



Introductory User's Guide

CODE V 9.7
October 2006

OPTICAL RESEARCH ASSOCIATES

3280 East Foothill Boulevard, Suite 300
Pasadena, California 91107
Phone: (626) 795-9101
Fax: (626) 795-0184
E-mail: service@opticalres.com
<http://www.opticalres.com>

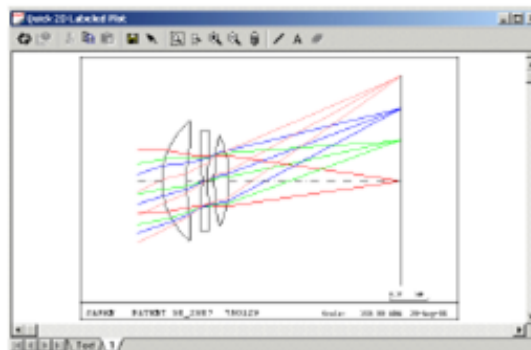
Menu

Search

- Click the Quick 2D Labeled icon on the toolbar:



It's the middle one that shows a lens and a pencil along with the letter Q (for quick) and the letter L (for labeled—float the mouse over it to see the tool-tip help to see the message “Quick 2D – Labeled”). Keep the resulting window open as you work (resize and move the window as desired). When you change something, click the Execute button in the upper left corner of the window to redraw the lens picture.



Before analyzing this lens, you will more than likely need to scale it to the required effective focal length (EFL).

Surface Operations: Scale the Lens

Although you set the f/number and field angles to the desired values in the New Lens Wizard, you need to be sure the lens has the specified effective focal length (EFL) of 6 mm. One way to determine this is to display a window of first order properties.

- Choose the **Display > List Lens Data > First Order Data** menu, and re-size/re-position the resulting window for convenient viewing.

Note the value labeled EFL in this window (0.9528 mm), which is not optimal for this application. Scaling the lens data is the usual way to fix this.

Menu

Search

Chapter 2 Just Do It: Design a Digital Camera Lens



Tip: You can place the EFL and various other lens properties on the status bar at the bottom of the main CODE V workspace. This allows continuous monitoring of these items. Choose the **Tools > Customize** menu and click on the **Status Bar** tab in the **Customize** dialog box to access this feature.

INFINITE CONJUGATES	
EFL	0.9528
BFL	0.7743
FPL	-0.8673
FWD	3.5000
IMG DIS	0.7702
OAL	0.3000
PARAXIAL IMAGE	
HT	0.4751
ANG	26.5000
ENTRANCE PUPIL	
DIA	0.2722
THI	0.1949
EXIT PUPIL	
DIA	0.2442
THI	-0.0805

2. Select surfaces 1 to Image in the LDM spreadsheet window (click in the surface # column and drag to Image to select the range).
3. Choose the **Edit > Scale** menu to display a dialog box (note that the surface range is set to 1 to Image).
4. Click the button labeled **Scale Effective Focal Length**, then enter the value **6.0** in the field labeled **Scale Value**.

Menu

Search



5. Click **OK** to scale the lens.
6. Click the Execute button  in the **List First Order Data** window to update it.

Note that the EFL value is now 6 mm as desired. Note also that the paraxial image height is 2.99 mm (close enough to the desired 3 mm).

7. Click the Execute button in the **Quick 2D Labeled Plot** window to update the picture as shown below.

