

aberrations over the central 80° of the horizontal visual field in 1.8 seconds with an angular resolution of 1 measurement per degree. This high speed and large scanning angle can be reached because the system is based on a rotational movement, keeping the distance between the eye and the instrument equal at all angles. Due to careful optimization of the components, the instrument is rather compact and silent. Furthermore, the new design is comfortable for the subject due to the use of a head-chin rest and because no moving elements are in the line-of-sight of the subject. The instrument is mounted on an ophthalmic XYZ-bench which makes it possible for the operator to align the instrument to the subject with minimum disturbance. Changing the HS-wavefront sensor from a static to a scanning instrument had no negative effects on the measuring results as seen from the comparison study. The instrument has the capability to be used in a clinical environment or in population studies. Due to its characteristics it is perfectly suitable to be used in the investigation of myopia development and in the design of peripheral optical corrections. This system can be used in the future either for basic experiments on the optical properties of a large group of eyes in the periphery as in clinical application where the control or the modification of the peripheral eye's properties is required.

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