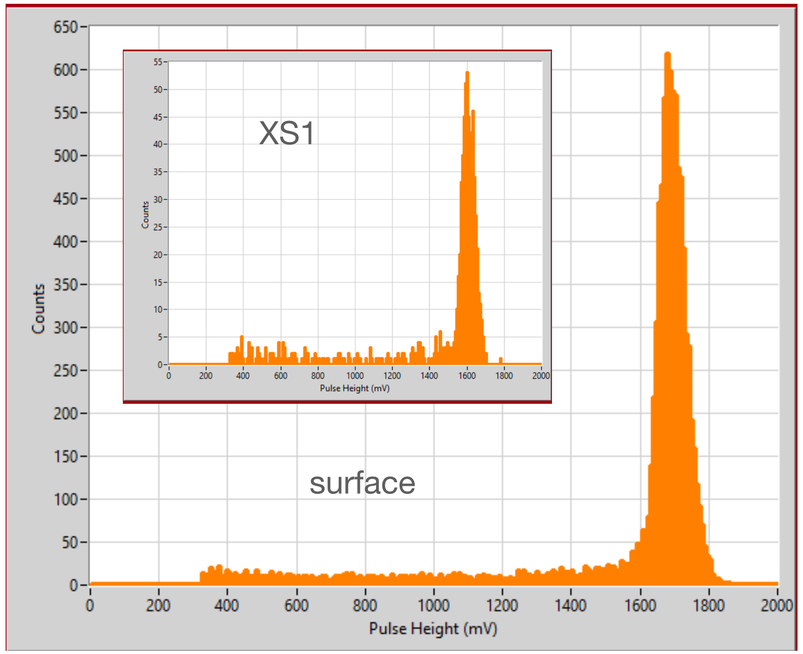


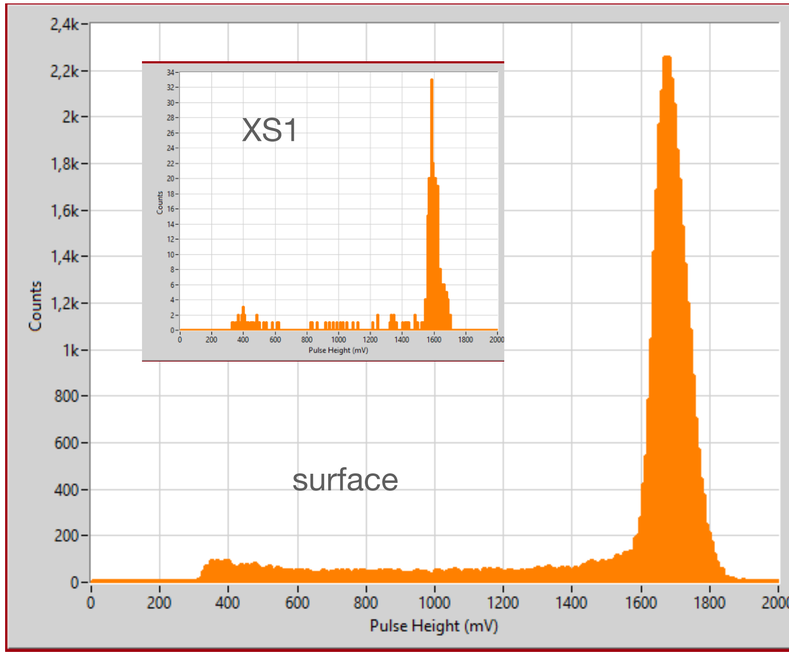
TIME MEASUREMENT AND COUNTS IN MY OFFICE





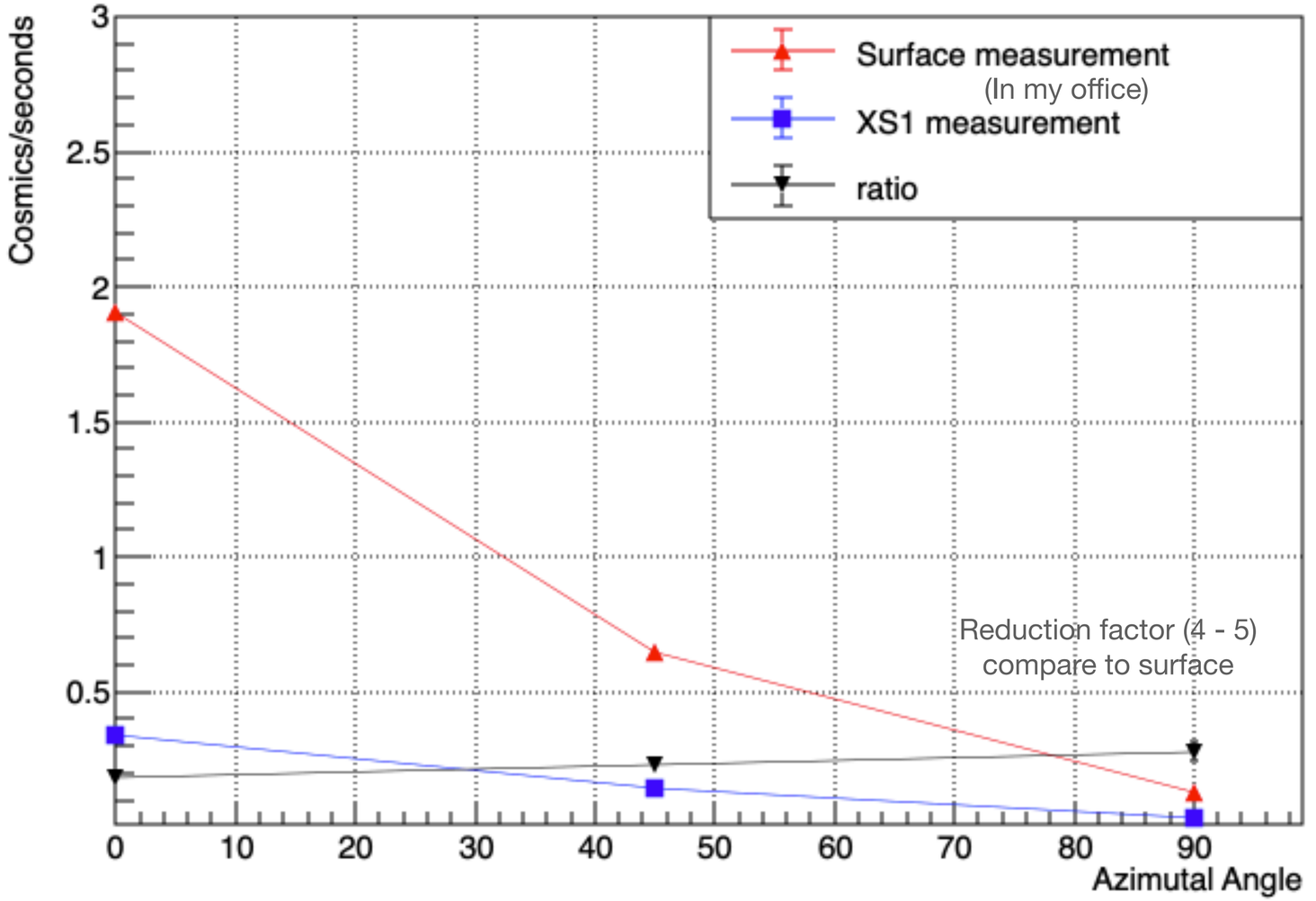






Max height of pulse

RESULT



- Solid angle not taken into account, but configuration similar for surface and undeground point by point.
- Effect of background from pulse not subtracted, but seems to be similar (at least within statistics).