



MQXFA04 Structure & Shims Review

US-HiLumi-doc-2505

Other:

Date: 12/12/2019

Page 1 of 4



US HL-LHC Accelerator Upgrade Project

MQXFA04 Structure & Shims Review



MQXFA04 Structure & Shims Review

US-HiLumi-doc-2505

Other:

Date: 12/12/2019

Page 2 of 4

TABLE OF CONTENTS

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



MQXFA04 Structure & Shims Review

US-HiLumi-doc-2505

Other:

Date: 12/12/2019

Page 3 of 4

1. Goal & scope

The HL-LHC AUP project is starting the assembly of MQXFA04 magnet. MQXFA04 is the second pre-series of the MQXFA low beta quadrupoles to be used in Q1 and Q3 for the High Luminosity LHC. If MQXFA04 meets MQXFA requirements [1] it will be used in the first Q1/Q3 cryo-assembly to be installed in the HL-LHC.

MQXFA04 coils were reviewed on October 30, 2019 [2].

MQXFA pre-load targets and pre-loading sequence for MQXFA03 and following magnets were approved by AUP Technical Board on July 5, 2019 [3].

The goal of this review is to evaluate the MQXFA04 structure and shim plan. The reviewers are requested to assess that the MQXFA04 structure meets the MQXFA Structural Design Criteria [4], that non-conformities have been adequately processed, and that structure and shims will allow MQXFA04 to meet MQXFA requirements [1].

2. Charges

The committee is requested to answer the following questions:

1. Does the MQXFA04 structure meet the MQXFA Structural Design Criteria [4]?
2. Are there major non-conformities? If answer is yes, have they been adequately documented and processed?
3. Are the proposed shims adequate for allowing MQXFA04 to meet MQXFA requirements [1]?
4. Is MQXFA04 going to meet the MQXFA Interface Specification [5]?
5. Have all recommendations from previous relevant reviews [6] been adequately addressed?
6. Do you have any other comment or recommendation to assure MQXFA04 is going to meet requirements?



MQXFA04 Structure & Shims Review

US-HiLumi-doc-2505

Other:

Date: 12/12/2019

Page 4 of 4

3. Technical information

Committee

Peter Wanderer – BNL, chairperson
Michael Anerella – BNL
Paolo Ferracin – CERN
Susana Izquierdo Bermudez – CERN

Date and Time

Dec 12, 2019. Start time is 7:00 am (Pacific time)

Location/Connection

Video-link by Zoom, info by email.

Link to agenda with talks and other documents

<https://indico.fnal.gov/event/22682/>

4. References

- 1) *MQXFA Functional Requirements Specification*, US-HiLumi-doc-36.
- 2) *Report of the MQXFA04 Coils Acceptance Review*, US-HiLumi-doc-2432.
- 3) *MQXFA03 pre-load targets and pre-loading sequence*, US-HiLumi-doc-2496.
- 4) *MQXFA Structural Design Criteria*, US-HiLumi-doc-909.
- 5) *MQXFA Magnet Interface Specification*, US-HiLumi-doc-1674.
- 6) - *Report of the Review of the MQXFAP2 AI-Shell Issue and Lessons Learned*, US-HiLumi-doc-2192;
- *MQXFA03 Structure & Loading Review*, US-HiLumi-doc-2260.