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Phase 1 Pixel Upgrade of the Compact Muon Solenoid STEVEN MACAUDA, None, CMS COLLABORATION — The Large Hadron Collider (LHC) has been the world's premier particle accelerator since it began operation on 10 September 2010. In order to maintain this world class performance, it is necessary to upgrade the Compact Muon Solenoid (CMS) pixel detector, to cope with increased luminosity. The instantaneous luminosity is expected to increase from $1 \times 10^{34} cm^{-2} s^{-1}$ to $2 \times 10^{34} cm^{-2} s^{-1}$ during Run II of the LHC. Due to data loss in the read out chip, the present pixel detector cannot handle an increase of this magnitude. The Phase 1 Pixel Upgrade will address this issue. The upgraded detector will utilize improved pixel readout chips that will minimize data loss, two-phase CO_2 cooling, and DC-DC power. These new components will achieve higher efficiencies, lower fake rates, lower dead-time/data loss, and extend the lifetime of the detector. The new pixel detector is scheduled to be installed during the extended technical stop between 2016 and 2017. The design of the Forward Pixel Detector and module assembly, testing, and qualification will be discussed.

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None

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