

[구ID-15] Engineering run of CQUEAN

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CQUEAN (Camera for QUasars in EARly uNiverse) is an optical CCD camera system that consists of a science CCD camera, a guide CCD camera, and seven filters. In addition, a focal reducer is installed in front of the science camera to secure a larger field of view for the system. Engineering run of the system was carried out from Aug. 10, 2010 to Aug. 17, 2010, with 2.1m Otto Struve telescope at McDonald Observatory, USA, from which we investigated the characteristics and performance of the system. Bias and dark images were taken under various temperature conditions to examine the system behavior, and both twilight and dome flat images were obtained to investigate the appropriate preprocessing procedures of the data. Crude initial estimate indicated one hour integration would reach limiting magnitude of 24.2 in i-band with S/N ratio of 5, with CQUEAN at 2.1m telescope. The detailed results of the engineering run will be presented.

[구ID-16] Focal Reducer for CQUEAN

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The CQUEAN (Camera for QUasars in EARly uNiverse) is an optical CCD camera optimized for the observation of high redshift QSOs to understand the nature of early universe.

The focal reducer, which is composed of four spherical lens, is allowed to secure a wider field of view for CQUEAN, by reducing the focal length of the system by one third. We designed the lens configuration, the lens barrel, and the adapters to assemble to attach focal reducer to the CCD camera system. We performed tolerance analysis using ZEMAX. The manufacturing of the focal reducer system and its lab test of optical performance were already finished. It turned out that the performance can meet the original requirement, with the aberration and alignment error taken into account.

We successfully attached the focal reducer and CQUEAN to the cassegrain focus of 2.1m telescope at McDonald Observatory, USA, and several tests of CQUEAN system were carried out. In this presentation, I will show the process of focal reducer fabrication and the result of performance test.