

## **Study the self-noise and detection efficiency in new prototype iRPC**

For the Phase-2 upgrade of the CMS Muon System at high pseudorapidity  $\eta$ , at CERN the large size trapezoidal improve resistive plate chamber (iRPC) prototype with 1.4 mm double-gas gap was developed to test new electronics. The new long trapezoidal PCB (with length of 1645 mm) consisting of 88 stripes with 10 mm wide and thickness of dielectric layer around 550  $\mu\text{m}$  has been installed in this prototype. During December 2017, the large iRPC detector by using DT5742 digitizer from CAEN has been tested in COSMIC stand at CERN. During testing, the self-noise level of the chamber, the detection efficiency and the cluster size were studied.

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