Additional file 2: Supplementary Figures S1–S3

Photopic and Mesopic Contrast Sensitivity Changes After Cataract Surgery: Visit-to-Visit AULCSF Reproducibility and Functional Outcomes

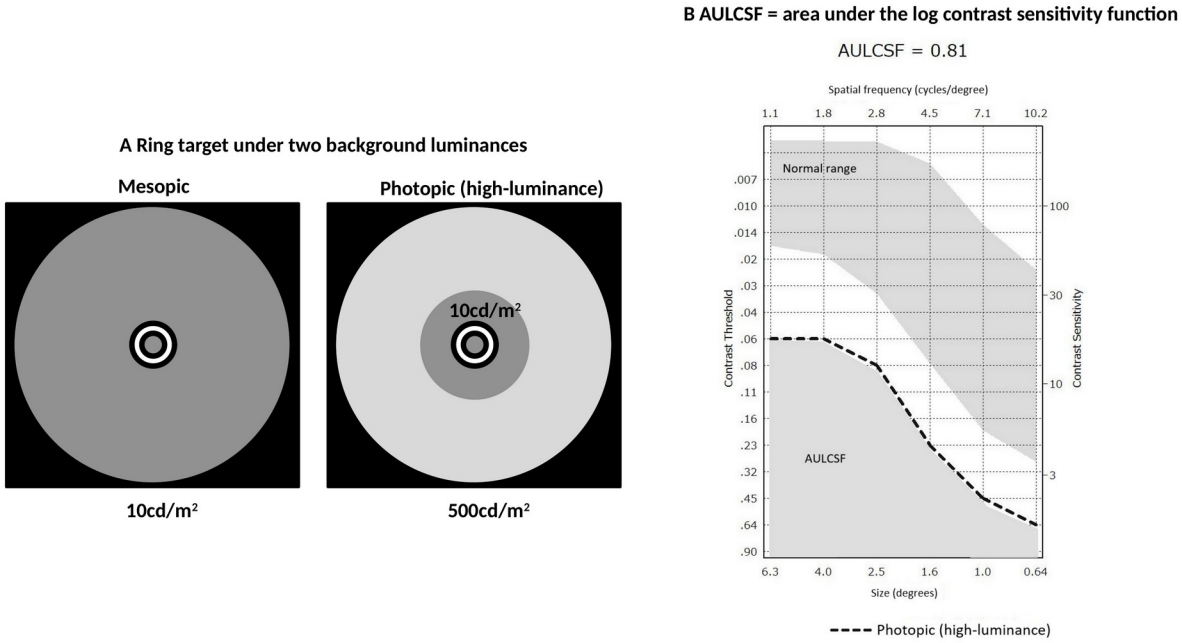


Fig. S1. Concept of high-luminance (photopic) versus low-luminance (mesopic) surround contrast sensitivity testing.

(A) The imo vifa contrast sensitivity test used a ring (concentric-circle) target presented across a range of target sizes. In both conditions the target was shown on a 10 cd/m² local background; the conditions differed only in the luminance of the surrounding field: 10 cd/m² (mesopic, low-luminance) or 500 cd/m² (photopic, high-luminance). (B) Worked example of the AULCSF outcome measure. Contrast threshold (left axis) and the corresponding contrast sensitivity (right axis) are plotted against ring-target size (lower axis) and the equivalent spatial frequency (upper axis, 1.1–10.2 cycles per degree); the shaded area under the measured contrast sensitivity function is the area under the log contrast sensitivity function (AULCSF; 0.81 in this example), and the upper band indicates the instrument's normative reference range, shown for illustration.

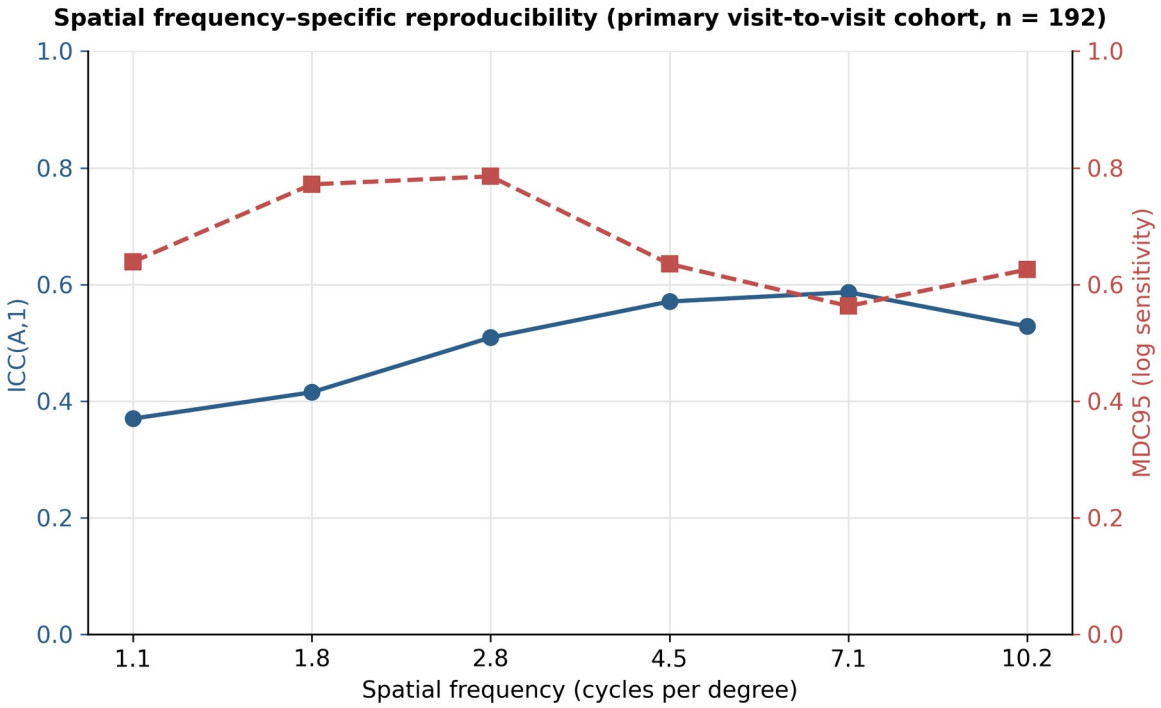


Fig. S2. Reproducibility across the device's spatial frequencies (ICC(A,1) and MDC_{95} at 1.1–10.2 cycles per degree) in the primary visit-to-visit cohort (192 pairs). Reliability was highest at intermediate-to-high frequencies (4.5–7.1 cpd) and poorest at the lowest frequency.

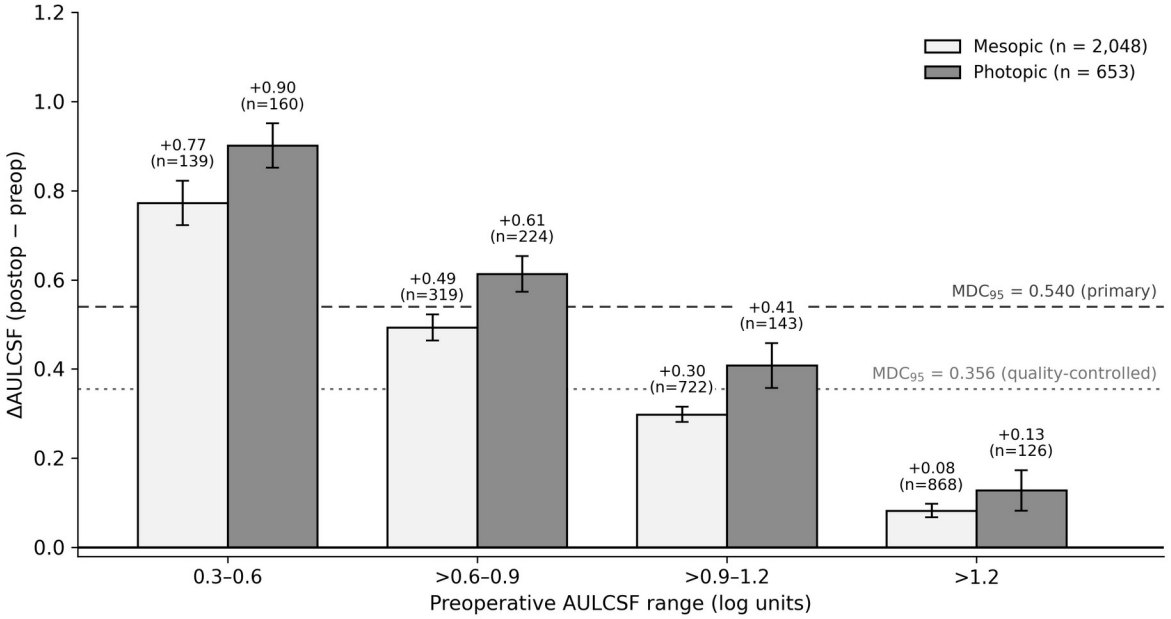


Fig. S3. AULCSF improvement (ΔAULCSF) by matched preoperative AULCSF range under mesopic and photopic testing in the pooled two-center cohort (the strata of Additional file 1: Table S2). Bars show mean ΔAULCSF with 95% confidence interval whiskers; the number of eyes is shown above each bar. The dashed line marks the primary visit-to-visit MDC_{95} (0.540) and the dotted line the quality-controlled MDC_{95} (0.356). Mesopic eyes come from both centers, whereas all photopic eyes come from Koedo Eye Institute.