Deferred Scope

=ESS.NSS.H01.LOKI

PRESENTED BY ANDREW JACKSON

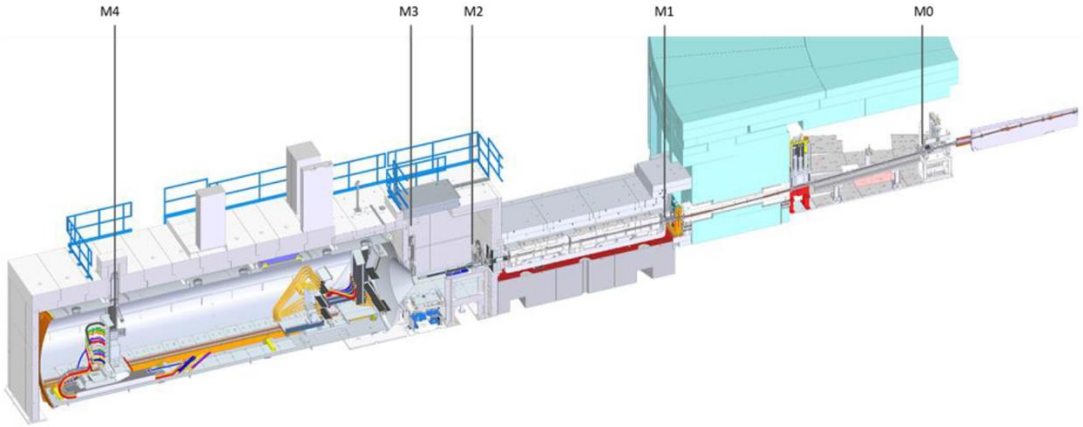
2025-09-10

Beam Validation System

=ESS.NSS.H01.LOKI.A01.B01

CR0637 – CCB Approved 2025-09-04

LoKI Beam Monitors M2, M3 and M4 are deferred to after the TG5/SAR milestone. Beam Monitors M0 and M1 (priority bunker and chopper) have been delivered and installed, but the firmware needed to test and operate them has yet to be delivered.



M0 and M1 are needed for early hot commissioning : 3-4 months post-BOT (TOF validation, chopper commissioning).
M2, M3, M4 are needed for late hot commissioning : 6-8 months post-BOT (measurement of standard samples, detector calibration)

Remaining beam monitors (M2, M3, M4) to be delivered to ESS and ready for installation by November 2025. Testing and acceptance to be completed by March 2026.

Firmware to be delivered as soon as FATs at ISIS are complete on M2, M3, M4 – testing for M0 and M1 can begin as soon as we have the firmware installed and need not wait for installation of M2, M3, M4.

The purpose of the beam monitors:

M0: provides the first measurement of neutrons coming from the moderator on the LoKI instrument. At the same time, it provides the diagnostic for the first chopper.

M1: provides the diagnostics for the second LoKI chopper. It is not used for normalization.

M2: provides the normalization for LoKI science. It is movable to minimise the potential scattering from the monitor to the sample area.

M3: measures the transmitted neutrons from the sample. It is placed as close as possible to the sample to cover as big as possible solid angles after the sample. It is movable to allow transmission measurements with the monitor in the beam but also let the beam through for the SANS measurements.

M4: measures the transmitted signal as close as possible to the rear detector, the main detector providing the SANS signal. It is movable to follow the beam stop depending onthe instrument settings.

(extract from ESS-1108658 - LOKI: SUB-SYSTEM DESIGN DESCRIPTION FOR 13.6.3.1.6 BEAM VALIDATION)