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Beam loss monitoring requirements and system description

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The LHC beam loss monitoring system is designed to protect the equipment against damage and quenches caused by lost protons. Proton initiated secondary shower particles are detected by ionisation chambers and secondary emission detectors located outside of the cryostat. The measured shower intensities are compared with energy and loss duration depending quench level values and a signal is generated if thresholds are exceeded. A single monitor will be sufficient to generate this beam aboard signal.

A summary of the system specification will be given and its implementation will be shown. Parameters characterising the expected and measured system performance will be discussed and the beam loss detection possibilities in the LHC collimation areas will be reviewed.

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