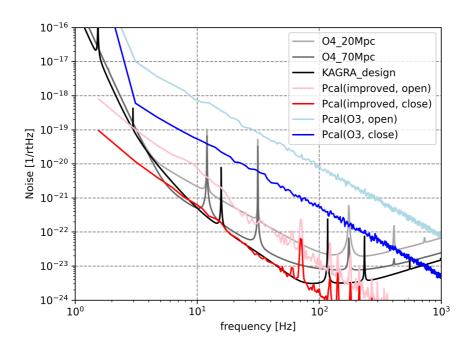# 20210121

23:00(JST) / 22:00(TST)-

- Calibration Requirement Documents

    - https://git.ligo.org/Calibration/documents/O4-requirements

    - KAGRA CAL team is working to meet the requirements of systematic errors shown in the ducuments, such as:

        - Low latency: within 20% amplitude and 15 degrees phase between 20 and 1000 Hz

        - High latency: within ~10% amplitude and 10 degrees phase between 20 and 1000 Hz

- Man power issues

    - Currently, only two full-time researchers are available for CAL on-site works

    - We will work on high priority issues first to achieve the calibration requirement in O4

- Tasks and target time

    - Make Y-end Pcal working (- May/2021)

    - Pcal noise reduction (- Mar./2021)

    - Improve the WS calibration accuracy (- May/2021)

    - Fine alignment of the periscope with a pico-motor (Jul.(X) and Oct. (Y)/2021)

- Works done in the last month

    - X-end Pcal noise was signigicantly reduced (by 50 dB)

    - During O3 period, the noise was below KAGRA sensitivity but was still above O4.

    - The last OPamp in AI does not have enough power and when a long

cable is attached the system makes the oscillation. To mitigate it, we inserted a register between AI and the long cables and attenuated the oscillation.

○ Now the noise is reduced and it satisfies the requirement of KAGRA O4 sensitivity.

- Working plan in the next months

  ○ Investigate and reduce the noise at Y-end Pcal (we hope the similar approach as X-end should work).

  ○ Insert baffles to reduce scattered light in Tx and Rx modules.

  ○ Install a pico-motor to one of the periscopes to precisely control the Pcal beam position onto the test mass

  ○ Establish Pcal beam alignment methods