



MQXFA03 Structure & Loading Review

US-HiLumi-doc-2260

Other:

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US HL-LHC Accelerator Upgrade Project

MQXFA03 Structure & Loading Review



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1. Goal & scope

The HL-LHC AUP project is starting the assembly of MQXFA03 magnet. MQXFA03 is the first pre-series of the MQXFA low beta quadrupoles to be used in Q1 and Q3 for the High Luminosity LHC. If MQXFA03 meets MQXFA requirements [1] it will be used in the first Q1/Q3 cryo-assembly to be installed in the HL-LHC.

MQXFA03 coils and shim plan were reviewed on March 14, 2019 [2].

The goal of this review is to evaluate the MQXFA03 structure and pre-load targets. The reviewers are requested to assess that the MQXF03 structure meets the MQXFA Structural Design Criteria [3], that non-conformities have been adequately processed, and that structure and pre-load targets will allow MQXFA03 to meet MQXFA requirements [1].

2. Charges

The committee is requested to answer the following questions:

1. Do structure design and pre-load targets meet MQXFA Structural Design Criteria [3]?
2. Did structure fabrication and QC follow the recommendations of the *Review of the MQXFAP2 Al-Shell Issue and Lessons Learned* [4]?
3. Are there major non-conformities? If answer is yes, have they been adequately documented and processed?
4. Have all Lessons Learned from previous MQXF magnets been implemented in MQXFA03 travelers?
5. Are the proposed pre-load targets adequate for allowing MQXFA03 to meet MQXFA requirements [1]?
6. Do you have any other comment or recommendation to assure MQXFA03 is going to meet requirements?



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3. Technical information

Committee

Peter Wanderer – BNL, chairperson

Michael Anerella – BNL

Paolo Ferracin – CERN

Friedrich Lackner – CERN

Date and Time

May 22, 2019. Start time is 7:00 am (Pacific time)

Location/Connection

LBNL, room B47

Video-link by Zoom, info by email.

Link to agenda with talks and other documents

<https://indico.fnal.gov/event/20781/>

4. References

- 1) *Acceptance Criteria Part A: MQXFA Magnet*, US-HiLumi-doc-1103
- 2) *Report of the Review of MQXFA03 Coils and Shims*, US-HiLumi-doc-2180
- 3) *AUP Structural Design Criteria*, US-HiLumi-doc-909
- 4) *Report of the Review of the MQXFAP2 Al-Shell Issue and Lessons Learned*, US-HiLumi-doc-2192