US HL-LHC Accelerator Upgrade Project

MQXFA20 Structure & Shims Review

1. Goal & scope

The HL-LHC AUP project is starting the assembly of MQXFA20 quadrupole magnet. If MQXFA20 meets MQXFA requirements [1] it will be used in a Q1/Q3 cryo-assembly to be installed in the HL-LHC.

MQXFA20 coils were presented and approved at the MQXFA20 Coil Acceptance Review [2].

Discrepancy or Non-Conformity Reports are generated whenever a component does not meet specifications [3-4].

The goal of this review is to evaluate MQXFA20 structure and the proposed shim plan including tapered load shims.

2. Charge questions

The committee is requested to answer the following questions:

1. Have all recommendations from previous reviews [5] been adequately addressed?
2. Have discrepancies and non-conformities been adequately documented and processed?
3. If there are major/critical non-conformities, have they been adequately documented and processed?
4. Are the proposed shims adequate for allowing MQXFA20 to meet MQXFA requirements [1]?
5. Do you have any other comment or recommendation to assure MQXFA20 is going to meet requirements?

3. Technical information

Committee
Peter Wanderer, chairperson (BNL)
Mike Anerella (BNL)
Susana Izquierdo Bermudez (CERN)

Date and Time
January 23, 2025.
Start time is 7:00/9:00/10:00/16:00 (LBNL/FNAL/BNL/CERN)

Location/Connection
Video-link by Zoom, info by email.

Link to agenda with talks and other documents
MQXFA20 Structure & Shims Review (January 23, 2025) · INDICO-FNAL (Indico)

4. References

1) *MQXFA Functional Requirements Specification,* US-HiLumi-doc-36.
2) *MQXFA20 Coils Acceptance Review*, US-HiLumi-doc-5434.
3) *MQXFA Series Magnet Production Specification*, US-HiLumi-doc-4009.
4) *Handling of Discrepancies and Nonconformances*, US-HiLumi-doc-2484.
5) *MQXFA19 Structure and Shims Review*, US-HiLumi-doc-5381.