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Module Production and Qualification for the Phase I Upgrade of the CMS Pixel Detector

After consolidation of the LHC in 2013/14 its centre-of-mass energy will increase to 13TeV and the luminosity will reach $2 \cdot 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$, which is twice the design luminosity. The latter will result in more simultaneous particle collisions, which would significantly increase the dead time of the current readout chip of the CMS pixel detector. Therefore the entire CMS pixel detector is replaced in 2016/17 and a new digital readout with larger buffers will be used to handle increasing pixel hit rates. An additional fourth barrel-layer provides more space points to improve track reconstruction. Half of the required modules for layer four is being produced at Karlsruhe Institute of Technology (KIT). This poster deals with the smallest discrete subunit of the pixel detector, the module and its assembly process. Moreover first production experience will be shown.

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