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Mitigation of losses at injection protection devices in the CERN LHC

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During loss maps performed with beam at injection energy in the LHC with the high octupole and chromaticity settings used for multi-train operation, large beam losses were observed at an injection protection device (TDIS). Although these losses did not present a threat to machine operation or protection, reducing them is of high importance to improve machine performance. Various strategies were developed to mitigate these losses, such as octupole setting optimization at constant Landau damping and vertical tune reduction. Further optimization of collimator settings is also considered. Results of experimental tests and first simulations are reported here together with considerations for the future.

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Footnotes

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Yes

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