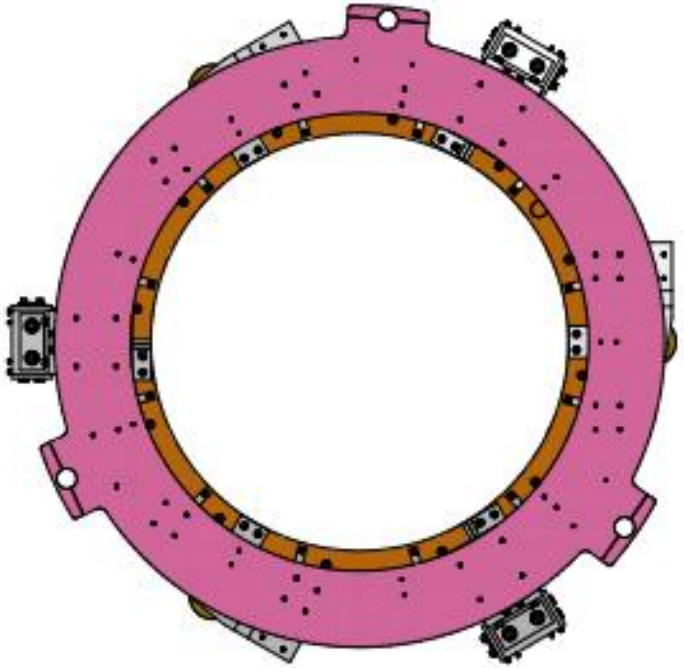
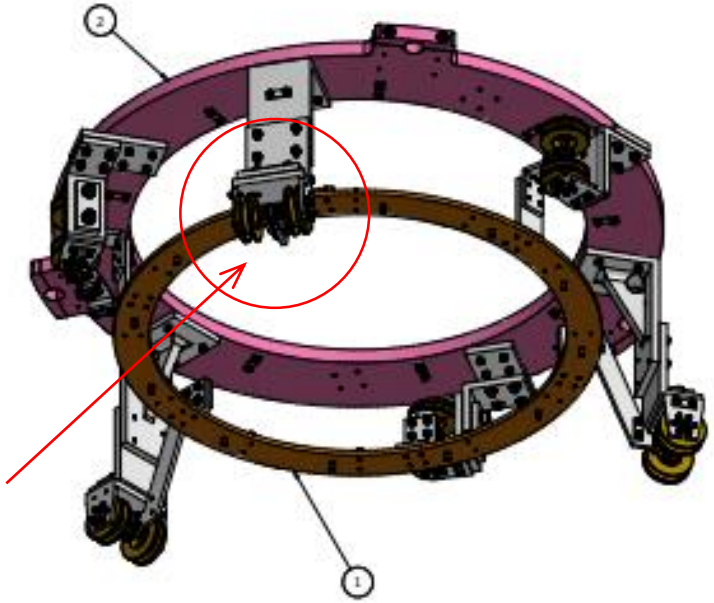
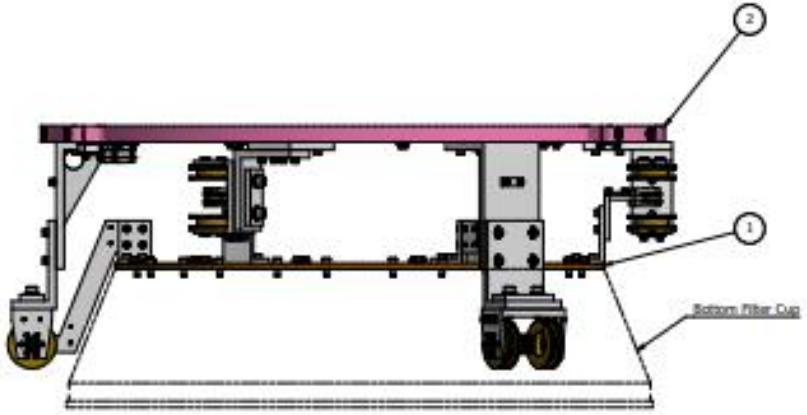
ITMX BF-LVDT:

-Calibration

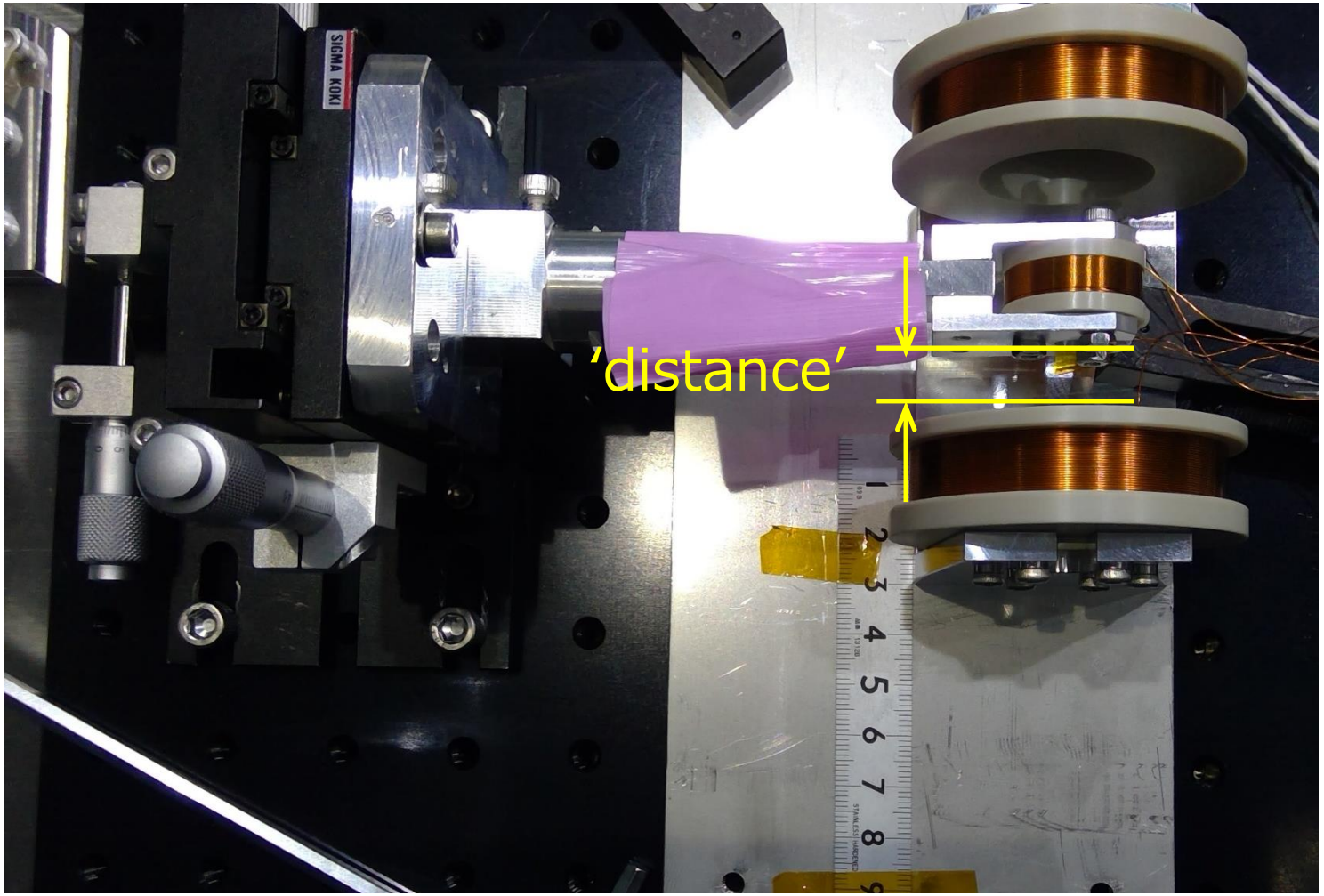
-Noise level



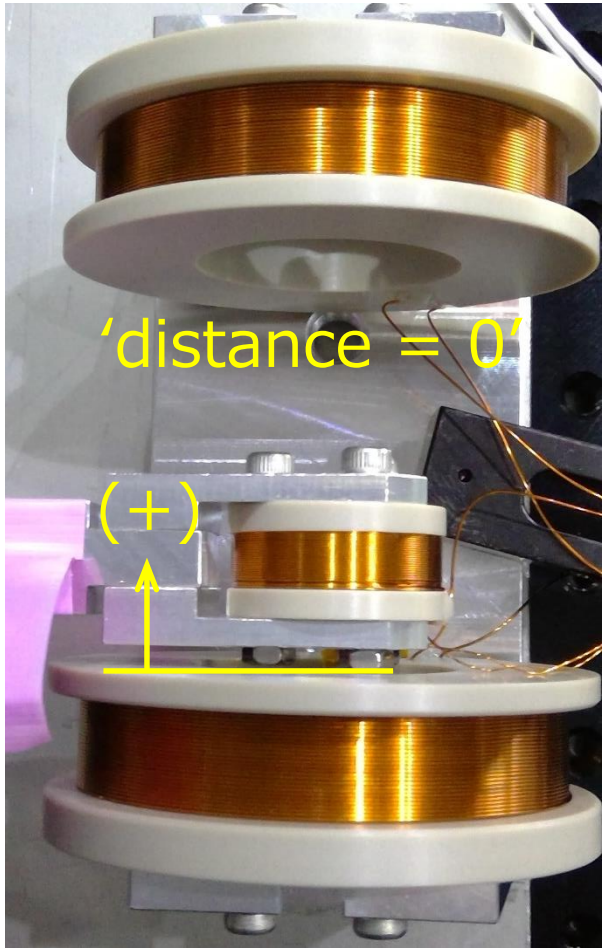




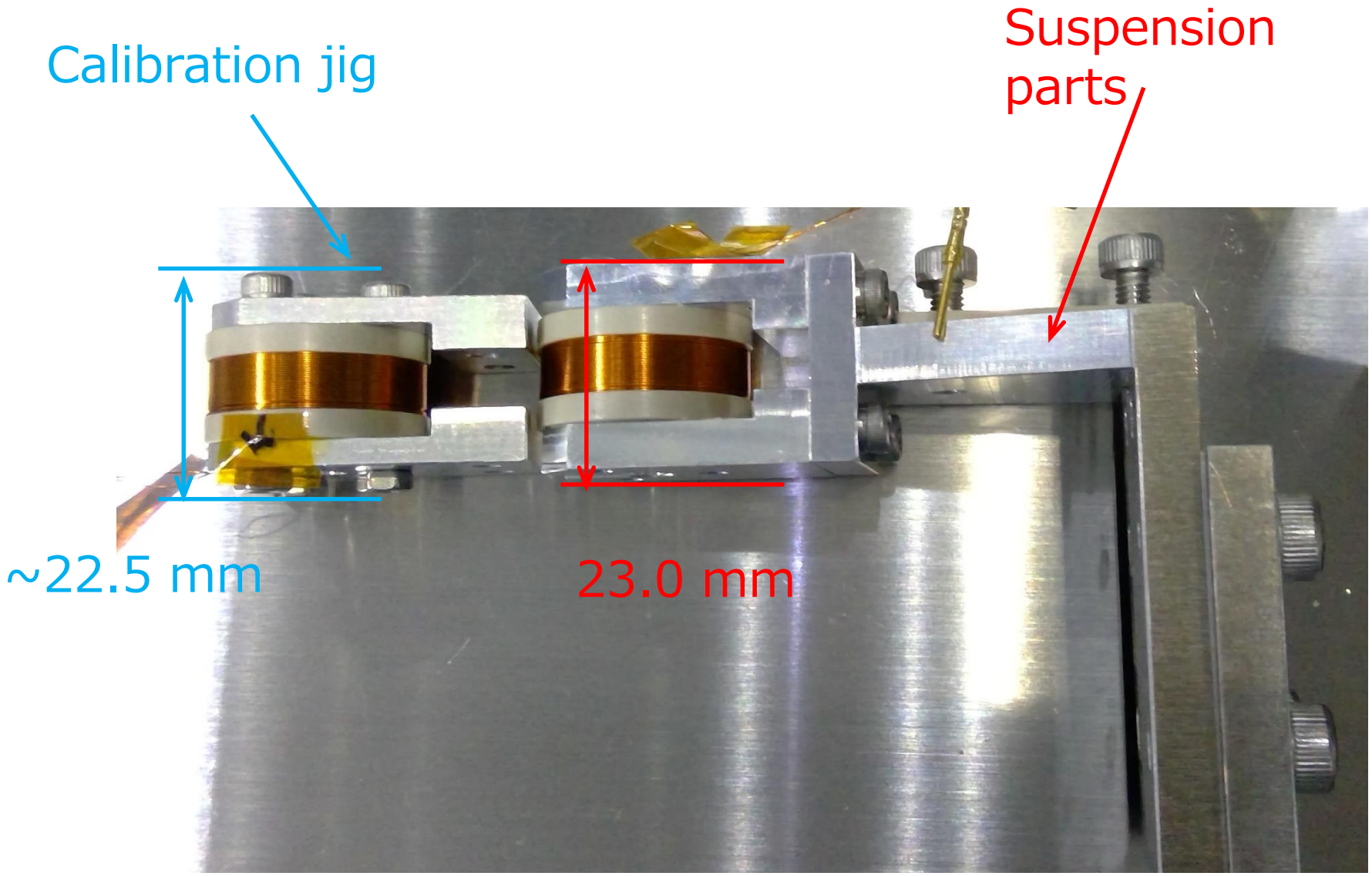
Calibration coordinate:



Note:

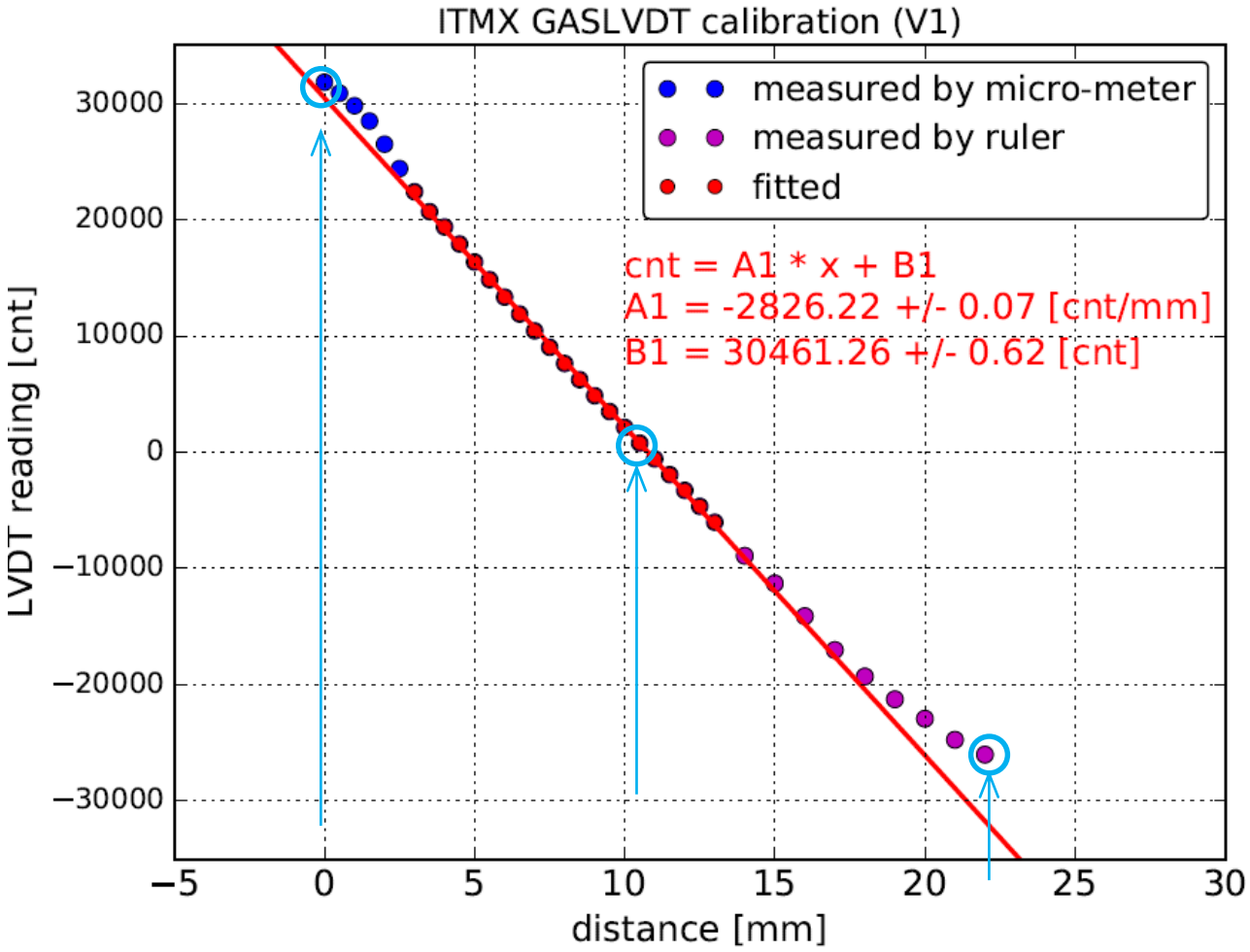


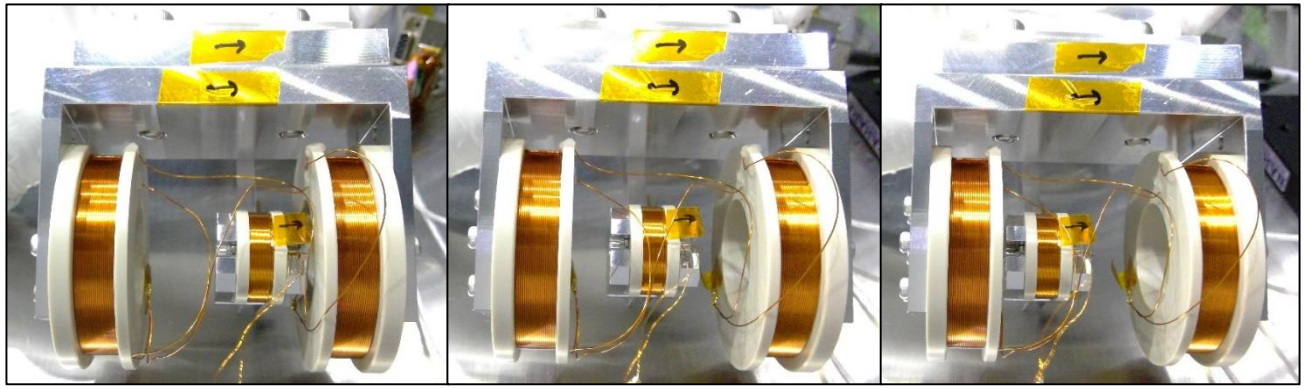
Calibration jig:



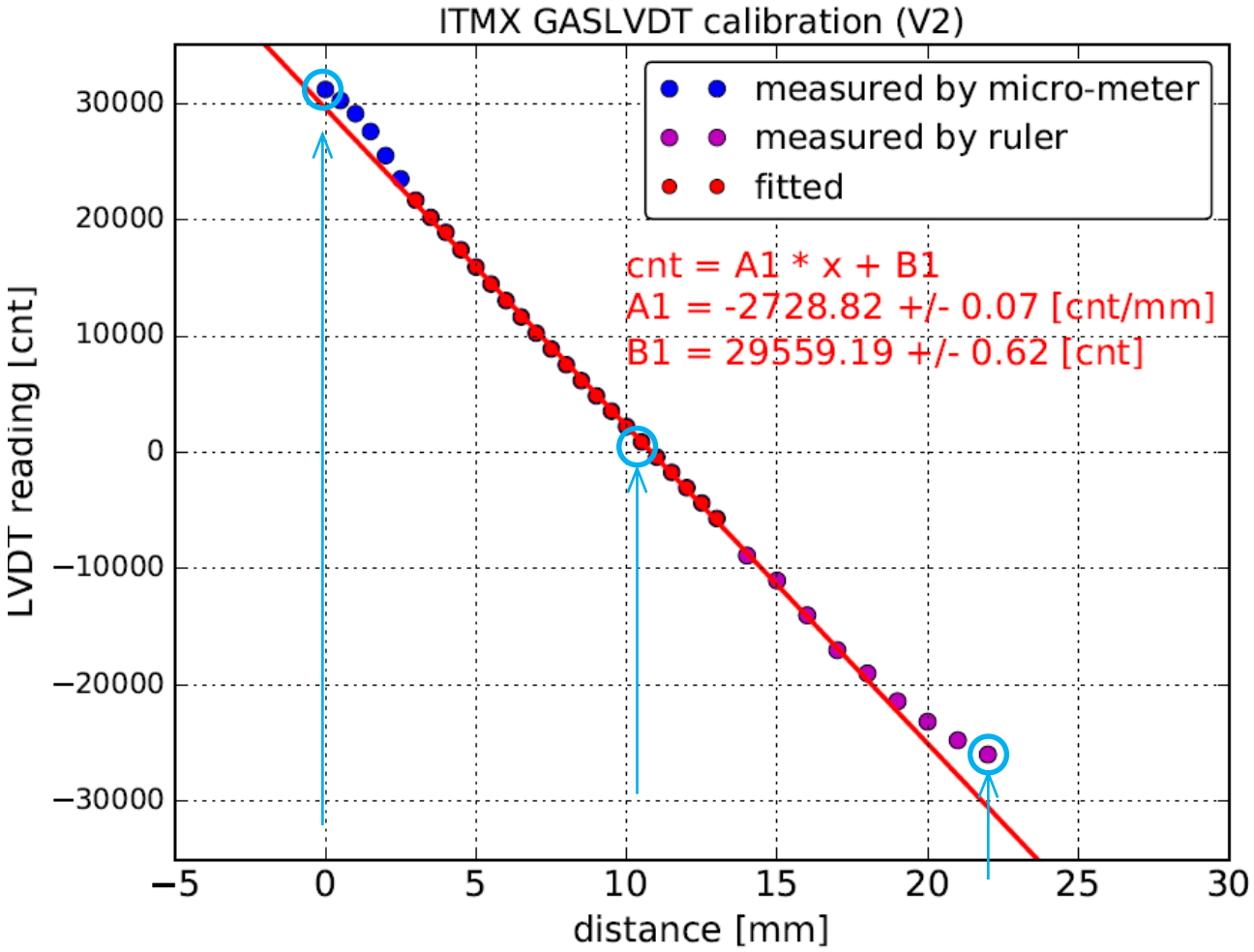
*Mostly same configuration with the actual system.

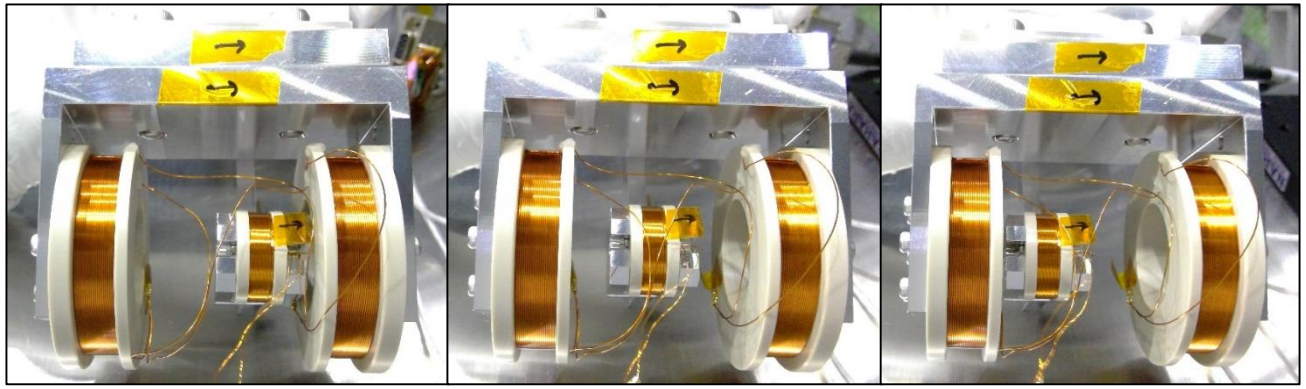
ITMX BF-LVDT: V1



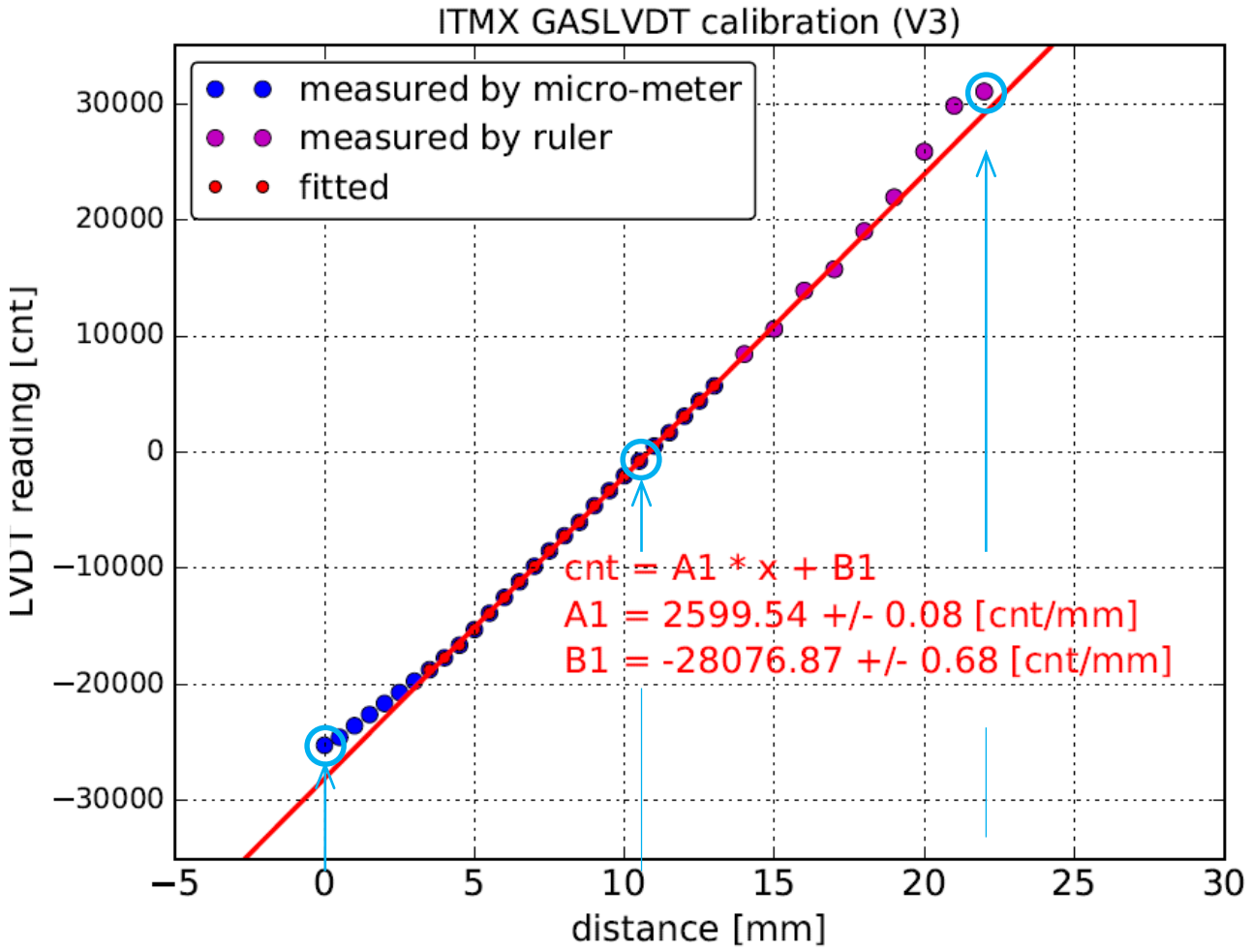


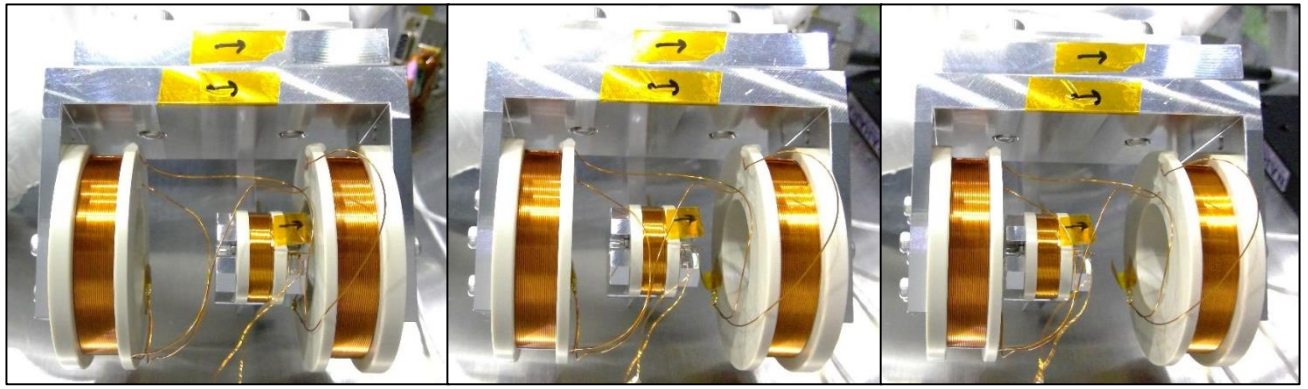
ITMX BF-LVDT: V2



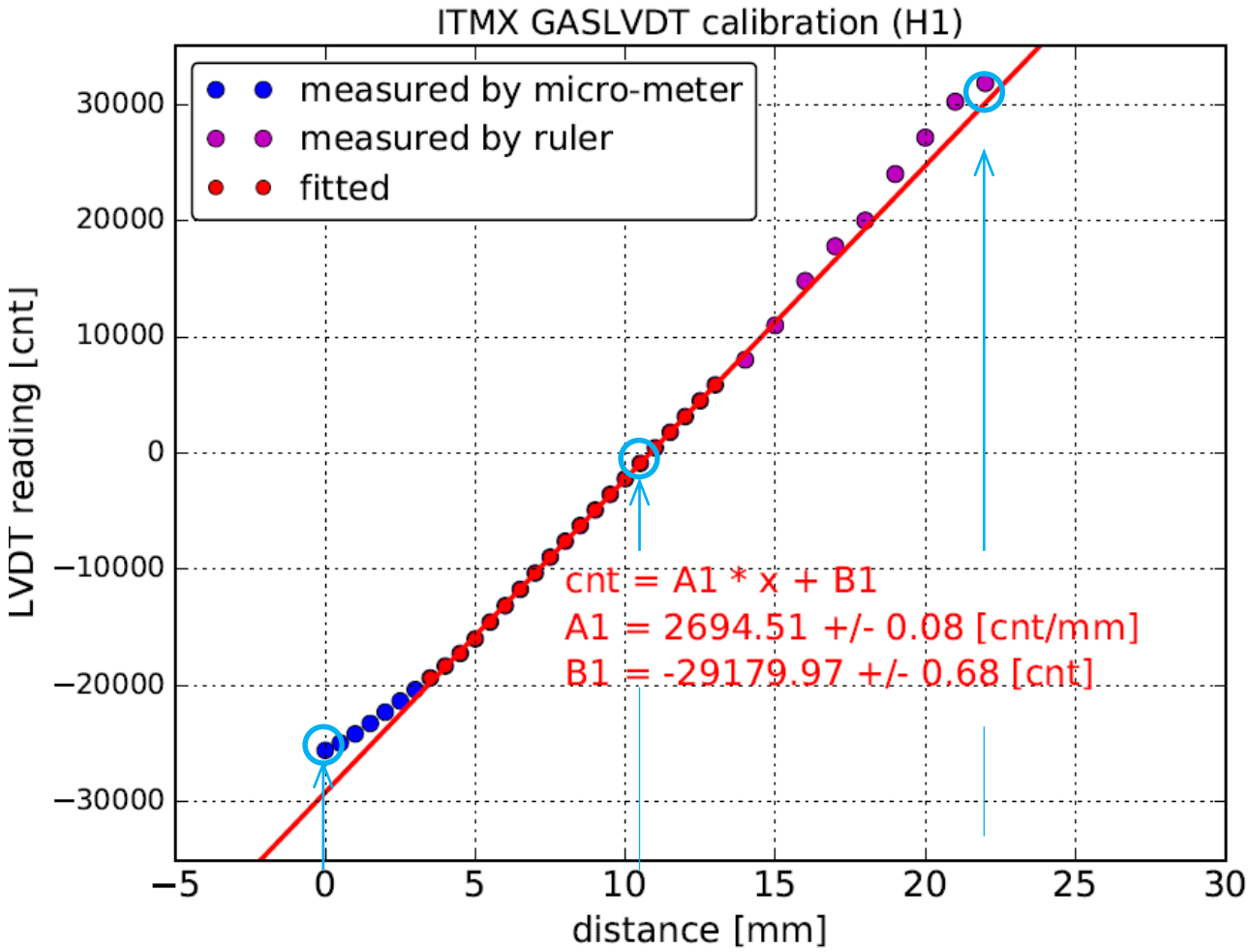


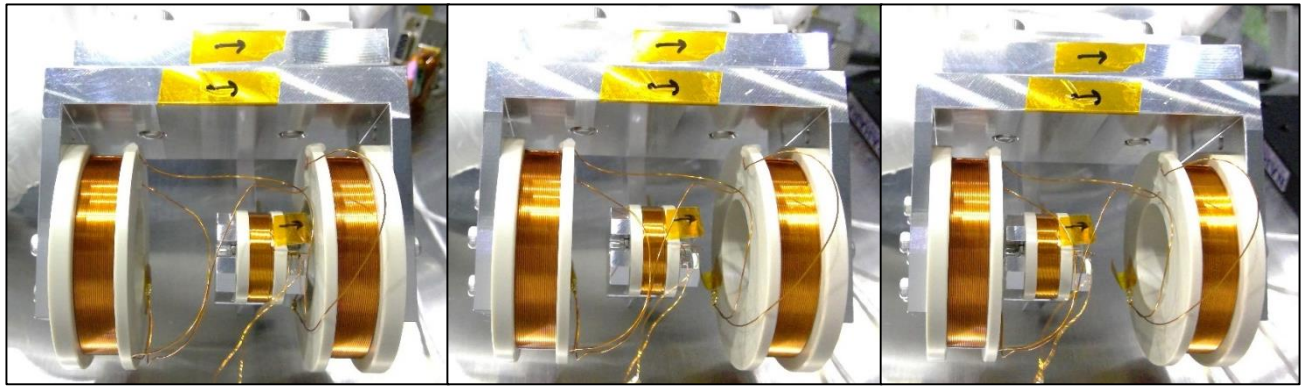
ITMX BF-LVDT: V3



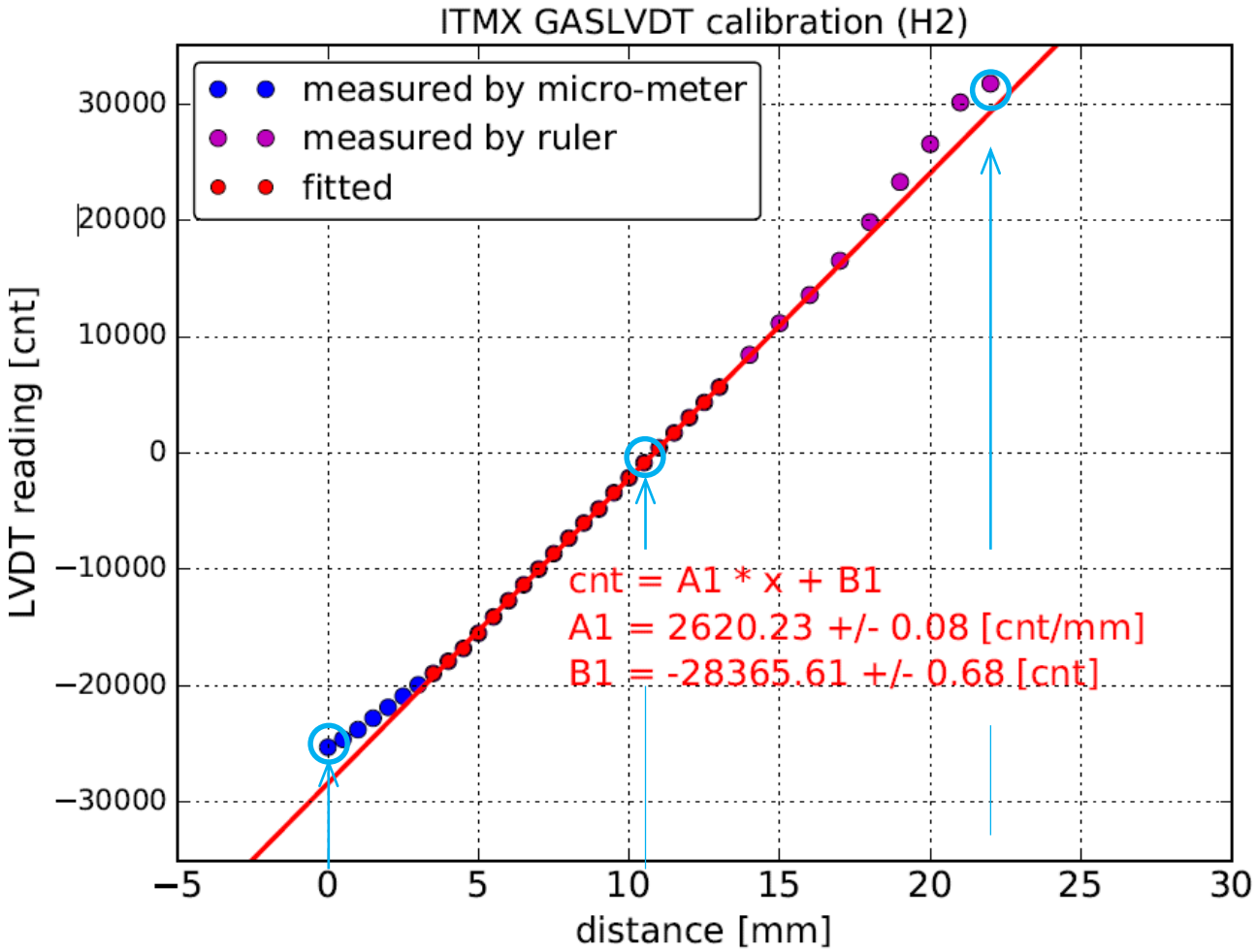


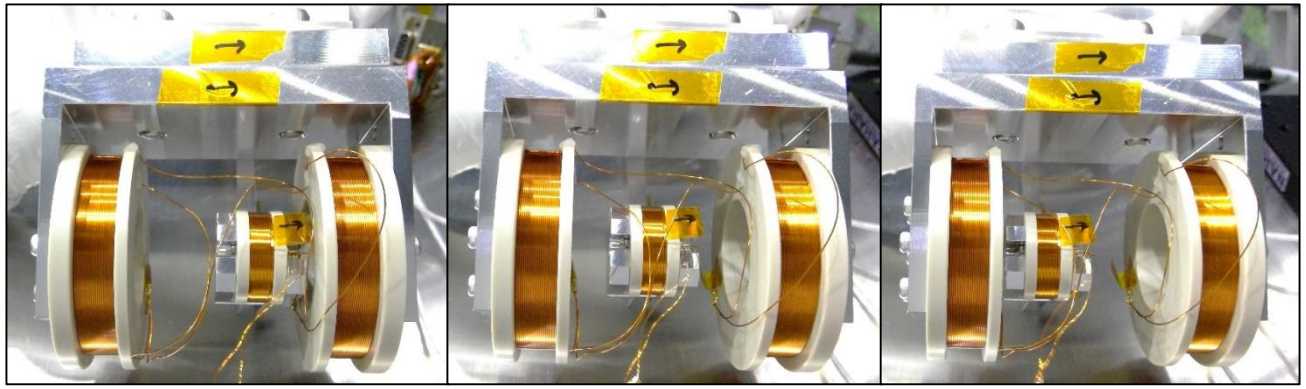
ITMX BF-LVDT: H1



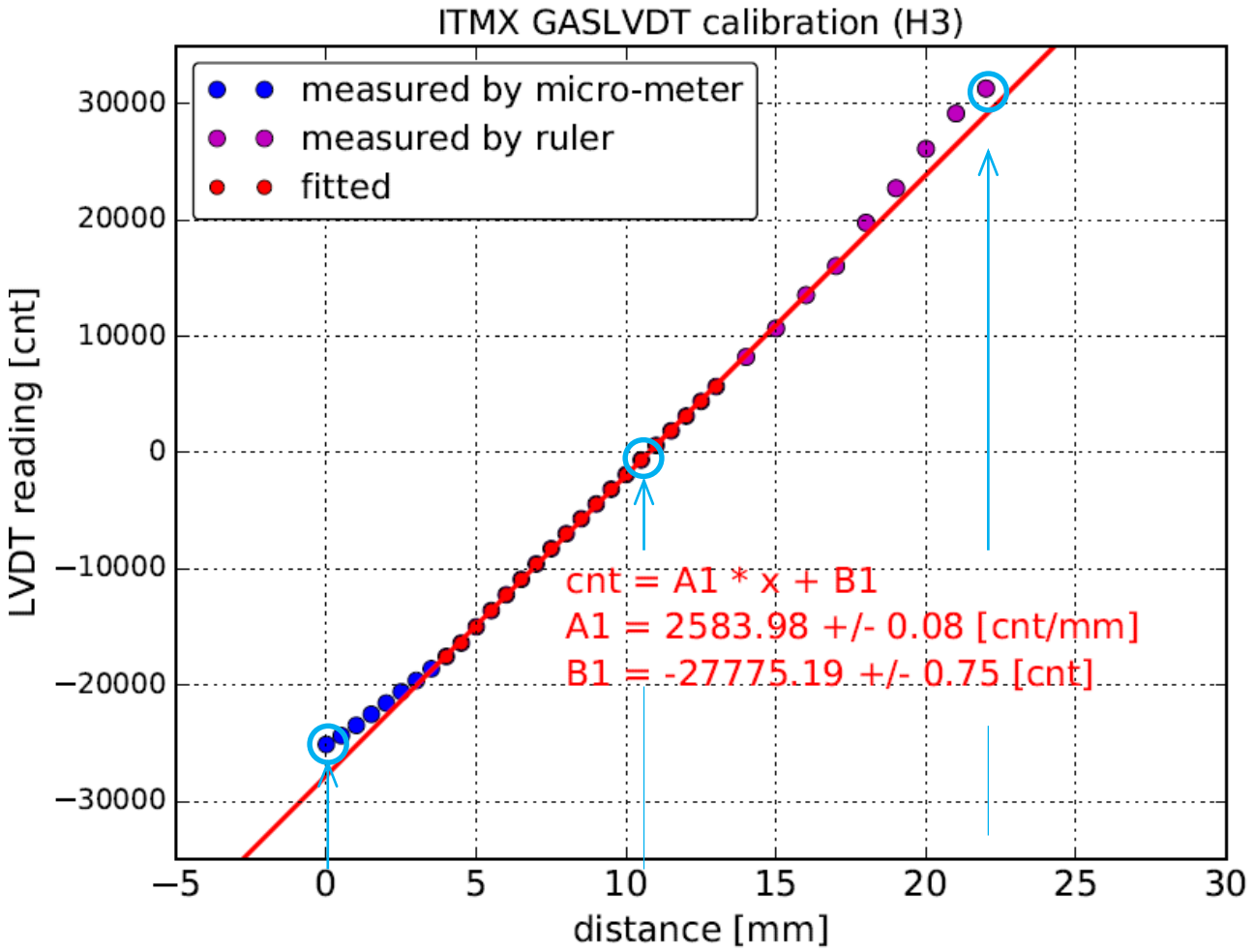


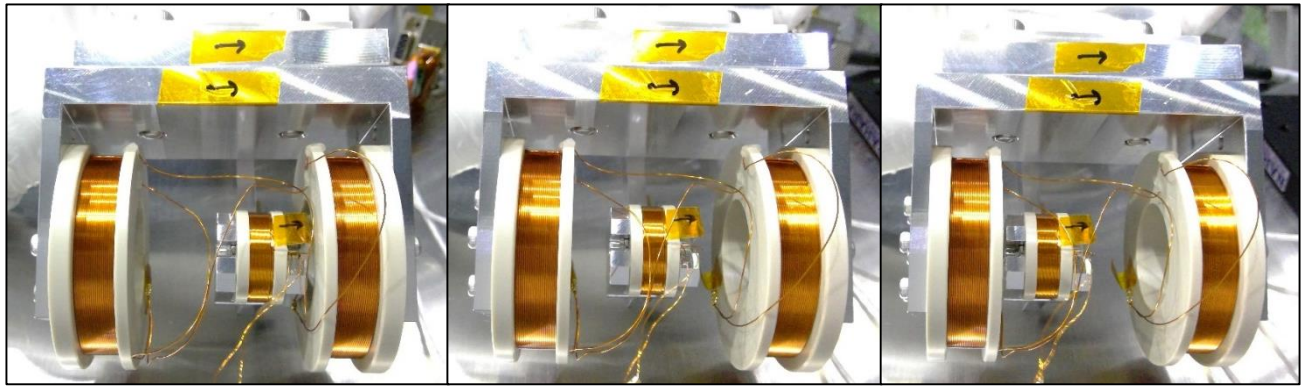
ITMX BF-LVDT: H2



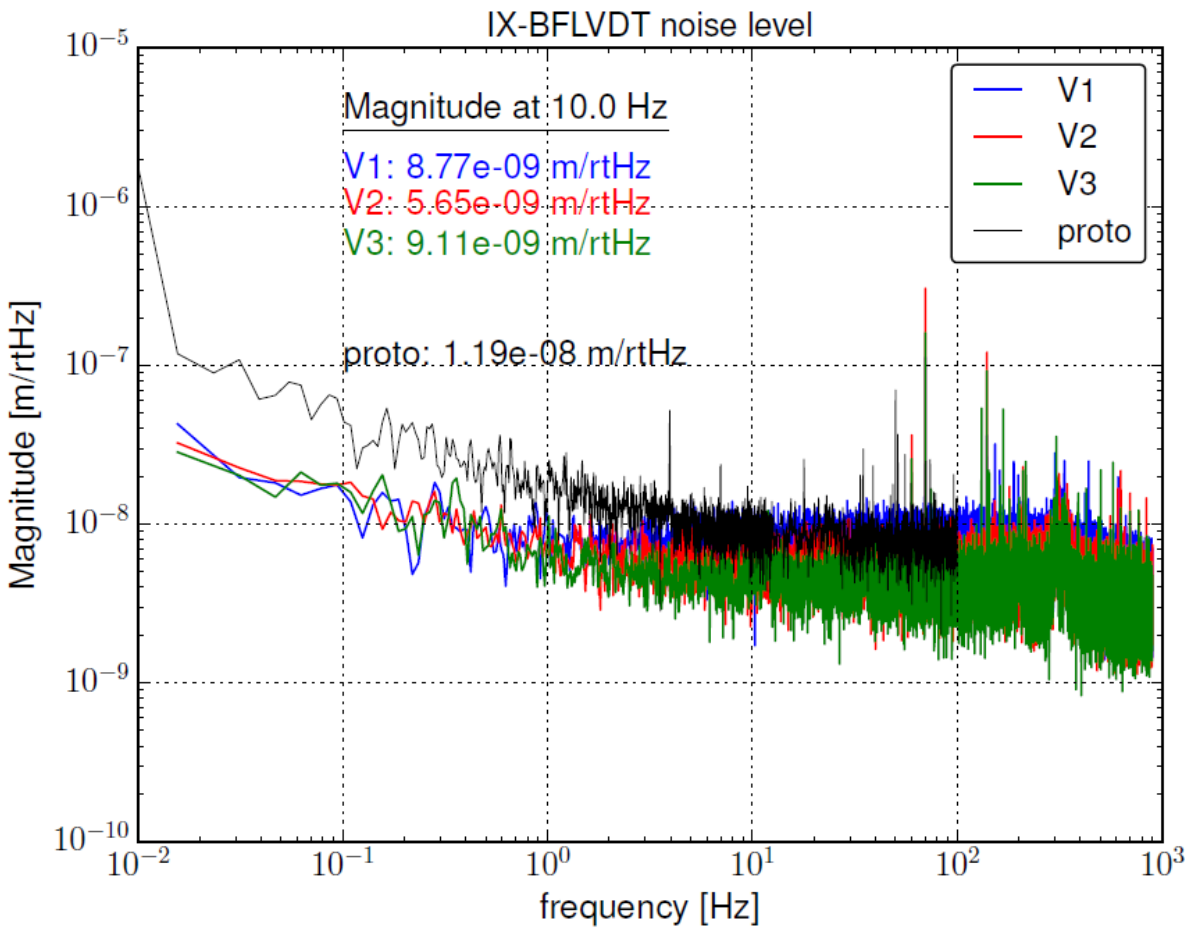


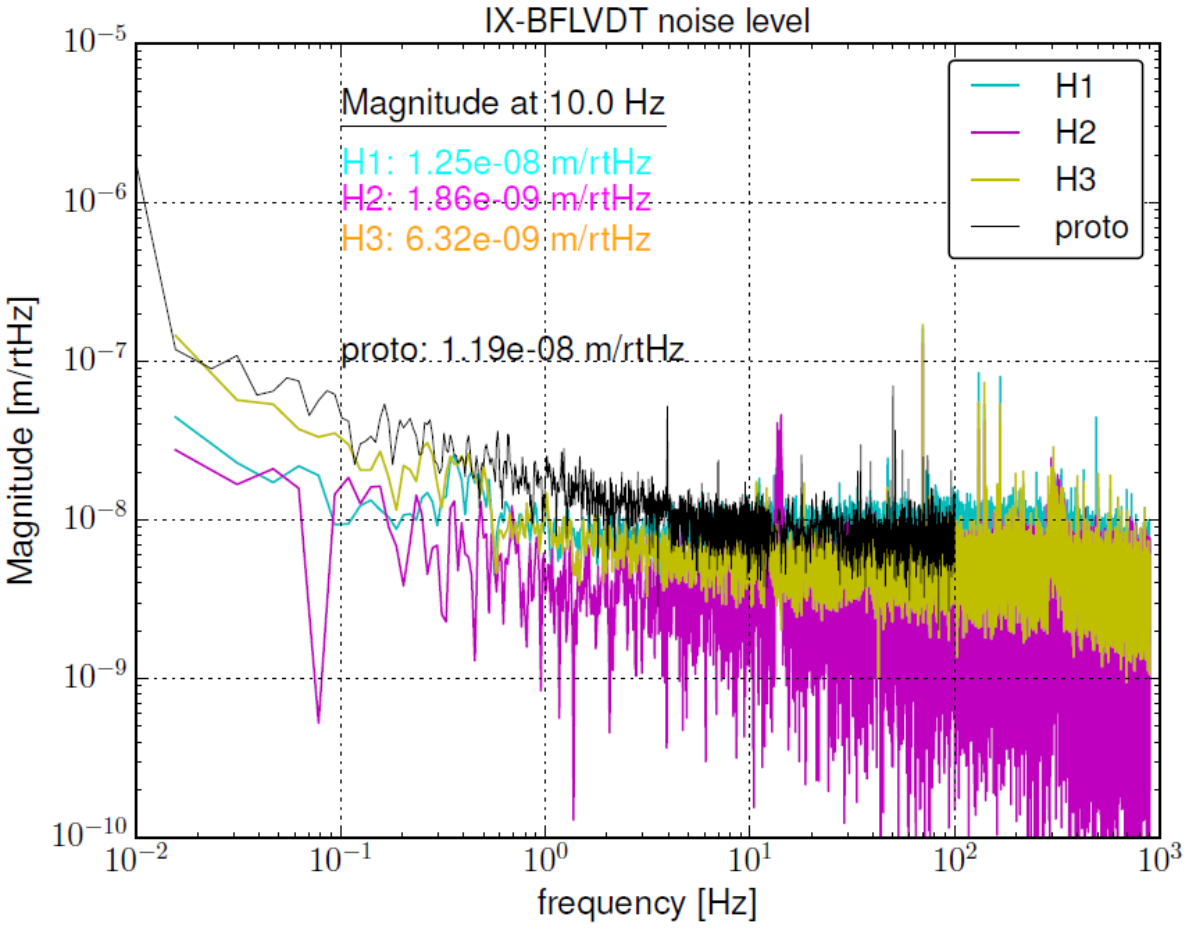
ITMX BF-LVDT: H3





Noise level of ITMX BF-LVDT:

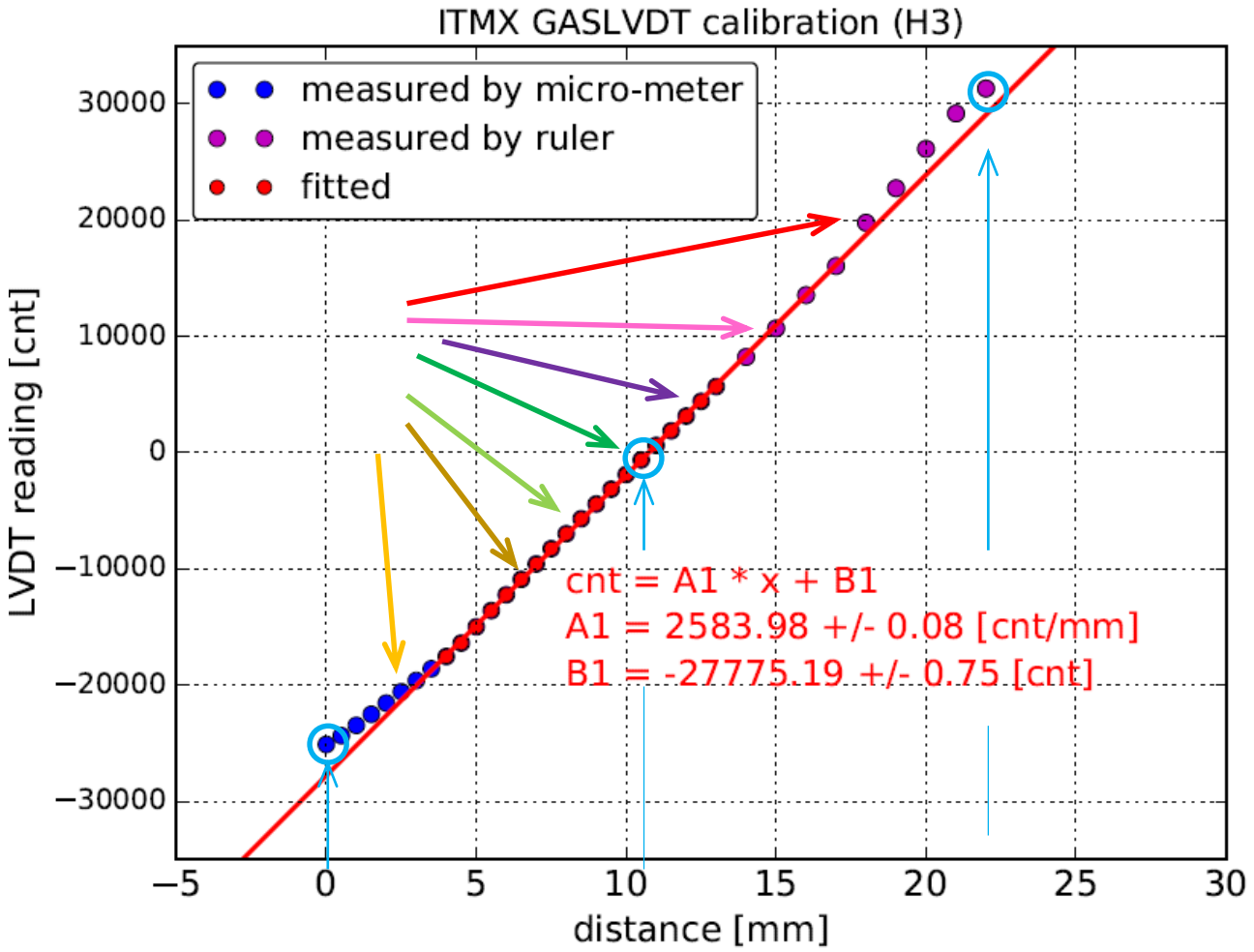


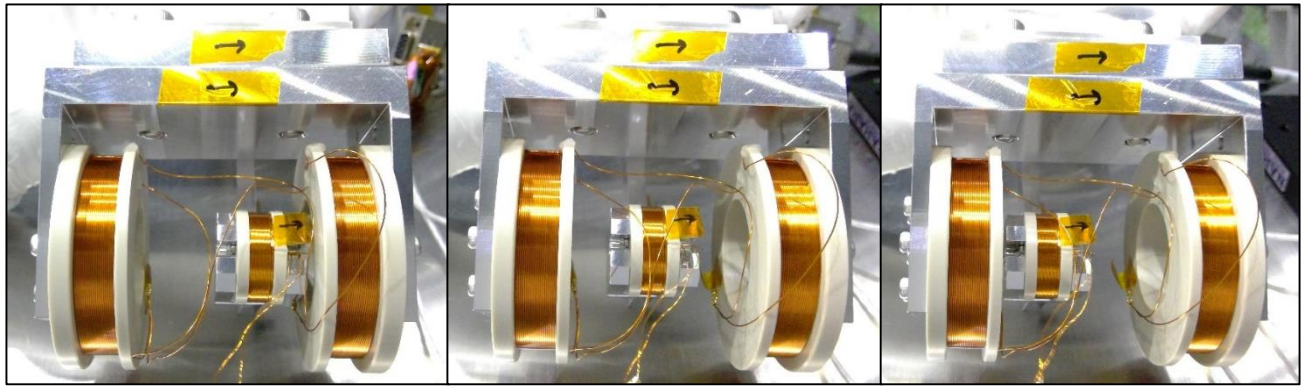


*The primary coil was locked at the center of the linear range, and then these spectra were measured.

* ”proto” is from: https://granite.phys.s.u-tokyo.ac.jp/svn/LCGT/trunk/VIS/SuspensionControlModel/noise/F7LVDTprotonoise.dat

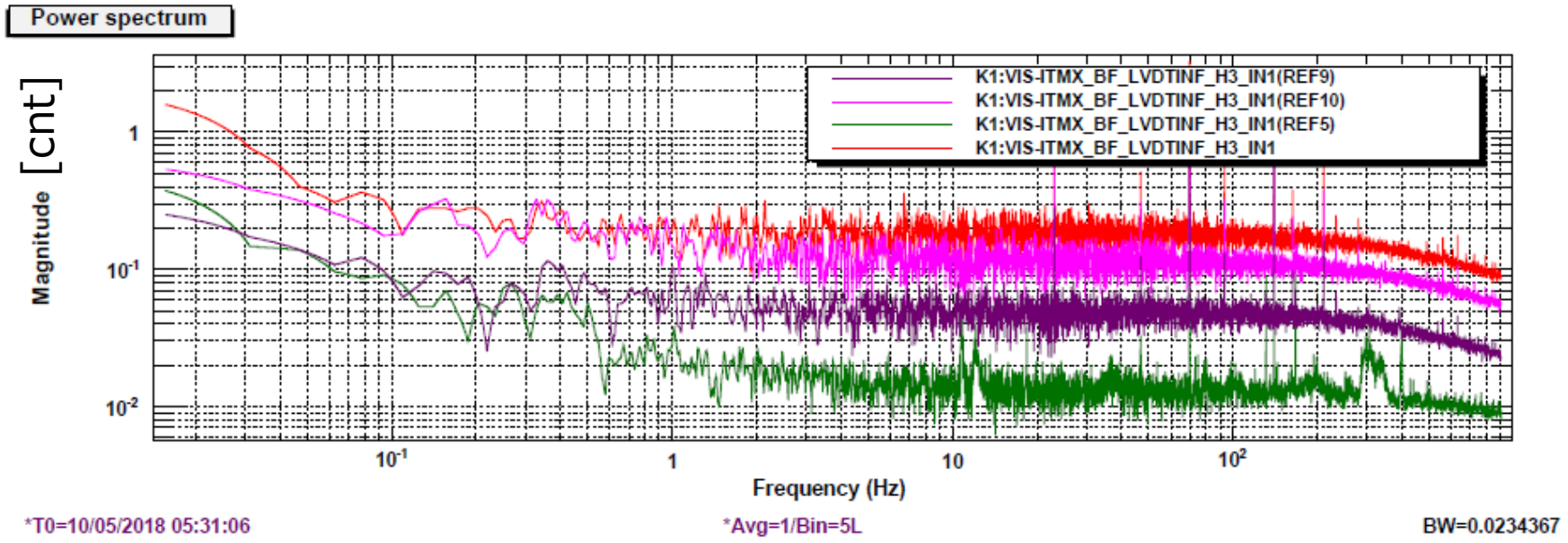
Noise level of ITMX BF-LVDT at some positions:

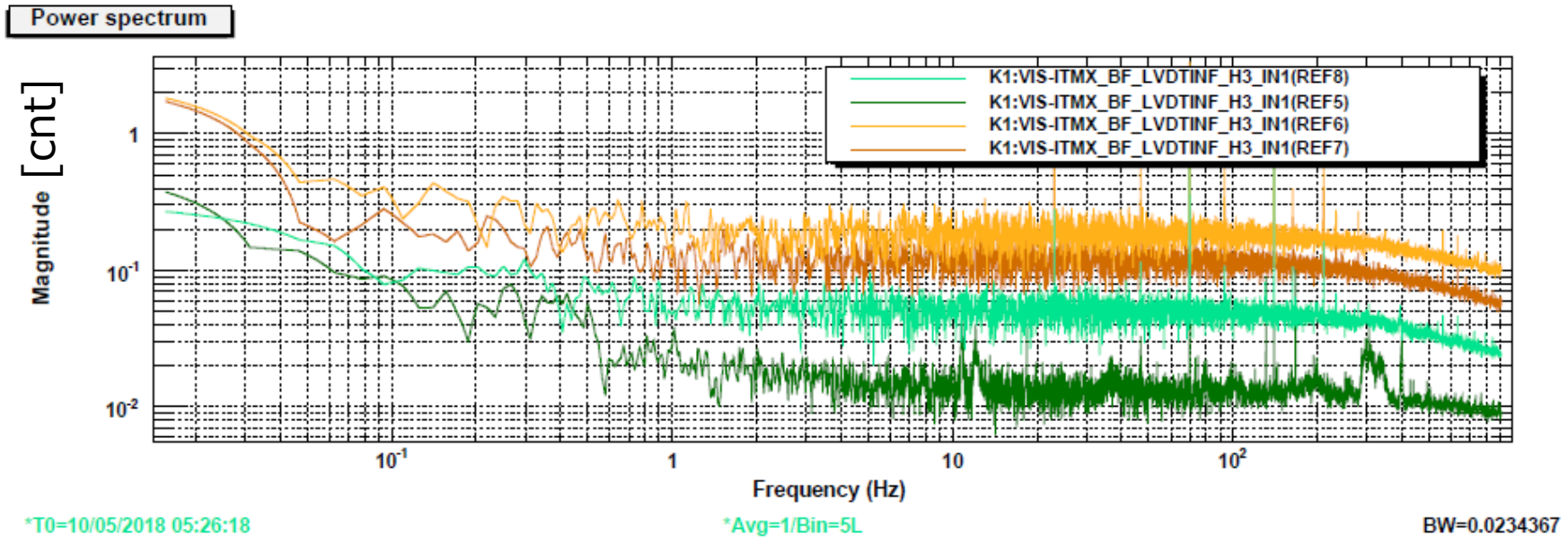




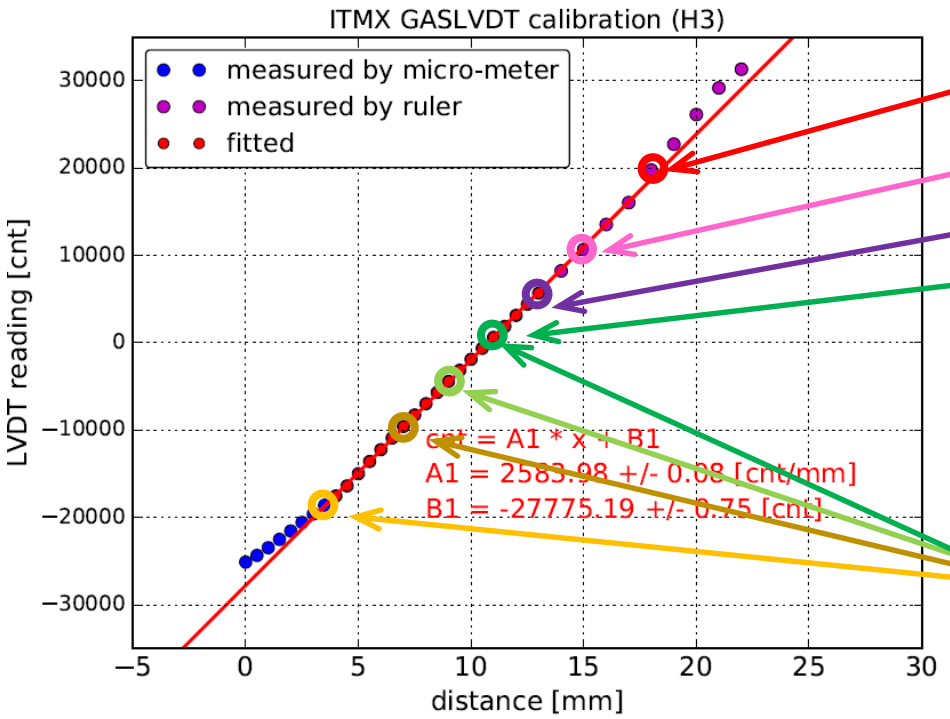
Noise level of ITMX BF-LVDT-H3:

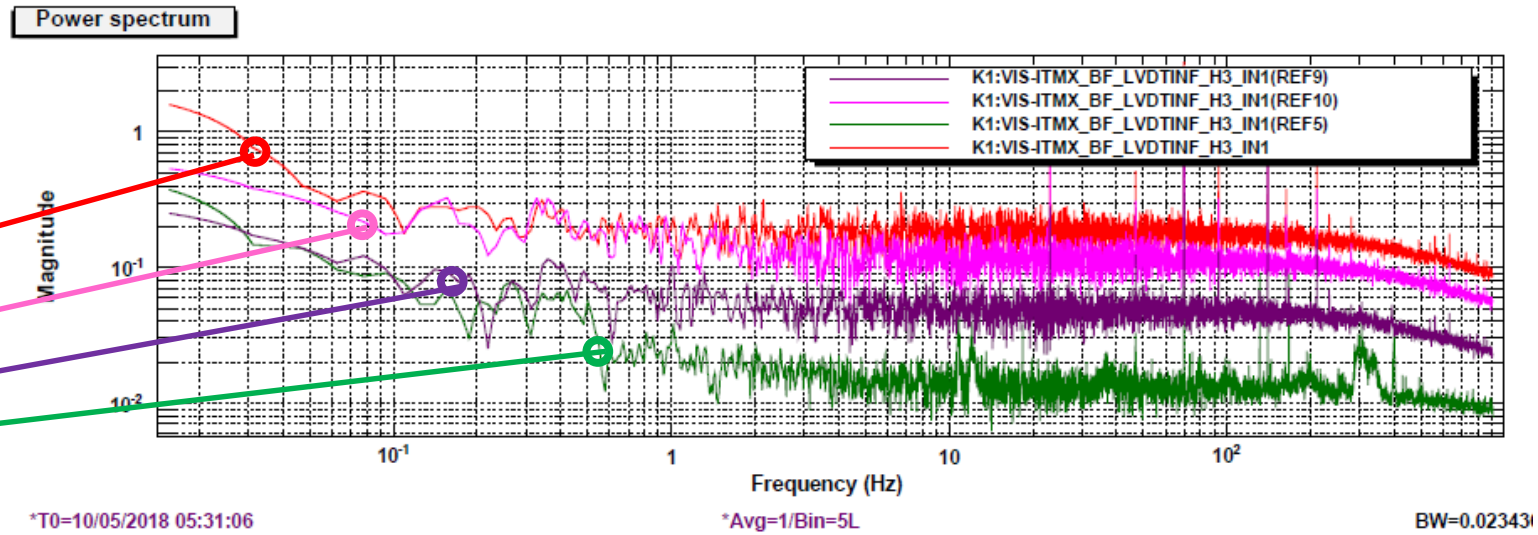
calibration factor
= 1/2583.98*1e-3 [m/cnt]

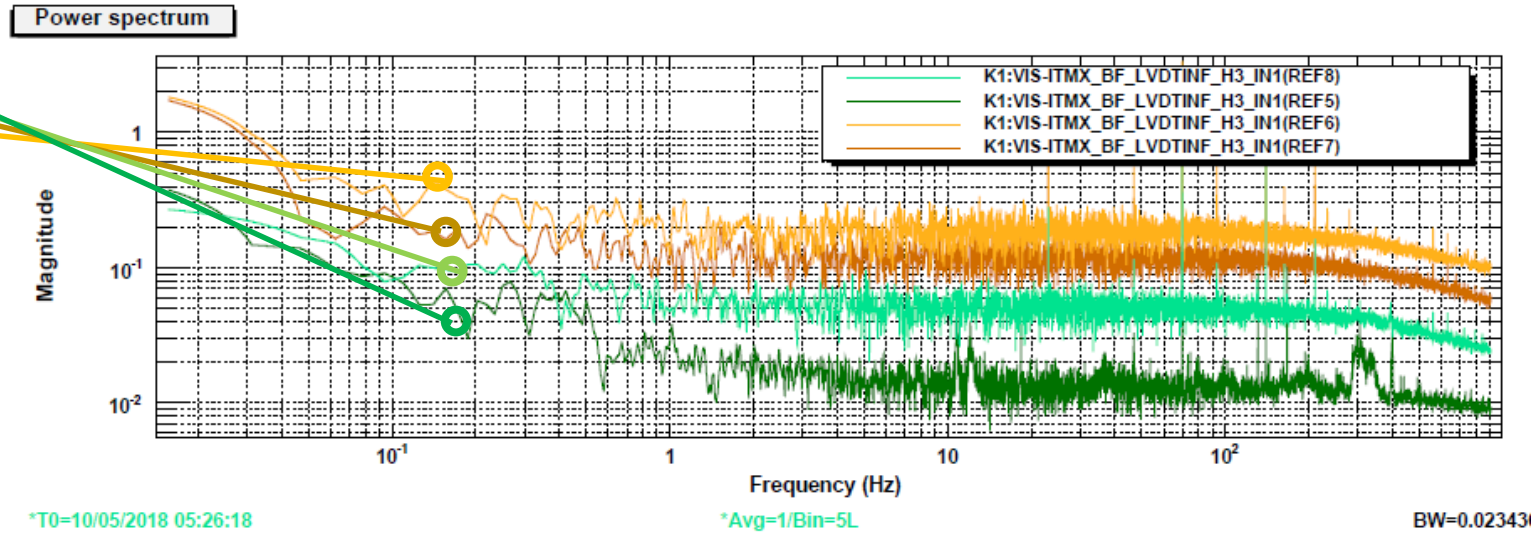




Noise level of ITMX BF-LVDT-H3:







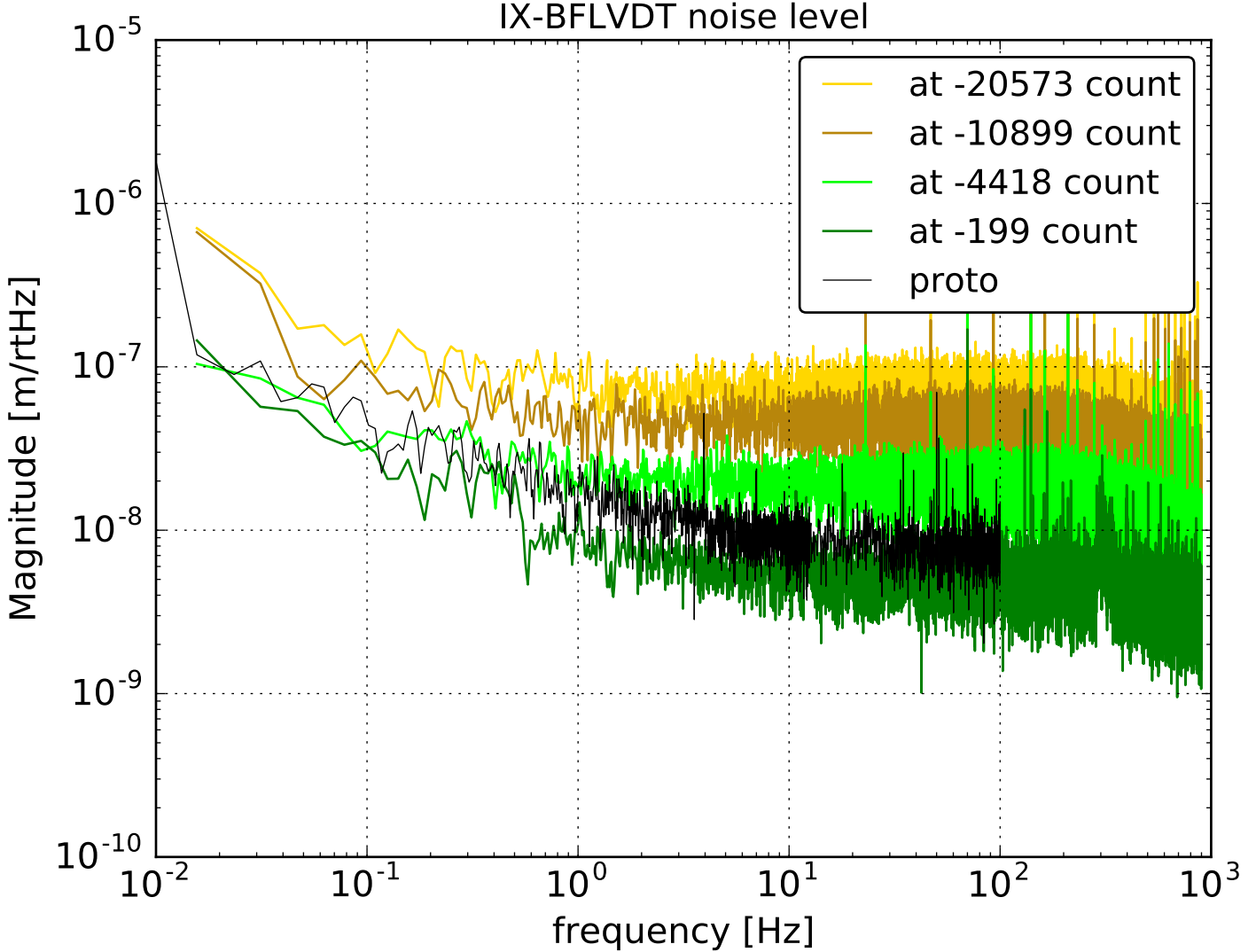
The primary coil was locked at the above positions, and then the spectra were measured.

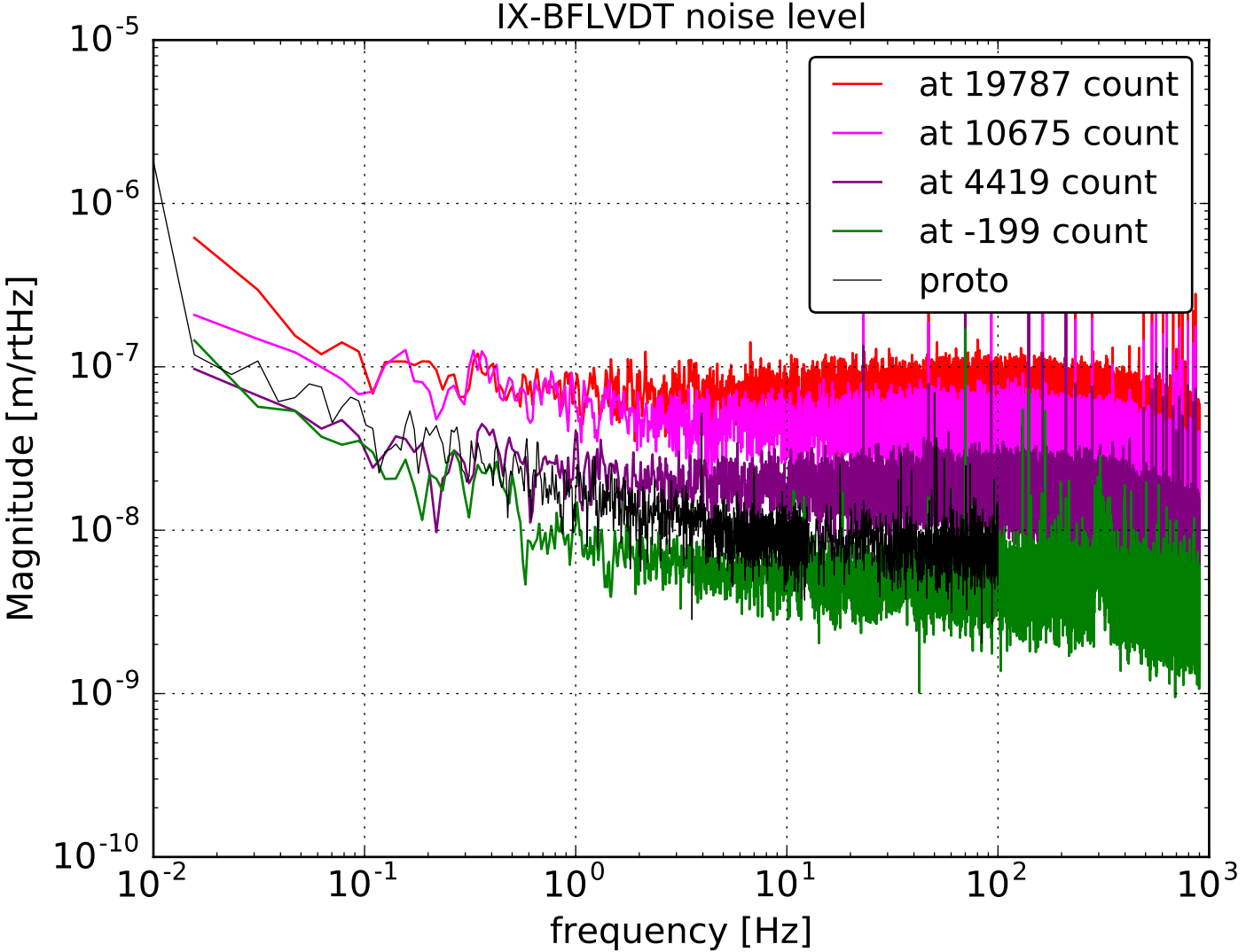
→ Depending on the position, the noise floor changed by ~one order of magnitude.

Noise level of ITMX BF-LVDT-H3:

→ We will have larger noise if we do not use BF-LVDT at the center of its linear range.

→ Since the “proto” was used as BF-LVDT noise in a simulation so far (I think), we might have to update BF-LVDT noise in the simulation.


IX-BFLVDT noise level
at -20573 count
at -10899 count
at -4418 count
at -199 count
proto
Magnitude [m/rtHz]
frequency [Hz]
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-2
10^-1
10^0
10^1
10^2
10^3


IX-BFLVDT noise level
at 19787 count
at 10675 count
at 4419 count
at -199 count
proto
Magnitude [m/rtHz]
frequency [Hz]
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-2
10^-1
10^0
10^1
10^2
10^3