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Enhancement of Single Stretched Wire Measurements of LHC Short Straight Sections

Three Single Stretched Wire systems are used at CERN to measure the axis, roll angle and integrated gradient (Gdl) of LHC main quadrupoles as well as the axis and roll angle of associated correctors. A statistical qualification of the systems based on the results of more than 40 SSS measured both at warm and cold conditions will be presented.

In particular we will describe in detail:

- a special measurement procedure and data treatment algorithm developed to reduce the influence of the stretched wire magnetic susceptibility.
- the qualification of different types of wire
- a calibration procedure of the systems roll angle offset as a function of the magnets longitudinal position

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