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# Gas gaps and chambers quality control of improved resistive plate chambers (iRPC)

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In preparation for the Phase II Upgrade for the HL-LHC program, 72 improved Resistive Plate Chambers (iRPCs) will be installed in the third and fourth endcap disks of the Compact Muon Solenoid (CMS) during the next year-end technical stop (YETS). These new generation RPC detectors will operate in a low-angle momentum (extending RPC coverage from $|\eta|$ = 1.9 to 2.4), in a high radiation environment, and will bring a better space and time resolution for this challenging region. Assembly of the new detectors is taking place at CERN 904 laboratory and Ghent University. To ensure proper performance, iRPC chambers undergo a series of quality control (QC) tests at each stage of the assembly chain. These tests include QC1 for the basic components, QC2 for chamber elements such as gaps and cooling, QC3 for evaluating the full chamber performance after production, which includes noise, efficiency, and current, and lastly and QC4 for the final validation test. In this poster, we present the summary results of the QC tests for the newly built iRPC chambers in the assembly sites.

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