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ABSTRACT

METHOD AND APPARATUS FOR OPHTHALMIC REFRACTIVE CORRECTION

5 An aperture card is provided for insertion into a laser refractive ablation system for use in laser ablating the cornea. The aperture card is designed for single surgical use for surgical precautionary considerations and to achieve the highest quality ablations, in addition to reproducibility. The aperture card is loaded into the laser refractive ablation system in a path between the laser system and the eye. The aperture card is precisely located by positioning means and ablative lasing action is
10 inhibited if the card is not positioned within tolerance. Alternatively, the laser system can determine the position of the aperture card and adjust a computed ablation profile or otherwise adjust the optical system to adapt for any misalignment of the apertures in the aperture card. The card contains a "soft spot" aperture capable of shaping a spatial intensity distribution with a unique profile. The profile has a
15 substantially flat top while the sides of the profile slope until an ablation intensity threshold is reached, at which point the sides become substantially vertical. The card can contain more than one soft spot aperture along with a "hard spot" aperture that creates a square-shaped profile used for testing fluence. Each soft spot aperture is formed by a central aperture and a plurality of holes of different sizes
20 surrounding the central aperture and arranged such that the overall diffractive effect produces a soft spot spatial intensity profile compared to the hard, square-sided profile.

FIG. 1