

Neutron Optics and Shielding Group TG2 Summary FREIA Instrument

Review

Date
19th January 2018

2017-18 TG2 Round for ESS Instruments

Technical Reviewer:
Damian Martin Rodriguez

Input received from

Preamble

This document is the review summary of the instrument's optical and shielding system preliminary design. Systems outside of this scope have not been considered, except where they significantly impact on optics and shielding.

1. Executive Summary

The reviewer considers that from the *perspective of optics* the concept of the design is sufficiently complete and mature. However, there are significant deficiencies in working practice and risk assessments.

2. Proposal Grading












For each item, a grade is given for the preliminary system design (column "NOSG Status"),

"GREEN": All aspects of the criterion have been addressed satisfactorily to permit endorsement by the NOSG to the detailed design phase.

"ORANGE": Some aspects of the criterion have not been addressed satisfactorily. However, if minor changes are made to the documentation or system then NOSG endorsement may be possible.

"RED": Some aspects of the criterion have not been addressed satisfactorily, and there are reasons to doubt they can be achieved without significant work. Currently it is not recommended to proceed.

Grades are indicated as traffic lights:  = green,  = orange,  = red.

Criterion	NOSG Status	Comments
Has adequate planning been done to move the project into Phase 2?		
Is the proposed budget consistent with the proposed scope?		
Does the preliminary design satisfy the requirements?		
Is the presented baseline technically sound?		Time resolved slit system needs more clarification
Has anything been forgotten or neglected?		Comparison with alternative configurations and Version controlled simulations
In case where several In-kind partners are collaborating – are roles and responsibilities adequately defined and agreed?		
Have safety-related aspects in accordance with ESS-0043330 ref [6] been appropriately considered?		
To what extent have appropriate connections been made with the critical project interfaces, such as software, data storage hardware and sample environment?	NA	
Has the instrument context been appropriately considered in terms of physical interfaces, such as bunker, beam extraction, ICS etc?		
To what extent have available engineering standards been implemented appropriately?		
Are the cost and duration estimates reasonable?		
To what extent has the team planned appropriately for the risks, both technical and otherwise?		

1) Currently Identified Issues

Most of the issues are linked to optics. We felt that the shielding work is of a high standard and more than sufficient at present.

- There is no comparison with alternative configurations and no simulation files have been committed in our repository. However, this was communicated in advance from FREIA team due to the former instrument scientist's leave. It is expected to have those later.
- The time-resolved slit system is very complex and according to their estimations they require further R&D, adding further risk to the project. Instead of having a system with a fixed slit system with defined incident angles, they have a movable slit system and the advantage of adding that versatility is not fully understood. Is it necessary to move the detector tank with the same speed as the slit system? If it is necessary, then how would they plan to move the detector tank with the required precision and speed?
- It was agreed by an expert committee that it was not allowed to use a coating with an m greater than 4. FREIA guide uses $m=6$ and it is counted as a risk in their risk register. Has it been allowed by NSS management?
- There is also a statement of ESS labour costs being "free of charge". However, the technical help coming from technology groups has to be charge to the instrument project. Is there any agreement on what is "free of charge" and what is not?
- No NOSG person appears as reviewer of the documents despite they appear the heads of other technology groups.

1. Detailed/other comments

The project has not followed NOSG procedures on version control [ESS-0059811], i.e. the simulation source code commits do not appear in our repositories.

Additional Notes During Meeting