



Review of Coil 204 for MQXFA03

US-HiLumi-doc-
Other:
Date: 6/26/2019
Page 1 of 4



US HL-LHC Accelerator Upgrade Project

Review of Coil 204 for MQXFA03



Review of Coil 204 for MQXFA03

US-HiLumi-doc-
Other:
Date: 6/26/2019
Page 2 of 4

TABLE OF CONTENTS

1. GOAL & SCOPE.....	3
2. CHARGES	3
3. TECHNICAL INFORMATION	4
4. REFERENCES	4



1. Goal & scope

The HL-LHC AUP project started 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 planned to use QXFA coils 109, 110, 111 and 202 for MQXFA03 assembly. These coils were reviewed on March 14, and all of them were accepted for use. Presentations and report are available at: <https://indico.fnal.gov/event/20110/>

During coil-pad sub-assembly preparation coil 109 developed an electrical weakness that degraded during investigation. Therefore, it was decided to remove coil 109 and select another coil (204) to replace it.

The reviewers are requested to assess that coil 204 (including the conductor) meets specifications [2], and to evaluate the impact of non-conformities in strands, cables and coils. The reviewers should also evaluate the impact of the coil change on the coil shim plan.

2. Charges

The committee is requested to answer the following questions:

1. Does coil 204 meet MQXFA coil specifications [2]?
2. Are conductor/coil fabrication and QC data of coil 204 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 impact of replacing coil 109 with 204 adequately taken into account in the proposed coil-shim?
5. Do you have any other comment or recommendation regarding coil 204 or the coil-shim plan for allowing MQXFA03 to meet MQXFA requirements [1]?



Review of Coil 204 for MQXFA03

US-HiLumi-doc-
Other:
Date: 6/26/2019
Page 4 of 4

3. Technical information

Committee

Steve Gourlay – LBNL, chairperson

Arup Ghosh – BNL, retired

Paolo Ferracin – CERN

Date and Time

June 27, 2019. Start time is 7/9/10/15 (LBNL/FNAL/BNL/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/21083/>

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.