

# Status report

4/12/2019

Tokyo University of Science

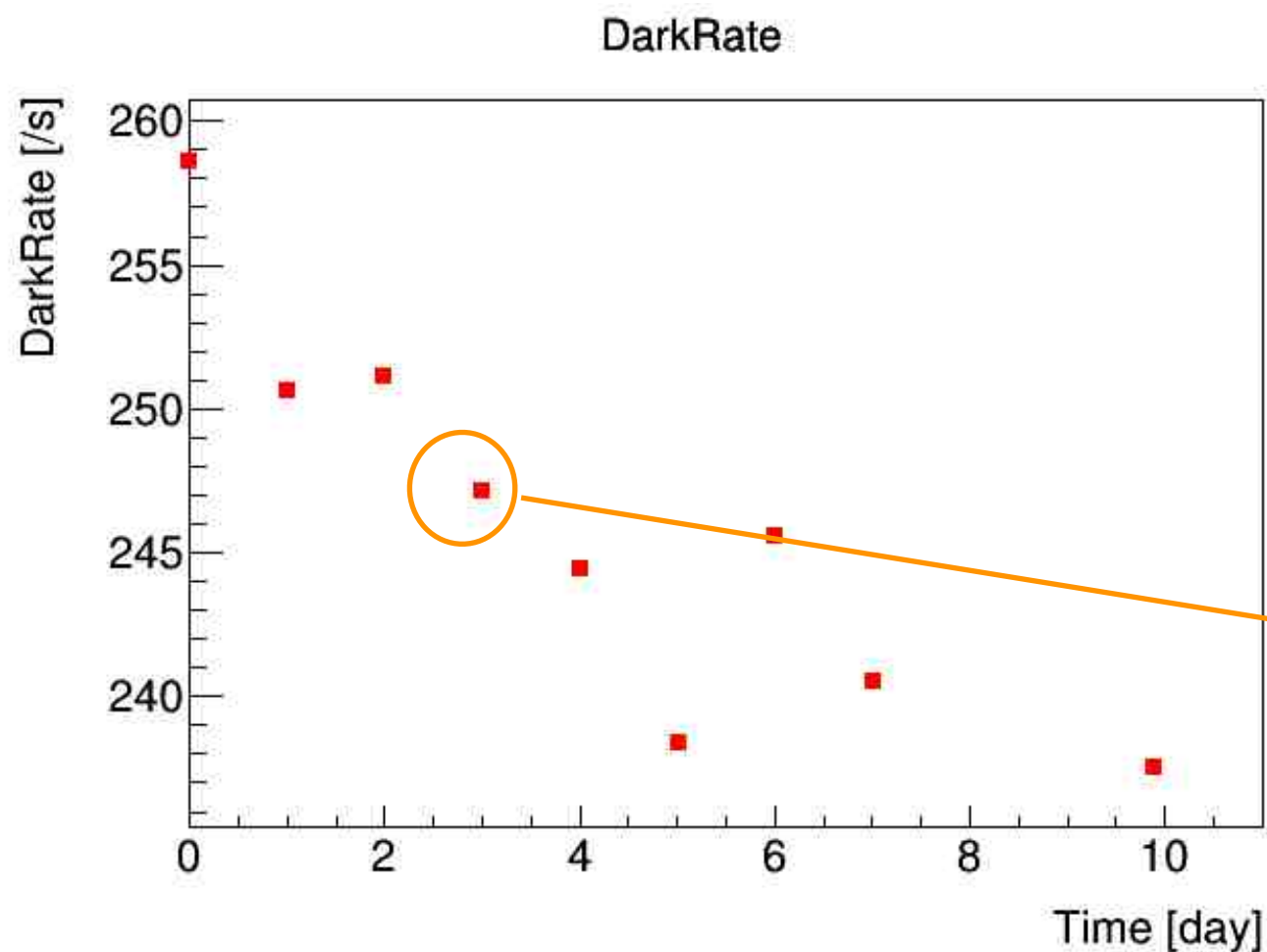
Michitaka Inomoto

# What I have done

- Checked time dependence of the PMT in 14°C.  
(HV +1250V)
- Tried to decrease noise.

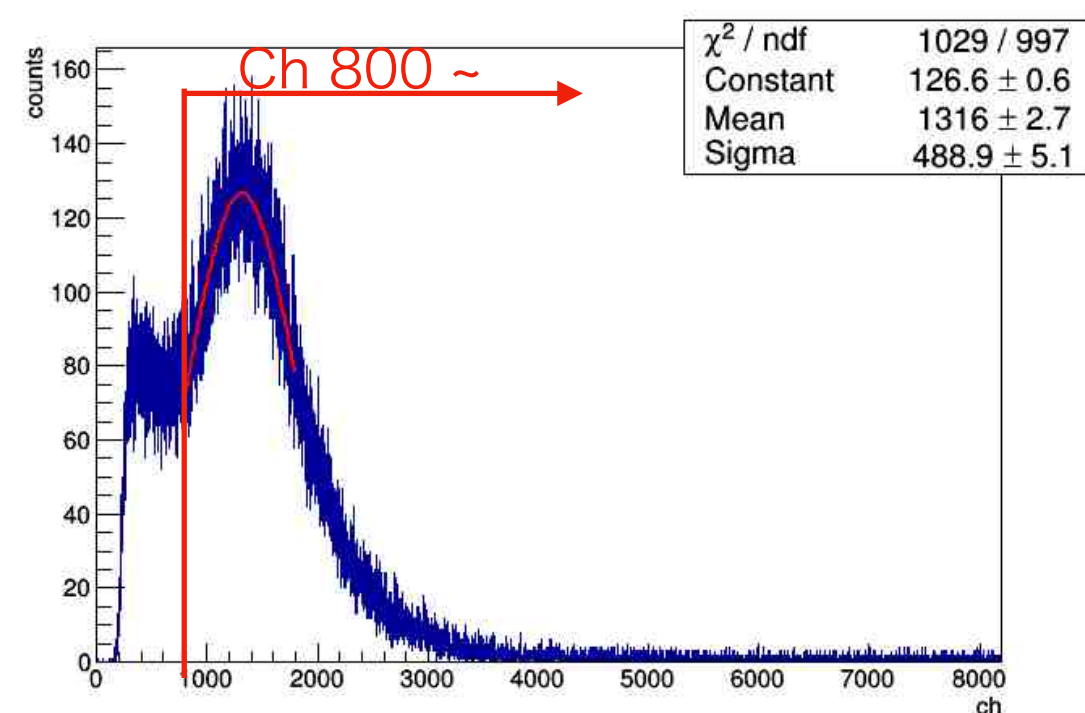
# Time dependence

I measured the rate after keeping the PMT in the incubator for 10 days.



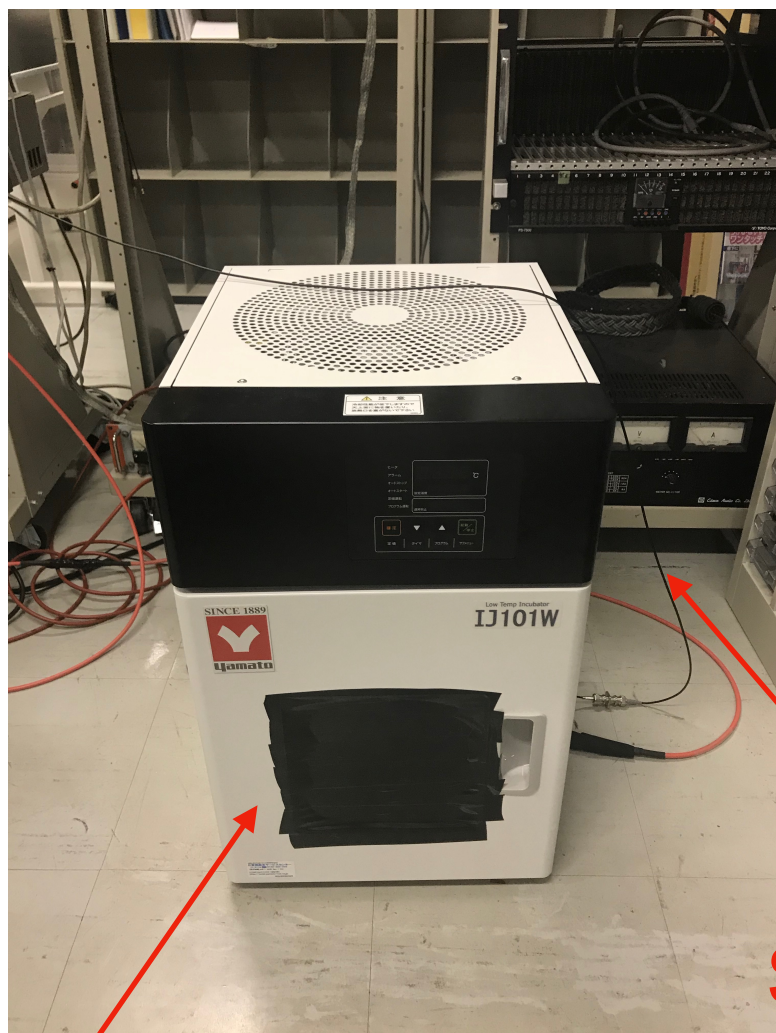
Start time: 2019/3/29 14:34:00  
End time : 2019/4/08 12:24:00

$$\text{Dark Rate} = \frac{\text{the number of PMT's signals}}{\text{Real Time (600s)}}$$



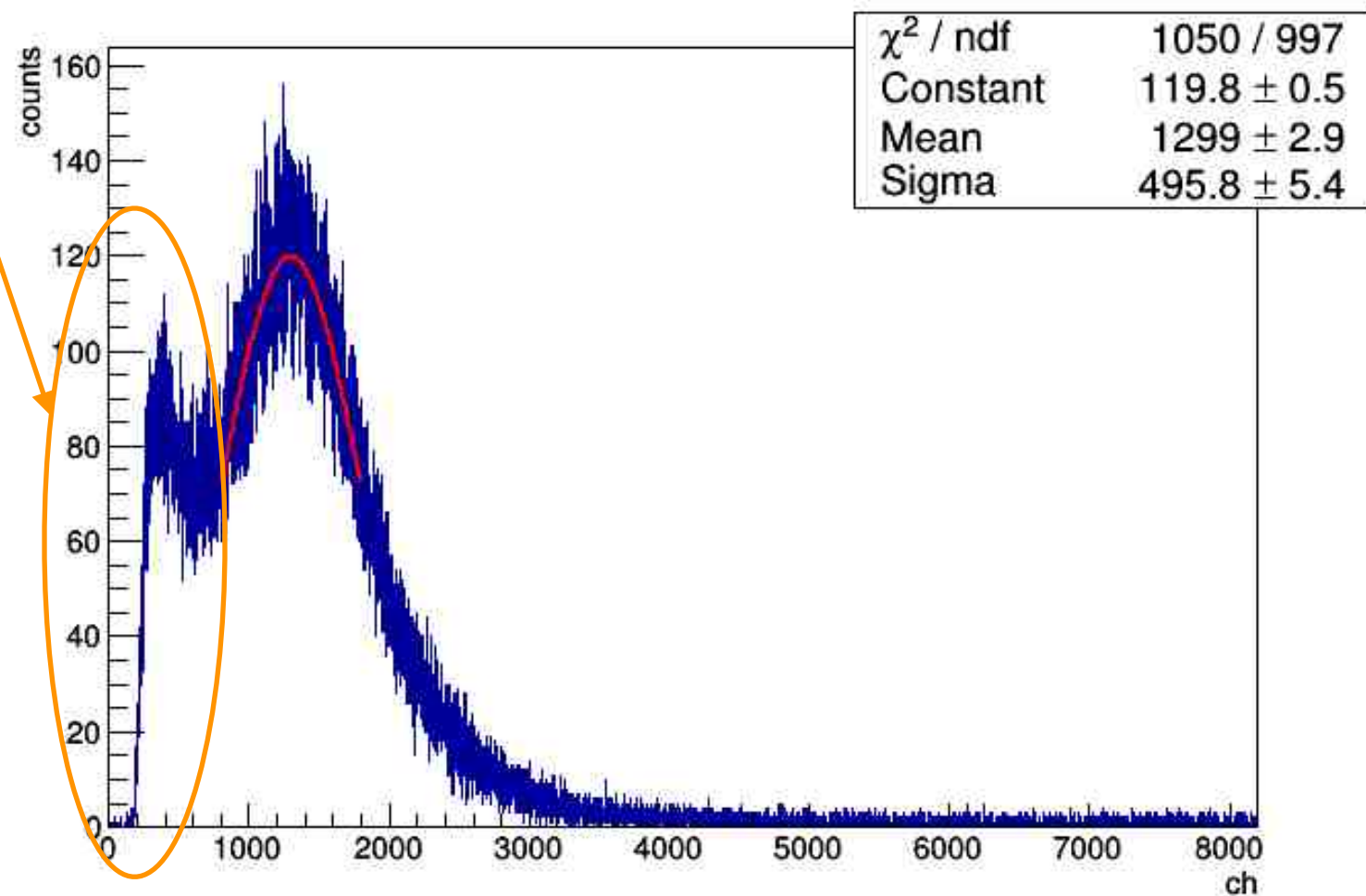
# Cause of noise

I checked the cause of this noise.



Incubator

Signal cable

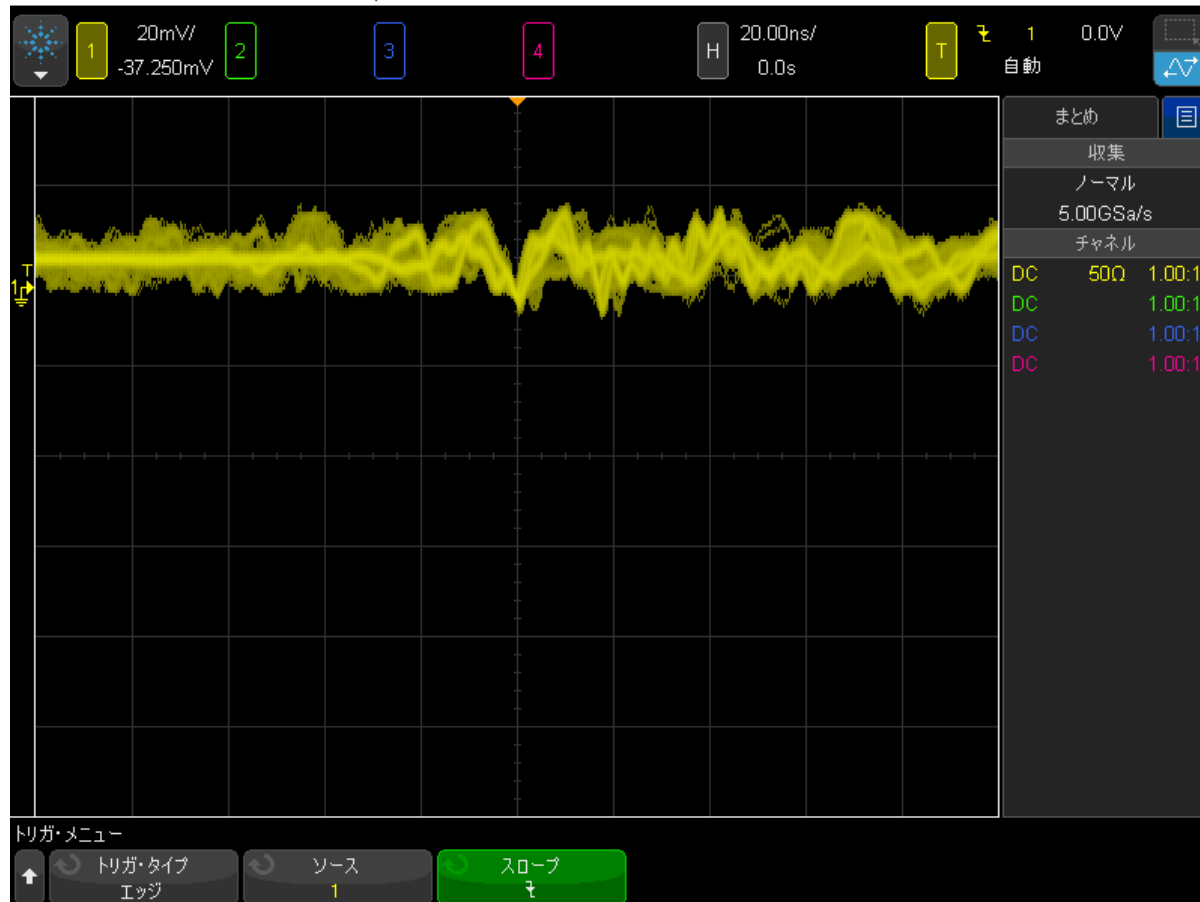


I found one of causes of the noise.

More noise was generated when the incubator was ON.

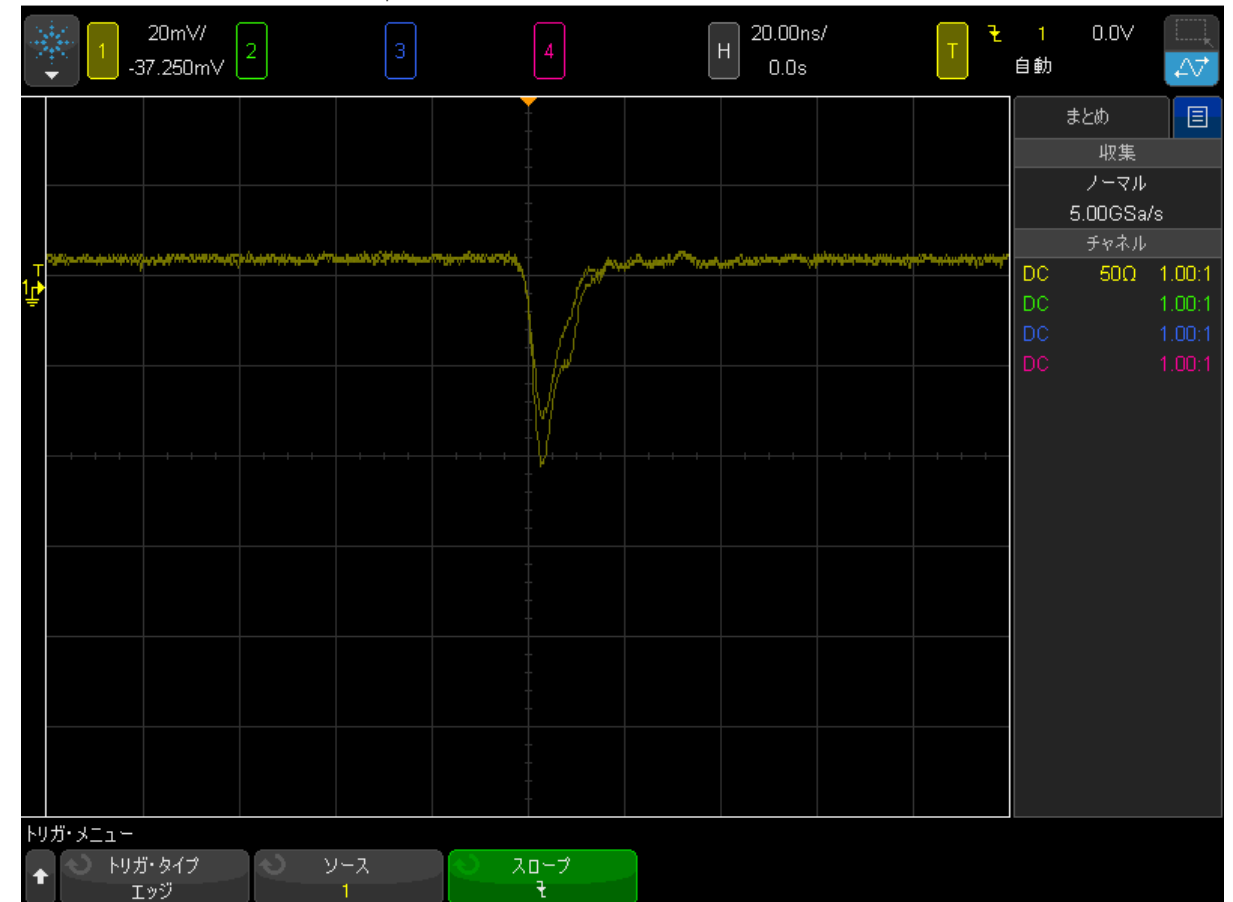
➡ Aluminum foil sheets were wound on the signal cable to cut off the electric field of the incubator.

DSO-X 4104A, MY53480488: Tue Apr 09 17:49:54 2019



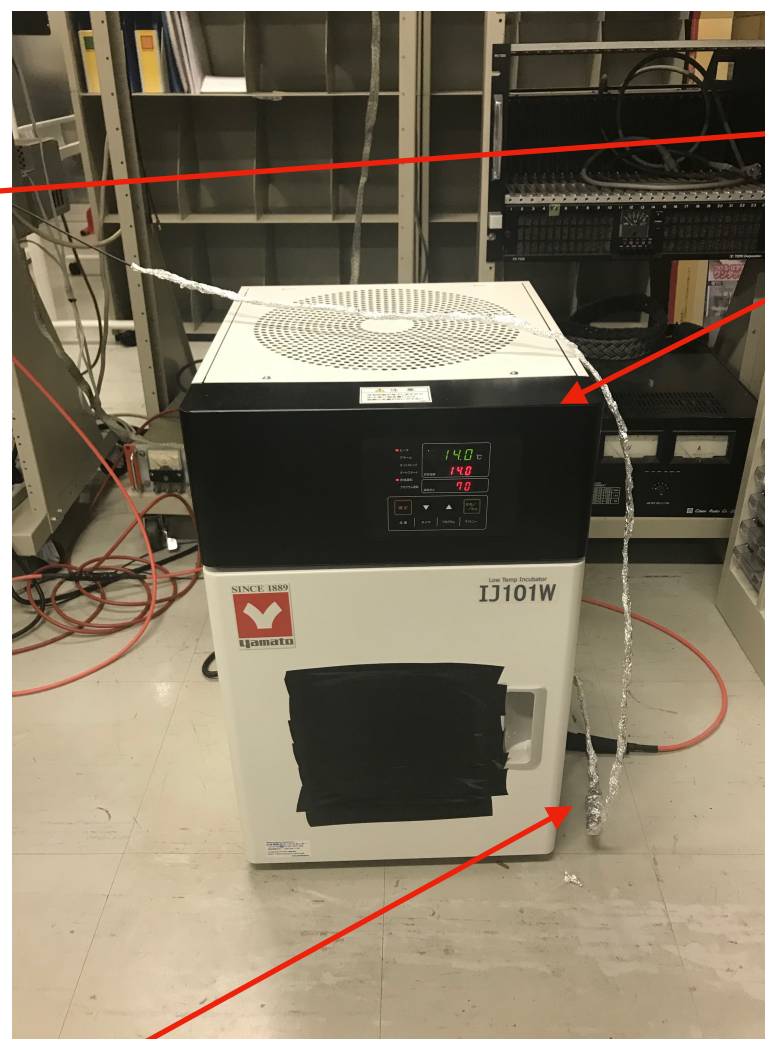
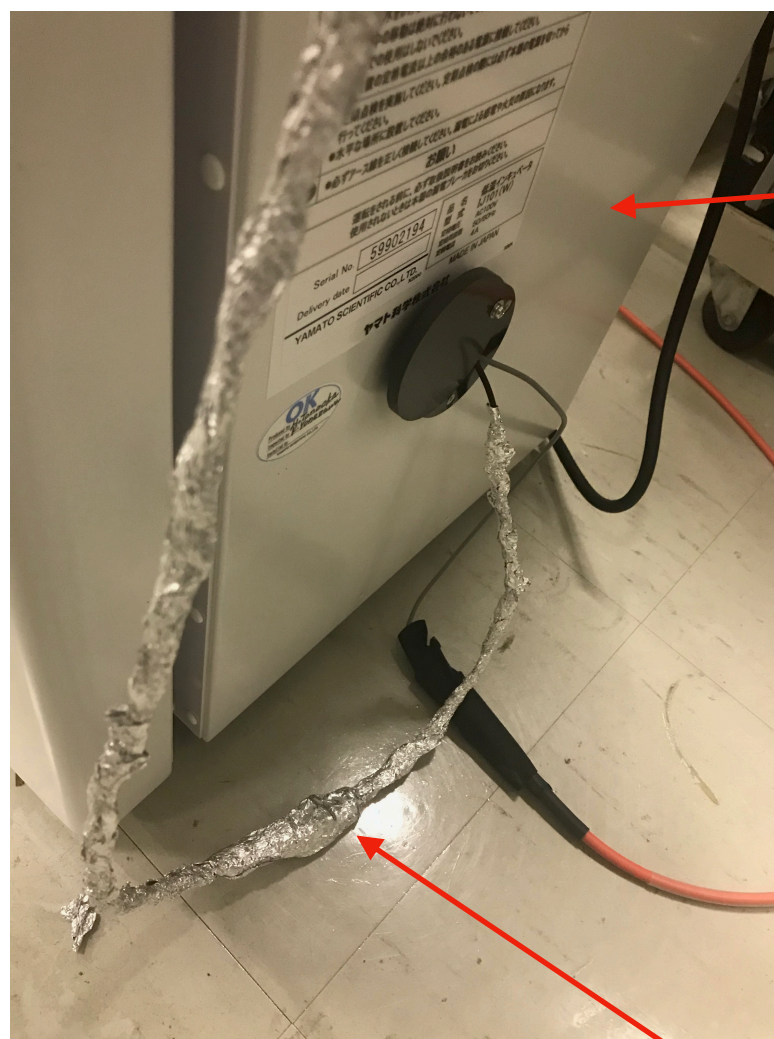
Incubator was ON

DSO-X 4104A, MY53480488: Tue Apr 09 17:51:43 2019



Incubator was OFF





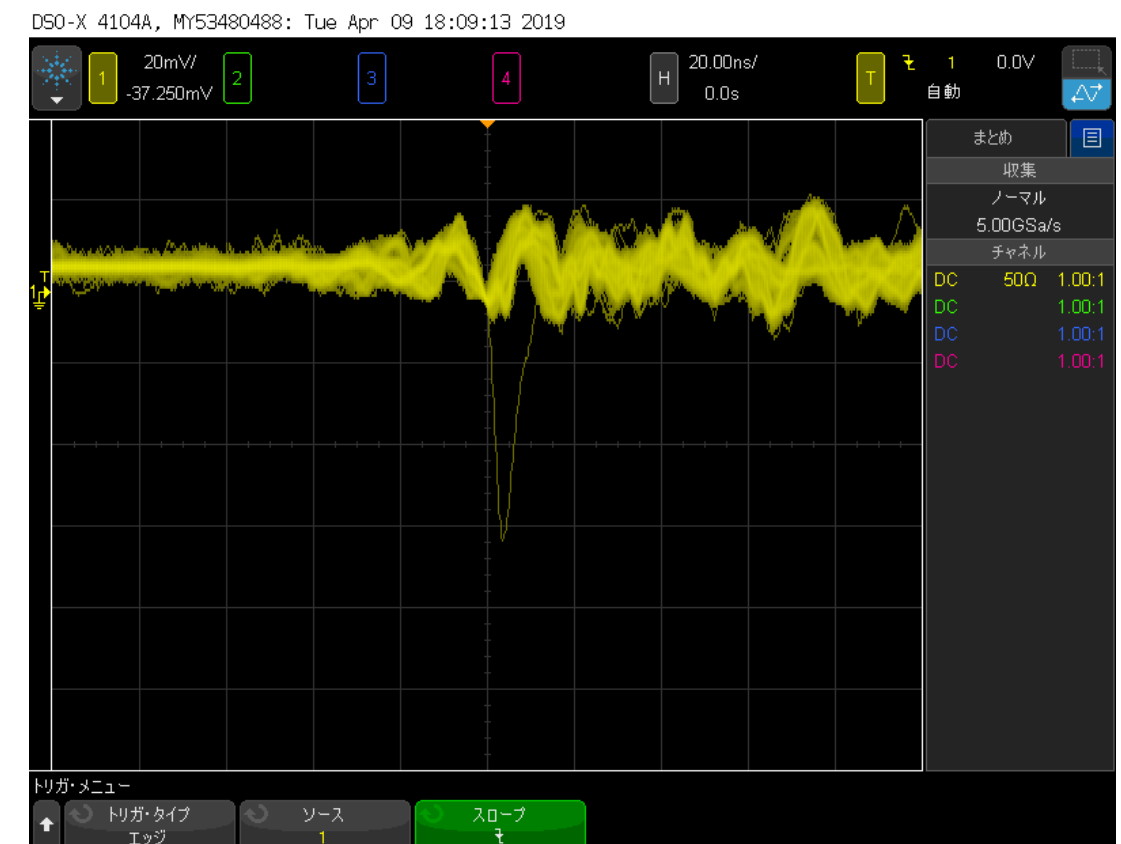
Incubator

Aluminum foil sheets

The signals (right figure) were generated when aluminum foil sheets were wound on the signal cable and the incubator was ON.



Little change was seen in the noise.



# Next

- Check HV dependence and lower temperature dependence.
- Find ways to decrease the noise.