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High Luminosity LHC optics scenarios for Run 4

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Run 4 will be the first operational run of the LHC with full deployment of the upgrades from the High Luminosity (HL-LHC) project planned for 2026-2028 (Long Shutdown 3). The commissioning goals for the first run were defined to approach steadily the design beam current, while already fulfilling significant luminosity goals. Despite extensive operational experience already gained, intensity limitations due to electron cloud and/or impedance might require to further reduce β^* values from the very early stages. The paper presents various optics configurations considered under different Run4 scenarios together with their expected dynamic aperture.

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Footnotes

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