**Lessons from the Verification Testing of Nb3Sn Wires Procured Under the High-Luminosity LHC Accelerator Upgrade Project**

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The High-Luminosity LHC Accelerator Upgrade Project (AUP) in the U.S. delivered the first two quadrupole magnets to CERN in December 2023. A total 13.9 tons, over 2,080 km of highcurrent-density Nb3Sn wires have been procured for AUP program. Programs for quality control (QC) at the supplier and quality verification (QV) at the laboratories were solidified into components of the overall quality plan for strand procurement in 2017. Since then, approximately 1,500 QC samples have been evaluated by the supplier and 400 QV samples by the National High Magnetic Field Laboratory (NHMFL), including measurements of the critical current (*Ic*) and residual resistance ratio (RRR). Several lessons emerge from the testing campaign, which will be discussed in this presentation. While differences between QC and QV samples was within a 2.5% range found by recent inter-laboratory comparisons for 12 T *Ic* data, significant deviations occurred at 15 T with the QC data being conservative relative to the QV data. Since most laboratories have calibrated their test facilities for 12 T measurements, this discrepancy could signal upcoming testing challenges for future colliders where 16 T is a target field.

[[1]](#footnote-1)

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