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Performance of the large-area micro-RWELL detectors.

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Large-area coordinate detectors based on micro-resistive WELL (muRWELL) technology are under development for the CMD-3 detector at the VEPP-2000 collider at Budker INP. The CMD-3 is general purpose detector that is intended to measure parameters of light vector mesons and their excited states with accuracy better than 1% and study dynamics of multihadron production. In order to increase acceptance for the trigger for charged particles and improve precision of track polar angle measurements the end-cap muRWELL discs are developed. Two muRWELL discs 50 cm in diameter are assembled and tested. The two-layer readout structure of the discs allow to measure track coordinates with accuracy about 1 mm in radius and 0.3 degrees in polar angle. The first disc has only thin Ni-Cr adhesion layer on top of the muRWELL structure, while the second disc has 5 micron thick copper layer. Both discs are partly equipped with readout electronics based on VMM3a ASICs. The first tests of the discs performance with radioactive source shows that the readout structure is properly designed, the charge is equally shared between layers. Effective gain, that can be calculated from the pulse height spectra measured with readout electronics, is about two times lower than total gain, extracted from the current measurements. The results of systematic measurements of the discs performance with readout electronics, including measurements with test beam will be reported at the Workshop.

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