



## **Review of MQXFA03 Coils and Shims**

US-HiLumi-doc-2180

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# **US HL-LHC Accelerator Upgrade Project**

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## 1. Goal & scope

The HL-LHC AUP project is planning to start assembly of MQXFA03 magnet in April 2019. 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.

AUP is planning to use QXFA coils 109, 110, 111 and 202 for MQXFA03 assembly. The reviewers are requested to assess that the proposed coils (including the conductor) meet specifications [2], and to evaluate the impact of non-conformities in strands, cables and coils. The reviewers should also evaluate the proposed coil shim plan.

## 2. Charges

The committee is requested to answer the following questions:

1. Do coils 109, 110, 111, and 202 meet MQXFA coil specifications [2]?
2. Are conductor/coil fabrication and QC data of the proposed coils adequate for a thorough evaluation and for allowing MQXFA03 to meet MQXFA requirements [1]?
3. Are there major non-conformities? If answer is yes, have they been adequately documented and processed?
4. Is the proposed coil-shim plan properly based on CMM measurements, including measurements of coil ends?
5. Is the proposed coil-shim plan adequate for allowing MQXFA03 to meet MQXFA requirements [1]?
6. Do you have any other comment or recommendation regarding conductor, coils or coil-shim plan for allowing MQXFA03 to meet MQXFA requirements [1]?



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## 3. Technical information

### Committee

Steve Gourlay – LBNL, chairperson

Najib Cheggour – ASC, NHMFL

Paolo Ferracin – CERN

### Date and Time

March 14, 2019. Start time is 7/9/10/15 (LBNL/FNAL/BNL-NHMFL/CERN)

### Location/Connection

LBNL, room B47 (to be confirmed)

Video-link by Zoom, info by email.

### Link to agenda with talks and other documents

<https://indico.fnal.gov/event/20110/>

## 4. References

- 1) *Acceptance Criteria Part A: MQXFA Magnet*, US-HiLumi-doc-1103.
- 2) *MQXFA Final Design Report*, US-HiLumi-doc-948 sections 3 and 5.1.1; and *QXFA Coil Fabrication Electrical QA*, US-HiLumi-doc-521 step 16.