



MQXFA14 Structure & Shims Review

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US HL-LHC Accelerator Upgrade Project

MQXFA14 Structure & Shims Review



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1. Goal & scope

The HL-LHC AUP project is starting the assembly of MQXFA14 magnet. This is the 7th series magnet of the MQXFA low beta quadrupoles to be used in Q1 and Q3 for the High Luminosity LHC. If MQXFA14 meets MQXFA requirements [1] it will be used in a Q1/Q3 cryo-assembly to be installed in the HL-LHC.

MQXFA14 coils were reviewed on December 16, 2022 [2].

MQXFA14 is going to use the structure used for MQXFA12 before it was disassembled. MQXFA12 structure was reviewed during the *MQXFA12 Structure and Shim review* on August 25, 2022 [3].

MQXFA Series magnet specifications are presented in [4]. Discrepancy or Non-Conformity Reports are generated whenever a component does not meet specifications [5].

The goal of this review is to evaluate MQXFA14 structure and shim plan. Reviewers should also assess that discrepancies and non-conformities of the magnet structure have been adequately processed, and that the shims will allow MQXFA14 to meet MQXFA requirements [1].

2. Charges

The committee is requested to answer the following questions:

1. Have all recommendations from previous reviews [6] been adequately addressed?
2. Have discrepancies and non-conformities been adequately documented and processed?
3. If there are major non-conformities [5], have they been adequately documented and processed?
4. Are the proposed shims adequate for allowing MQXFA14 to meet MQXFA requirements [1]?
5. Do you have any other comment or recommendation to assure MQXFA14 is going to meet requirements?



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3. Technical information

Committee

Peter Wanderer, chairperson (BNL)
Rodger Bossert, (FNAL)
Mike Anerella, (BNL)
Susana Izquierdo Bermudez (CERN)

Date and Time

February 7, 2023.
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

<https://indico.fnal.gov/event/58119/>

4. References

- 1) *MQXFA Functional Requirements Specification*, US-HiLumi-doc-36.
- 2) *MQXFA14 Coils Acceptance Review*, US-HiLumi-doc-4769.
- 3) *MQXFA12 Structure & Shims Review*, US-HiLumi-doc-4329.
- 4) *MQXFA Series Magnet Production Specification*, US-HiLumi-doc-4009.
- 5) *Handling of Discrepancies and Nonconformances*, US-HiLumi-doc-2484.
- 6) *MQXFA13 Structure & Shims Review*, US-HiLumi-doc-4747.