

SFR-Edge Installation and User's Guide

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*SFR*edge is a software program for image performance analysis specified in ISO standards. This version only runs on computers with the Microsoft Windows operating system.

The software is was generated using the Matlab (version 7.7, R2008b) Compiler, and requires MCR (Matlab Component Runtime) software libraries from The Mathworks inc. The MCR should be installed before attempting to install and run *SFR*edge. If you have previously installed the MCR for Matlab version 2008b, software, then you do not need to do so again.

Note that you will need administrative rights to install this software.

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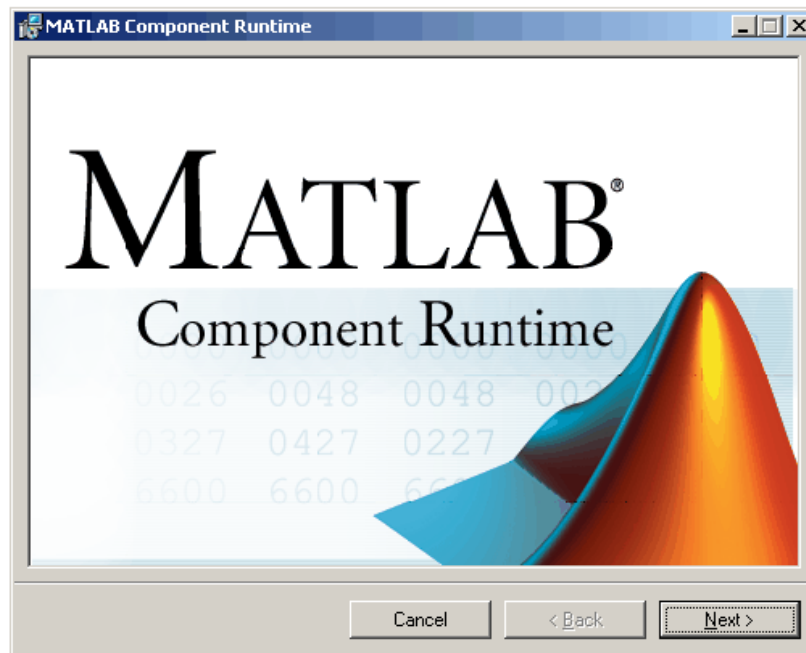
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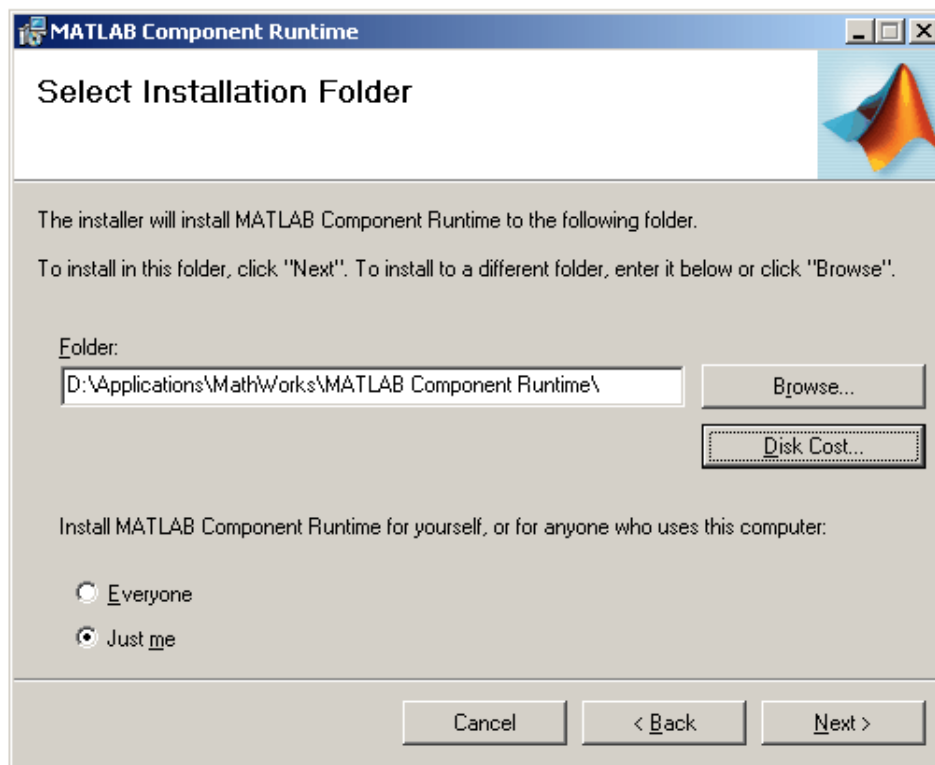
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Installation of the MCR

1. Locate. **MCRInstaller.exe**, which is supplied with the *SFRedge* distribution.
2. Double-click on this file.
3. The MCRInstaller opens a command window and begins preparation for the installation.
4. When the **MATLAB Component Runtime** startup screen appears, click **Next** to begin the installation. Note: Graphics shown will differ somewhat from those shown in next two figs.



5. The setup wizard starts. Click **Next** to continue.
6. The **Select Installation Folder** dialog lets you choose where you want to install the MCR. This dialog also lets you view available and required disk space on your system. You can also choose whether you want to install the MCR for just yourself or others. Select your options, and then click **Next** to continue.



7. Confirm your selections by clicking **Next**.
8. The installation begins. The process takes some time (5-10 min.) due to the quantity of files that are installed.
9. When the installation completes, click **Close** on the **Installation Completed** dialog to exit.

Installing SFRedge

1. Save the file **SFRedge.zip** to a location in your computer C: drive where you have permission to write files. For example in
C:\Program Files
2. Unzip this file to the same folder. This will create a folder
SFRedge_v1(2007b)
3. Inside this folder find the file, **SFRedge.exe**, and double-click on this.

4. This will open the Windows Prompt window, which will indicate that the CTF archive is being expanded. After a few second the program **SFRedge** should start to run.

5. If an ordinary window appears, with a title of SFRedge things are going well. This window should have three drop-down menus; File, Tests and Help. In addition simple instruction should appear in the window.

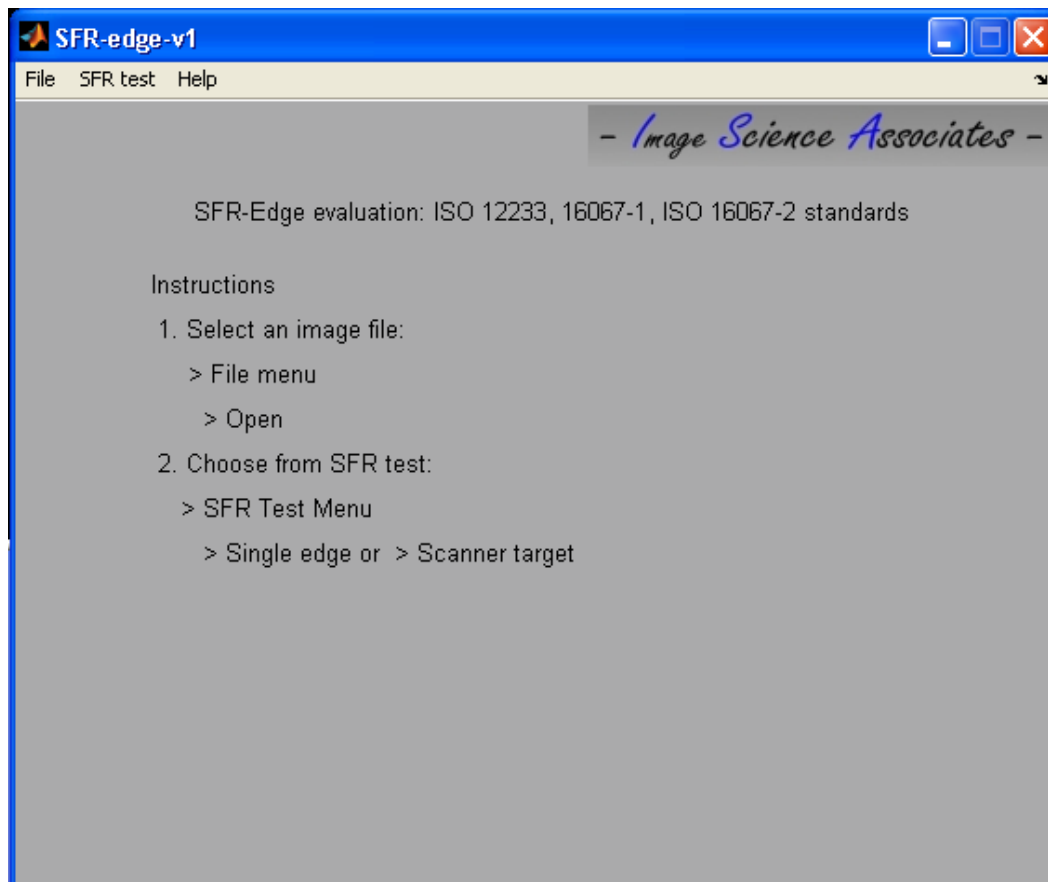


Figure 1: SFRedge console window

4. Running SFRedge

There are two versions of the SFR test implemented in this version of the software,;

Single edge which analyzes a single edge feature.

Scanner target which analyzes four edges of a target which looks similar to the one shown in Fig. 2.

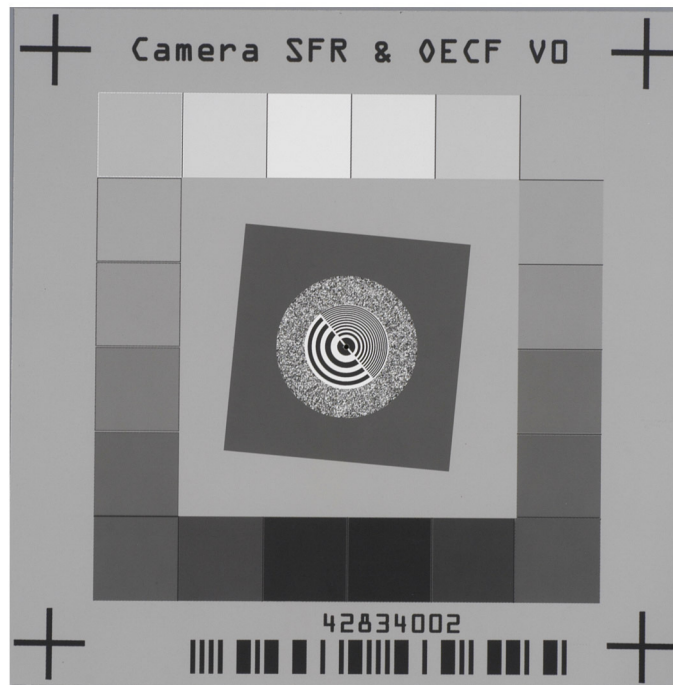


Figure 2: Scanner target

Running Single Edge evaluation

1. Select ***Single SFR edge*** from the Tests menu. If a file has not been already chosen from the File - > Open menu, a file selection window will open.
This is followed by a delay of up to 30 sec. while the image data is read into computer memory.
2. The user is then asked to indicate the image sampling interval (mm) or rate (pixel /inch)

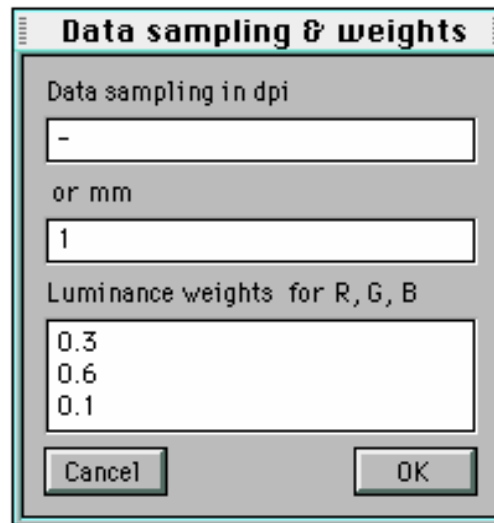


Figure 3: Window for selection of input sampling and luminance weights. Selection of OK results in the default values (shown) being used.

2. The user is then prompted for a region of Interest (ROI) selection. This is done using the computer mouse and selecting a rectangle in a 'rubber-band' type of operation.

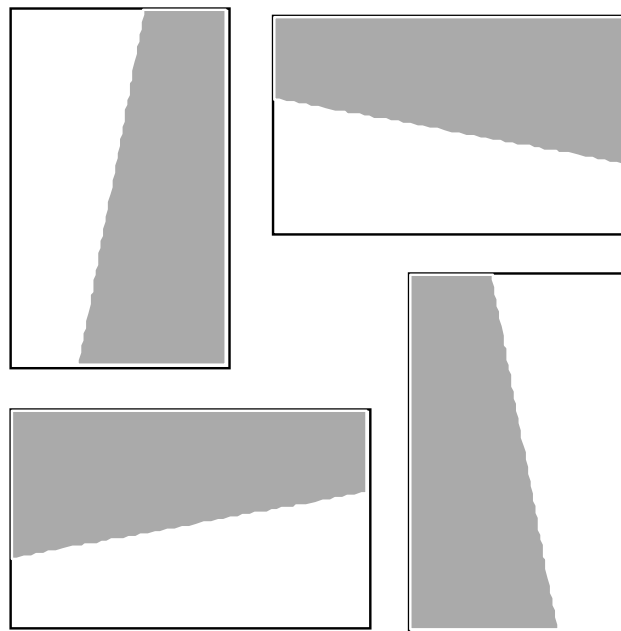


Figure 4: Acceptable edge-feature orientations

3. The analysis is then completed and a graph of the measured SFR is shown, along with other information, such as a sampling efficiency measure based on the spatial frequency at which the SFR falls to 10%. A SAVE button on the plot window can be used to save the results to a text 6

file.

Running Scanner Target evaluation

When this analysis is chosen, the user should have a digital image of the target with a layout shown in Fig. 2.

1. The image file selection is done via the **File-> Open** menu selection. If no file has previously been opened, then simply selecting the **SFR Test-> scanner target** menu results on a file selection window.
2. The target image will then be displayed with instructions for the user to select the center of the upper left and lower right '+' feature.
3. This is followed by presentation of a window, as shown in Fig. 5, which allows adjustment of the sub-target ROIs. You can move these by dragging each one using the computer mouse. When the locations appear correct, select the **GO** button and the analysis will start.

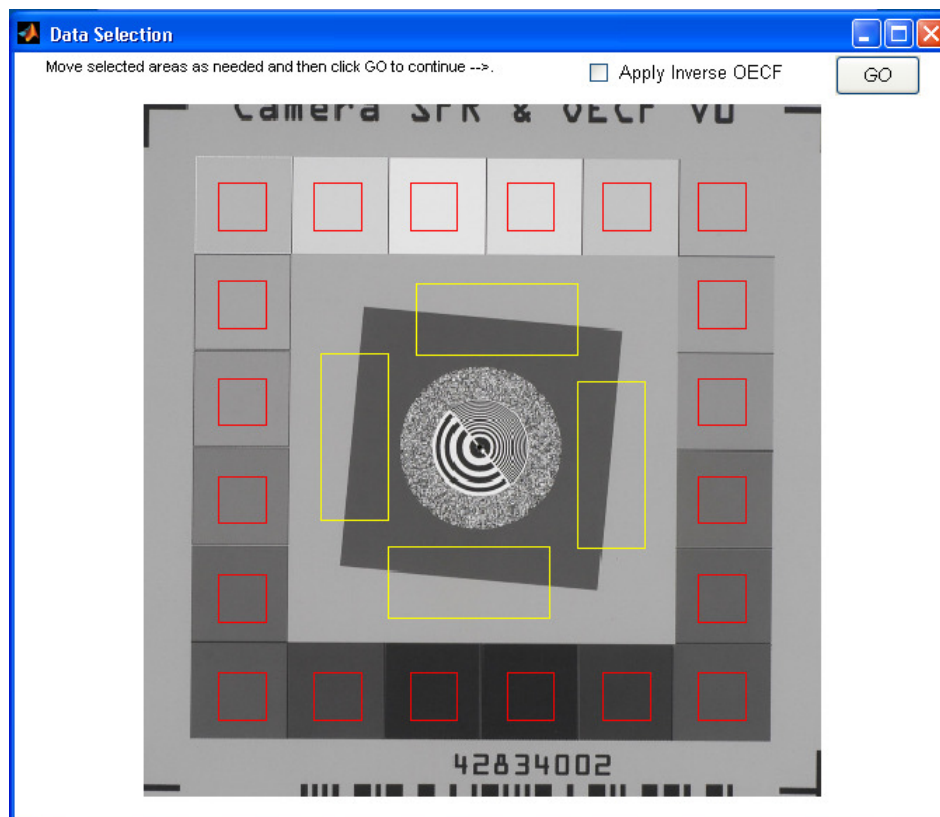


Figure 5: ROI selection

5. The results are then summarized in two windows, as shown in Fig 6.

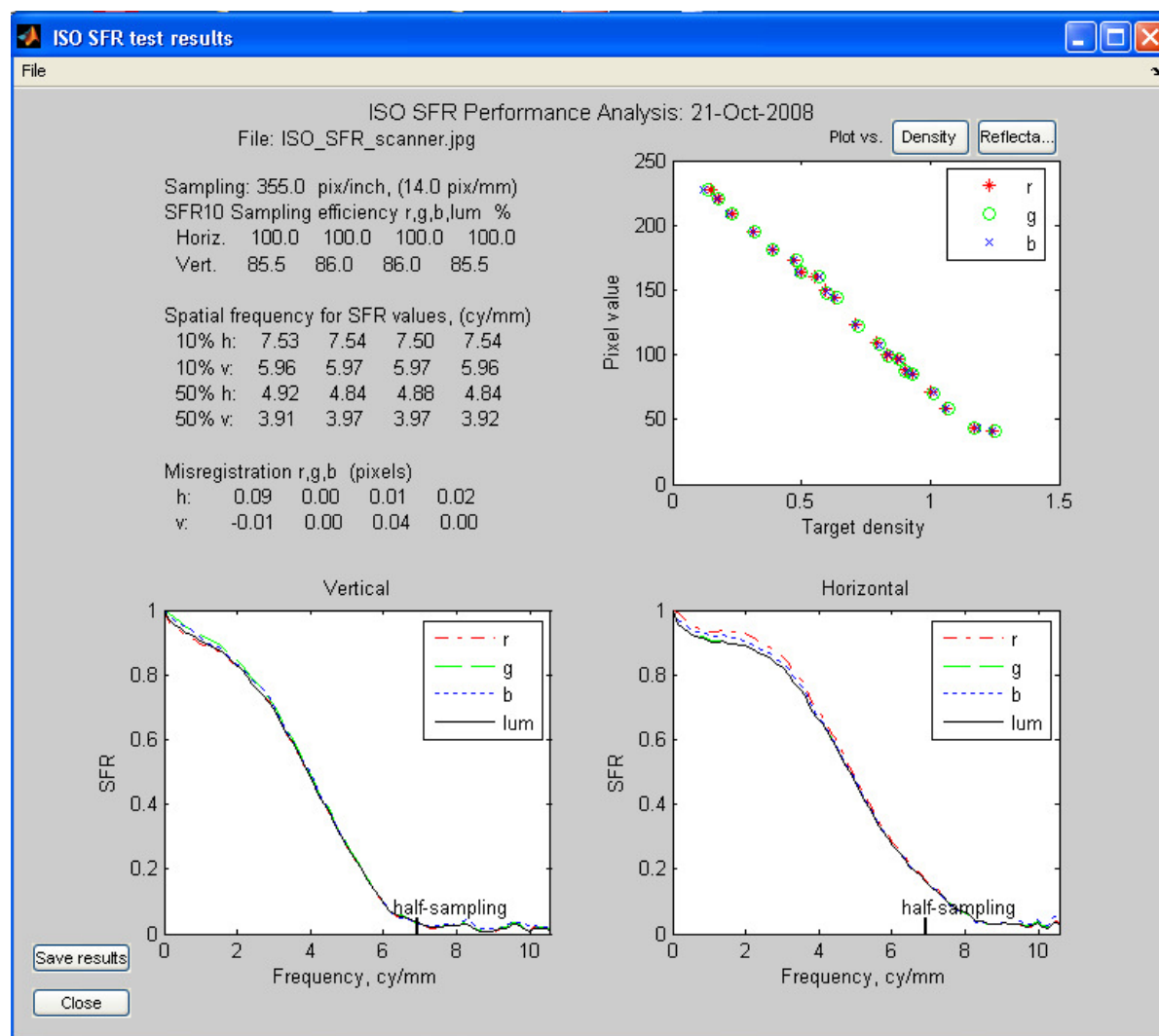


Figure 6: Results window

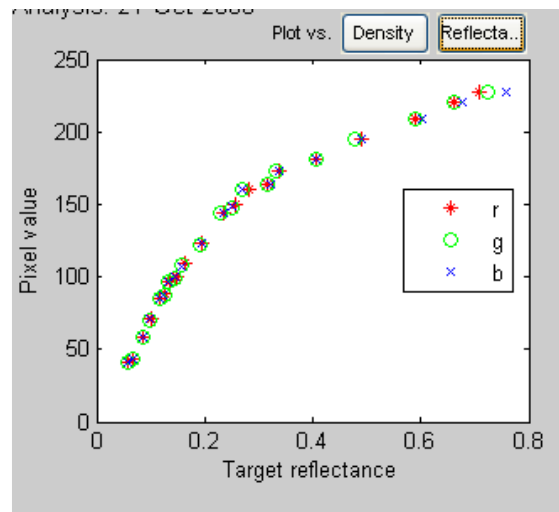


Figure 7: Results for the OECF evaluation plotted versus target reflectance rather than target density.