# Stereo Anomaly Test Manual

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## Installing the Stereo-anomaly Test

To install the Stereo-anomaly Test, unzip the downloaded file 'StereoTest.zip' using Winzip or other decompression-software. WinZip can be downloaded as an free evaluation copy from www.winzip.com. Run the Stereo-anomaly Test by clicking on the application StereoTest.exe. This version of the Stereo-anomaly Test was designed specifically for Microsoft Windows and has been tested on Windows 98 and Windows XP. Screen resolution for the test should be 1024x768. Screen color quality should be 256 colors or higher (16 Bit or higher). If you are uncertain whether your computer meets these requirements, right-click anywhere on the desktop and selected properties. In the dialog, select the Settings-tab. Here, screen resolution and color quality can be adjusted.

## Instructions for the Stereo-anomaly Test

You need red/green glasses with red in front of the left eye or red/blue glasses with red in fron of the left eye. After starting the program, use the setting dialog to change the settings used during the experiment. Use the surrounding white rectangle to measure the computer-screen. Viewing distance (distance between subject's eyes and monitor) should be 5700mm to ensure that 1cm on the monitor corresponds to 1 degree of visual angle. Stimulus Duration should 200msec (see van Ee and Richards (2002). Default number of trails is set to 2. This means that every degree of disparity (ranging from –1.50 to 1.50 in 0.30 degree steps) is presented twice. Increase the number of trials to obtain more reliable results. Use the save button to save the settings.

Use the calibration menu to set the preferred anaglyphic mode (Red/Green, Red/Blue) and click on the gradient bars (bottom screen) to reduce crosstalk between filters. After you click Start you are going to see 11 different test trials, each repeated twice, if the default settings are used. So in all, there are 22 trials. Then a plot with your results will be shown. This can be saved, along with the values plotted in it.

TASK: Each test trial starts with the presentation of a nonius  symbol. Fixate the nonius symbol throughout the test. After stable fixation of the nonius symbol is established (by perceiving the monocular parts of the nonius to be vertically aligned), click the

mouse and two vertical lines, flanking the nonius, are then flashed for 200 ms. Your task is to judge the perceived depth-to-width ratio of the two bars. The two bars are presented in a frontal plane and their depth is equal to the distance between the bars and the monitor. After the two bars have been flashed a 2-D symbolic display is presented consisting of a box. This display represents a top view of the viewing geometry. One of the horizontal lines is fixed and represents the screen. The vertical location of the other horizontal line can be manipulated through movements of the computer mouse. The vertical distance between the horizontal lines represents the perceived depth of the stimulus. Click on the mouse when you are satisfied with your setting and a nonius symbol comes up again.

For more instructions see Figures 1 and 2 of the paper by van Ee and Richards (2002). See also that paper for a full description of the test, its possible results and the interpretation of the results. If you are able to distinguish disparities of different magnitudes and/or signs in the complete disparity spectrum (negative disparities evoke a positive depth-to-width ratio) your stereopsis is fine. If you are able the distinguish disparities of different magnitudes and/or signs only for either positive or negative disparities your stereovision is anomalous. About 30% of the population is stereoanomalous (Richards 1970). Note: If the viewing distance is not 570 mm but for example twice as large (1140) mm, the disparity of the line pair (in degrees) is twice as small as they appear in the resulting plot.

## *Feedback*

If you have any questions regarding the software or have found errors in it, please email to gbrouwer@phys.uu.nl