Ganzfeld SST-1 Scotopic Sensitivity Tester

Whole-field scotopic sensitivity (threshold) testing provides clinically beneficial information in a wide variety of ophthalmic conditions. Dark adaptometry is useful in the diagnosis and management of *retinal degenerations, senile miosis, high myopia, vitamin A deficiency*, and other *night blinding conditions*. It has also been shown to be useful in the *early detection of glaucoma*. The SST-1 is a flexible solution to the problems of determining dark adaptation curves and whole-field scotopic sensitivity.

The SST-1 is versatile and easy to use. The controls are conveniently located on the handheld stimulator unit. The base unit displays the stimulus and intensity, and the time elapsed when in dark adaptometry mode. The SST-1 is lightweight, portable, and easily stored when not in use. Minimal operator training is required to use the SST-1 in either dark adaptometry or whole-field scotopic sensitivity mode.

In addition to functioning as a dark adaptometer, the SST also implements the whole-field scotopic sensitivity test developed by clinicians at the Wilmer Eye Institute. This test measures the dark-adapted threshold to a 1 Hz flickering light presented in the ganzfeld. Glovinsky *et al.*, used a laboratory version of the SST-1 to show that glaucoma suspects with an abnormal whole-field scotopic sensitivity are more likely to have other signs of early optic nerve injury, including a higher proportion of borderline visual field defects, defects of the optic nerve fiber layer, or glaucomatous fellow eyes. Unlike conventional perimetry, the accuracy of the SST-1 is not affected by poor refractive error correction or erratic fixation. The ability of the SST-1 to record meaningful data is also relatively insensitive to mild cataracts because the entire visual field is stimulated.

In the whole field scotopic sensitivity test, one eye is dark adapted for 30 minutes. The luminance threshold to a 1 Hz sine wave flicker is determined by adjusting the brightness of the stimulus until it is just visible to the patient. The time for the entire procedure (excluding dark-adapt time) is 1 to 2 minutes.
SST-1 Specifications

Configuration

*Base:* 4" H x 8" W x 9" D (Approximately 10 cm x 20 cm x 22 cm); 3 lbs.
*Stimulator:* 9" L x 3" W x 3" D (Approximately 22 cm x 7 cm x 7 cm); less than 1 lb.
*Power:* 115/220 V 50/60 Hz, 20 Watts

- Equipped with Graphing Software.

Dark Adaptometry

- Pre-adapting field of 1000 cd \( \text{m}^{-2} \) for 60 seconds (timed). May be bypassed for measurement of final dark-adapted threshold.
- Timer resolution is 0.1 minutes. Will measure time to several hours.
- Stimulus is ½ second flash.
- Intensity is adjustable over a 3 log unit range in 0.1 log unit steps.

Whole-Field Scotopic Sensitivity

- Implements modified test of Glovinsky, et al.\(^1\)
- No need for steady fixation or refractive correction. Results are relatively unaffected by mild cataracts.
- Stimulus is 4 seconds of 1 Hz sine wave flicker.
- Intensity is adjustable over a 3 log unit range in 0.1 log unit steps.

Reference


Example Dark Adaptometry Curve for Normal and Congenital Stationary Night Blindness

![Example Dark Adaptometry Curve](image)

LKC Technologies, Inc., established in 1975, is an ISO 13485 certified and FDA registered medical device manufacturer with electrophysiology equipment installations in over forty countries.