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How low can we go? Getting below 3.5 m b*

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The LHC has made remarkable progress during 2010, fulfilling its ambitious goal for the year in terms of luminosity. For 2011, even higher performance has to be reached. One way of further increasing luminosity is to reduce the beam size at the interaction points, which is determined by the optical function beta*. However, when beta* is decreased, so is the margin to the triplet aperture in terms of beam σ. This aperture must be protected from beam losses by the tertiary collimators (TCTs), which in turn have to be shadowed by other upstream collimators. This imposes a limit on the minimum achievable beta*. In this talk, we discuss estimates of the available triplet aperture, the different margins required to guarantee protection (TCTs to aperture and TCTs to collimators in interaction region 6) as well as the conditions required for moving in collimators and protection devices further. All estimates of margins have to be based on assumptions on variations in central orbit and optical functions. Finally we conclude on the achievable beta* for different running scenarios and discuss the available margins during luminosity scans.

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