



MQXFA05 Structure & Shims Review

US-HiLumi-doc-2904

Other:

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US HL-LHC Accelerator Upgrade Project

MQXFA05 Structure & Shims Review



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1. Goal & scope

The HL-LHC AUP project is starting the assembly of MQXFA05 magnet. MQXFA05 is the third pre-series of the MQXFA low beta quadrupoles to be used in Q1 and Q3 for the High Luminosity LHC. If MQXFA05 meets MQXFA requirements [1] it will be used in a Q1/Q3 cryo-assembly to be installed in the HL-LHC.

MQXFA05 coils were reviewed on January 29, 2020 [2].

MQXFA pre-load targets and pre-loading sequence for MQXFA03 and following magnets were approved by AUP Technical Board on July 5, 2019 [3].

The goal of this review is to evaluate the MQXFA05 structure and shim plan. The reviewers are requested to assess that the MQXFA05 structure meets the MQXFA Structural Design Criteria [4], that non-conformities have been adequately processed, and that structure and shims will allow MQXFA05 to meet MQXFA requirements [1].

2. Charges

The committee is requested to answer the following questions:

1. Does the MQXFA05 structure meet the MQXFA Structural Design Criteria [4]?
2. Are there major non-conformities? If answer is yes, have they been adequately documented and processed?
3. Are the proposed shims adequate for allowing MQXFA05 to meet MQXFA requirements [1]?
4. Is there anything that could prevent MQXFA05 to meet the MQXFA Interface Specification [5]?
5. Have all recommendations from previous relevant reviews [6] been adequately addressed?
6. Do you have any other comment or recommendation to assure MQXFA05 is going to meet requirements?



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3. Technical information

Committee

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

Date and Time

March 12, 2020. Start time is 7/9/10/15 (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/23485/>

4. References

- 1) *MQXFA Functional Requirements Specification*, US-HiLumi-doc-36.
- 2) *Report of the MQXFA05 Coils Acceptance Review*, US-HiLumi-doc-2742.
- 3) *MQXFA03 pre-load targets and pre-loading sequence*, US-HiLumi-doc-2496.
- 4) *MQXFA Structural Design Criteria*, US-HiLumi-doc-909.
- 5) *MQXFA Magnet Interface Specification*, US-HiLumi-doc-1674.
- 6) *Report of the Review of the MQXFAP2 AI-Shell Issue and Lessons Learned*, US-HiLumi-doc-2192;
MQXFA04 Structure & Shims Review, US-HiLumi-doc-2505.