

## Vision Screener



reddot award 2014  
winner



### Short Manual 11

### “HOTV critical line / 2-line difference testing”

Plusoptix GmbH  
Nordostpark 21  
90411 Nuremberg  
Germany  
[www.plusoptix.com](http://www.plusoptix.com)

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This manual is a supplementary short manual. For important information about your Plusoptix device, such as its intended use, basic handling, technical information, maintenance, service, and warranty information, please refer to the user manual that was delivered with your device. This user manual can also be downloaded on our homepage ([plusoptix.com](http://plusoptix.com)), under support.

## List of further supplementary short manuals

1. Checking scope of delivery and learning about the device
2. Adjusting settings and setting up WLAN
3. Preparing and performing a measurement
4. Viewing the measurement results
5. Entering, retrieving or deleting patient data
6. Documenting measurement results electronically
7. Documenting measurement results on paper
8. Exporting back-ups and reports (only plusoptiX S12C and S16)
9. Downloading software updates
10. Troubleshooting malfunctions and measuring interruptions
11. HOTV critical line testing (only plusoptiX S12C, S12R & S16 in the US)

## 1 Intended use

The Plusoptix HOTV critical line / 2-line difference testing feature is designed to facilitate the performance of a distance visual acuity test in children according to the 2016 AAP Vision Screening Guidelines. The combination of a critical line distance visual acuity test with instrument-based vision screening can save valuable exam time and improve overall sensitivity as well as specificity of vision screening. It is the user's responsibility to ensure compliance with respective state guidelines.

For the sake of time saving, instrument-based vision screening is conducted first:

Children with a "refer" screening result are referred to an eye care professional for a follow-up exam. It is not necessary to spend additional time screening for distance visual acuity. Children with a "pass" screening result have no significant refractive error. Nevertheless, it is necessary to check their visual acuity in a second step. Distance visual acuity screening does not need to start with the largest optotypes (here: H, O, T and V). The age-appropriate critical line can be presented.

**Critical line testing:** If a child reads 4 out of 5 presented letters with each eye correctly, the child passes the critical line visual acuity test. A referral and follow-up exam is only needed if a child is not able to read 4 out of 5 letters with each eye.

Critical line testing age groups:

- 36 through 47 months: 20/50 (10/25)
- 48 through 59 months: 20/40 (10/20)
- 60 months and older: 20/30 (10/15)

**2-line difference testing:** If a child reads 4 out of 5 presented letters in each given line with each eye correctly, the child passes the 2-line difference test. A referral and follow-up exam are only needed if a child is not able to read 4 out of 5 letters in each given line with each eye.

2-line difference testing age groups:

- 48 through 59 months: 20/40 (10/20) & 20/30 (10/15)
- 60 months and older: 20/30 (10/15) & 20/20 (10/10)



The Plusoptix HOTV critical line / 2-line difference testing feature works on all built-in touchscreens of the current Plusoptix Vision Screeners. This feature is not designed to be used on an external monitor (S16 only).

## 2 Starting the HOTV critical line / 2-line difference testing feature

You can start the HOTV critical line / 2-line difference testing feature by touching the HOTV icon above the navigation bar on your main screen. A window pops up and you may now select your desired test. Start the test by touching the “OK” button.

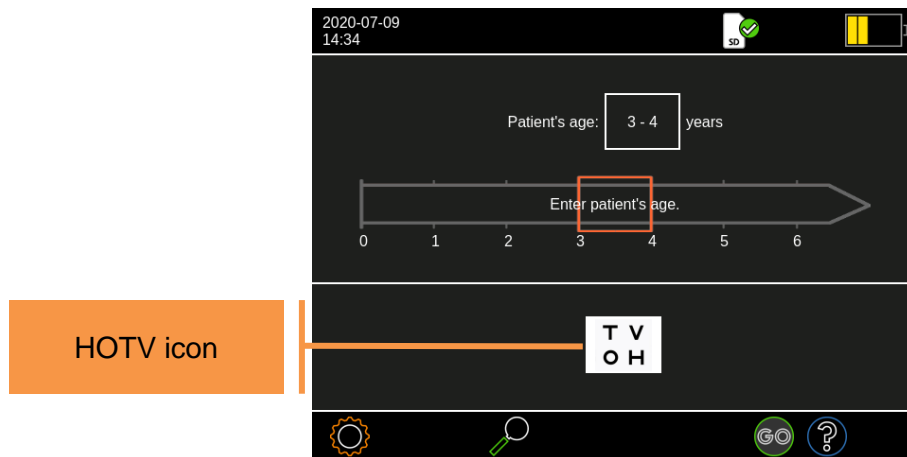


Figure 1: Start Screen

Critical line testing: A random choice of 5 letters (chosen from H, O, T or V) will appear on the screen.

2-line difference testing: Two lines with a random choice of 5 letters each (chosen from H, O, T or V) will appear on the screen.

Touch the screen to return to the available options. The option you have chosen last will already be pre-selected. Touch the “OK” button to start over.



Figure 2: HOTV test screen

### 3 Test Preparation

Choose a well-lit room, preferably with natural light. The room should be free from glare and without distractions, such as other children, pictures, toys or noise. Mark off 10 feet. The line may be marked on the floor to make sure the child is at the right distance.

The child may sit or stand. If the child sits, make sure the back of the chair is on the line so the back of the child's head lines up with the tape on the floor. If the child is standing, make sure the child is standing with the back of his or her heels on the mark. The child should not lean their torso or head forward.

If the child usually wears glasses or contact lenses, the test should be conducted while wearing the vision aid. Make a respective note on your screening report.



**Hint:**

Always start with the same eye to avoid recording errors.



**Hint:**

HOTV matching cards can be used by children unable to identify their letters to help them perform the test. Find an HOTV matching card template on page 7 of 7.

### 4 Test Procedure

- a. Make sure patches or occluders are placed correctly for screening each eye independently.
- b. Touch HOTV icon, select the desired test and touch the "OK" button to start the test
- c. Tell the child to keep both eyes open and read or match (if using HOTV matching cards) the critical line of letters with the uncovered eye. Observe the child and make sure he or she is not peeking, squinting or tilting their head.
- d. If the child is able to read at least 4 out of 5 letters of the chosen critical line, the test has been passed with the respective eye. If the child is not able to read at least 4 out of 5 letters of the critical line, the test has not been passed with the respective eye.
- e. Record your results.
- f. Touch the screen to go back to the main screen.
- g. Start over with the other eye.

## 5 Alignment

Turn the device around after touching the HOTV icon and hold it in such a way that the screen faces the child vertically. The screen has to be at the child's eye level at all times.



Make sure the HOTV interface can be seen completely without interference, such as fingers covering part of the screen.



## 6 Children who did not pass the test

It is recommended to refer any child who did not pass the critical line test / 2-line difference with either one or both eyes to an eye care professional for a comprehensive eye examination.

## 7 HOTV Matching Card (20/80 size from 10 Ft)



HOTV matching cards can be used by children unable to identify their letters to help them perform the test.



We recommend laminating the cards and disinfecting them after each use, or consider them as one-time use material.



Fold or cut here

H

O

T

V