

초박형 투사형 영상장치를 위한 대화각 설계 특성

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Design Features of Super Wide Angle Lenses for Ultra-Slim Projection Systems

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Abstract

The features of Super Wide Angle Lenses for Ultra-Slim Rear Projection Systems design are discussed. Super wide field of view (more than 120°), extra short through ratio (<600 mm), high speed (F/# ~2.5-3.0) with the requirements at the same time for high resolution (SXGA and higher) and low distortion (<1%) are the critical issues of optical design. Several types of optical design approaches of such a complicated optical systems and their advantages and disadvantages are considered including all-lens, all-mirror and combined lens-mirror (catadioptric) designs. Six Free Form Aspherical Mirror design is proposed as a very promising solution for ultra-slim rear projection monitor.

Subject terms: optical design; ultra-slim; rear projection; projection lens; off-axis projection; lens offset; decentering; free form aspherical surface; wide angle; short through ratio; distortion correction.