

# Laser Hess Test Guide

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**Note: A difference in the intensity between the red and green lasers does not affect the validity of the test nor the results.**

## Introduction

The Laser Hess Test is used to evaluate the alignment of the eyes and their movements both individually and in tandem. Test results provide a measure of horizontal and vertical and simultaneously for either pediatric and adult patients.

Any difference or deviation between the examiner's and the patient's positioning of the lasers indicates the deviation direction and magnitude of the measured eye from the normal axis. By swapping the lasers, between the patient and examiner, the other eye may be examined.

The main difference between the Hess Screen Test and the Lancaster Test is that the laser used with the Hess Test projects a single dot to measure coordination of the two eyes in terms of position. The Laser Lancaster test projects a line and so the comparison involves position in three dimensions.

This kit provides red and green line generating lasers, which project a single dot at 1 meter. The Hess Screen measures approx. 60x60 inches (140 x140 cm) and can be mounted on roller for convenient storage. An alternate screen is about the same size but comes folded (for easy transport) and can then be mounted on a wall, roller or frame. Markings on screen are not readily visible to patient wearing the red green glasses to avoid ocular clues. Other red/green glasses from Good-Lite® listed below can also be used. Score sheets are a replica of the grid on the screen. A clamp-on chin rest is available to avoid head movement during the test.

Test is CE Marked.

## Contents

Complete Laser Hess Test includes;

**481500** Hess Red and Green Lasers

**569200** Hess Screen Roll-up type

**705011** Heavy Duty Chin Rest with Clamp

Supplies:

**582010** Hess Score Sheets - Pack of 50

**464400** Heavy Duty Chin Rest Papers, Bundle of 500

## Storage

The Laser Hess Screen should be stored rolled up or folded as appropriate. Avoid excessive heat.

The batteries should be removed from the Lasers if stored for an extended period.

Red/Green frames should be stored to avoid scratches.

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## Precautions

Lasers and Children do NOT mix. Children should never be left alone with the Laser Pointers visible nor accessible.

DO NOT CLEAN LASER HESS SCREEN WITH ALCOHOL Use Windex or similar glass cleaner.

## Test Environment

Test is conducted in low light with the chin rest one meter from the screen. The patient wears any corrective eyewear appropriate at the one meter distance. The patient is positioned using the chin rest and wears red/green Anaglyph glasses to insure separation of each eye. The patient's normal gaze should be at the height of the center of the screen. Be sure the red filter is covering the right eye, for convention. The patient uses one line-generating laser and the examiner uses the other laser. The patient is then asked to superimpose one image upon the projected image from the examiner.

The use of the chin rest is highly recommended to insure that deviation due to ocular motility is measured rather than head movement.

## Pre-test Considerations

Be sure to hang the screen at a height above the floor such that the patient's normal gaze can be adjusted to be at the height of the center of the screen.

Pre-screening of the patient's acuity, color vision and visual field is suggested before the Laser Hess Test to insure the validity of the test results.

## Testing Procedure

The examiner projects one of the line generators to a selected position and asks the patient to match this position. Results at each point are noted using a color pen matching the color of the laser held by the patient. The red marks then correspond to the patient's right eye etc.

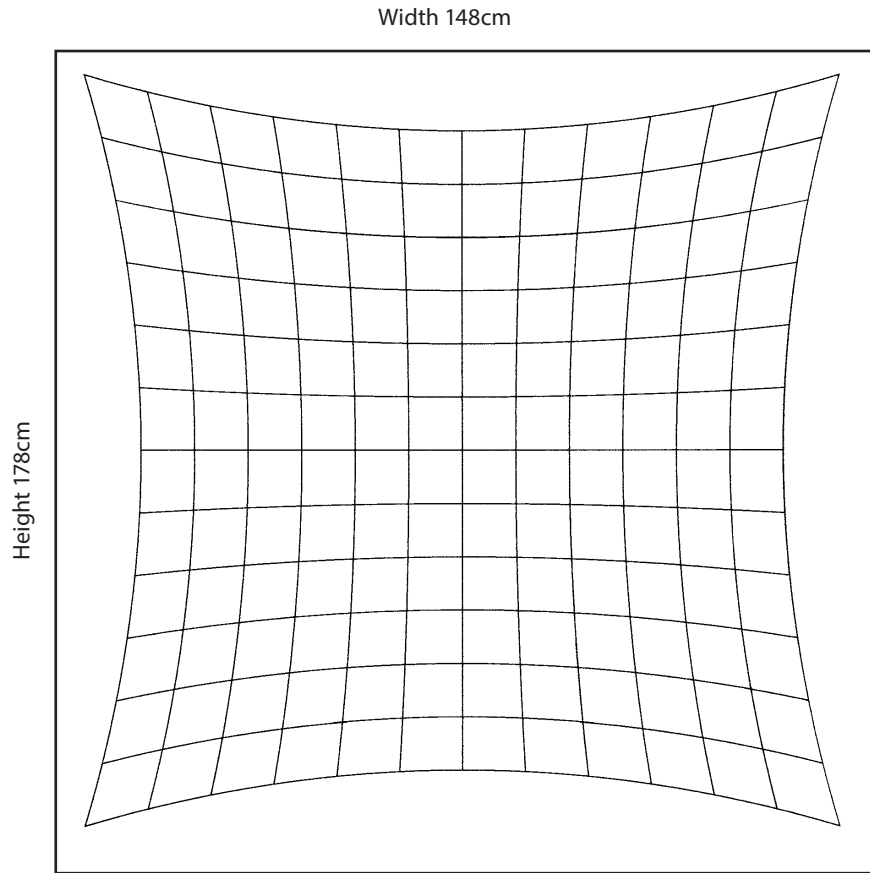
It is recommended that the examiner start out with a selection of positions that are on the centerline, horizontally to insure that the 'matching' procedure is understood. By the conclusion of the test, the eight cardinal points should be covered. The examiner should hold the laser steady at each point while the patient superimposes their pointer as best they can.

Swap lasers with the patient and repeat the test for the other eye.

Use separate sheets for OD and OS.

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## Score Sheet Sample:



### Sample test sequence:

Patient is seated one meter away from the screen with eye level at the horizontal '0' line and centered with the screen at the vertical '0' line. Patient wears the red/green frames.

Examiner holds and points with the green laser. The patient points with the red laser in the dominant hand. This sequence tests the right eye (red on right). Verify that the patient can see both laser lines.

Examiner points to the center column with the center of the laser line at upper 56 cm. Ask the patient to match the red line where they see the green line. Note on the score sheet for OD where the patient points the red line.

Examiner points to the center column with the center of the laser line at upper 32 cm. Ask the patient to match the red line where they see the green line. Note on the score sheet for OD where the patient points the red line.

Examiner points to the center column with the center of the laser line at upper 16 cm. Ask the patient to match the red line where they see the green line. Note on the score sheet for OD where the patient points the red line.

Repeat, pointing at the center upper 0 cm line. Mark patient selection.

Repeat, pointing at the center lower 16 cm line. Mark patient selection.

Repeat, pointing at the center lower 32 cm line. Mark patient selection.

Repeat, pointing at the center lower 56 cm line. Mark patient selection.

Now repeat the sequence starting at the upper 56 cm line working down the 56 cm right side line stopping at the upper 32, 16, and 0 horizontal lines and then the lower 16, 32 and 56 cm lines.

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Finally, repeat the sequence starting at the upper 56 cm line working down the 56 cm left side line stopping at the upper 32, 16, and 0 horizontal lines and then the lower 16, 32 and 56 cm lines.

Swap lasers with the patient to test the left eye where the patient is pointing the red laser to test the left eye. Start a new score sheet marked for the left eye. And repeat the sequence.

## Scoring Examples:

The following example shows mis-alignment on up gaze.

