



MQXFA07
Coils Acceptance Review

US-HiLumi-doc-3984
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US HL-LHC Accelerator Upgrade Project

MQXFA07 Coils Acceptance Review



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1. Goal & scope

The HL-LHC AUP project is planning to start assembly of MQXFA07 magnet in December 2020. MQXFA07 is the fifth and last pre-series low-beta quadrupole (MQXFA) to be used in Q1 and Q3 Inner Triplet elements for the High Luminosity LHC. If MQXFA07 meets MQXFA requirements [1] it will be used in a Q1/Q3 cryo-assembly to be installed in the HL-LHC.

For MQXFA07 assembly (including a spare coil) AUP is planning to use QXFA coils: 114, 117, 124, 212 and 214. Coil 117 was approved for use in MQXFA05 [2] and is assumed approved for use in MQXFA07.

Conductor and pre-series coil specifications are presented in [3]. Discrepancy or Non-conformity Reports are generated whenever a component does not meet specifications.

The reviewers are requested to review discrepancies and non-conformities in strands, cables and coils, for the following coils: 114 (cable P43OL1097), 124 (cable P43OL1131), 212 (cable P43OL1124), and 214 (cable P43OL1127).

2. Charge questions

The committee is requested to answer the following questions:

1. Have Discrepancies and Non-conformities been adequately documented and processed?
2. If there are critical Discrepancies/Non-conformities, have they been adequately documented and processed?
3. Did the L3s properly identified critical Discrepancies/Non-conformities?
4. Is there any coil that you recommend not to use in MQXFA07?
5. Do you have any other comment or recommendation regarding these coils and their conductor for allowing MQXFA07 to meet MQXFA requirements [1]?



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3. Technical information

Committee

Steve Gourlay (chairperson), LBNL
Arup Ghosh, BNL retired
Susana Izquierdo Bermudez, CERN

Date and Time

December 17, 2020. Start time is 7/9/10/16 (LBNL/FNAL/BNL-FSU/CERN)

Location/Connection

Video-link by Zoom, info by email.

Link to agenda with talks and other documents

<https://indico.fnal.gov/event/46767/>

4. References

- 1) *MQXFA Functional Requirements Specification*, US-HiLumi-doc-36.
- 2) *MQXFA05 Coils Acceptance Review Report*, US-HiLumi-doc-2742.
- 3) *MQXFA Final Design Report*, US-HiLumi-doc-948-v10 (version 10 was valid at the time pre-series coils were fabricated) sections 3 and 5.1.1; and *QXFA Coil Fabrication Electrical QA*, US-HiLumi-doc-521 step 16.