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The SiPM-on-tile system of the CMS HGCAL (poster-ID65)

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For the CMS High-Granularity Calorimeter (HGCAL) for HL-LHC, scintillator tiles, readout with individual on-tile silicon photomultipliers (SiPMs), will be used where the radiation levels are expected to be less than 5 x 10^{13} n/cm². The scintillator tiles will be mounted on highly-integrated "tileboards" (typical area 30 x 30 cm²) that host up to 108 tiles and their SiPMs, as well as front-end electronics, control and powering components. A dedicated LED system will be implemented to monitor stability effects. We present recent developments for the HGCAL scintillator material and SiPMs, including quantification of the scintillator and SiPM radiation-damage impact, modeling of SiPM noise and its evolution with time, SiPM production testing and quality control plans, and tests of tileboards in laboratories and beam-tests.

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