



**MQXFA18  
Coils Acceptance Review**

US-HiLumi-doc-5084  
Other:  
Date: May 21, 2024  
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**US HL-LHC Accelerator Upgrade Project**

**MQXFA18 Coils Acceptance Review**

## 1. Goal & scope

The HL-LHC AUP project is planning to start assembly of MQXFA18. This is the 15<sup>th</sup> series low-beta quadrupole magnet (MQXFA) for the Inner Triplet of the High Luminosity LHC. If MQXFA18 meets MQXFA requirements [1] it will be used in a Q1/Q3 cryo-assembly to be installed in the HL-LHC.

For MQXFA18 assembly AUP is planning to use these QXFA coils: 160, 161, 243, 244 plus 154 and 246 as spare coils.

Conductor and series coil specifications are presented in [2-6]. Discrepancy or Non-conformity Reports are generated whenever a component does not meet specifications. Magnet MQXFA18 is planned for use in a Cold Mass without previous vertical test. Therefore, the coils presented at this review were selected because they do not have critical Discrepancies/Non-conformities.

The reviewers are requested to review discrepancies and non-conformities in strands, cables, and coils for the following coils: 154 (P43OL1196), 160 (1203), 161 (1209), 243 (1191), 244 (1195), 246 (1199).

## 2. Charge questions

The committee is requested to answer the following questions:

1. Have all recommendations from previous reviews [7] been adequately addressed?
2. Have Discrepancies and Non-conformities been adequately documented and processed?
3. Is there any critical Discrepancy/Non-conformity?
4. Is there any coil that you recommend not to use in MQXFA18?
5. Do you have any other comment or recommendation regarding these coils and their conductor for allowing MQXFA18 to meet MQXFA requirements [1]?



# MQXFA18

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### 3. Technical information

#### Committee

Arup Ghosh (chairperson), BNL retired

Susana Izquierdo Bermudez, CERN

GianLuca Sabbi, LBNL

#### Date and Time

May 21, 2024. Start time is 7/9/10/16 (LBNL/FNAL/BNL-FSU/CEA-CERN)

#### Location/Connection

Video-link by Zoom, info by email.

#### Link to agenda with talks and other documents

<https://indico.fnal.gov/event/64536/>

### 4. References

- 1) *MQXFA Functional Requirements Specification*, US-HiLumi-doc-36
- 2) *Specification for Quadrupole Magnet Conductor*, US-HiLumi-doc-40
- 3) *Cable Specification*, US-HiLumi-doc-74
- 4) *Quadrupole Magnet Cable Insulation*, US-HiLumi-doc-75
- 5) *QXFA Series Coil Production Specification*, US-HiLumi-doc-2986
- 6) *QXFA Series Coil Fabrication Electrical QC plan*, US-HiLumi-doc-521
- 7) *MQXFA12b Coils Acceptance Review*, US-HiLumi-doc-4937