

Leaf

Lens Calibration Guide
for Leaf Aptus-II Digital Backs

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Lens Calibration Guide

Introduction

Shooting images with wide angle lenses and exploiting large format camera movements often results in lens fall-off and color cast effects. Another effect is the so-called centerfold effect where lines may appear in the image. Lens Calibration corrects all three of these effects.

The following shots show the same image with and without lens calibration:



What is lens cast and how is it recognized?

Why is Lens falloff associated with lens cast?

Lens cast results when light from the lens strikes the digital sensor at shallow angles causing areas of the image to have color casts ranging from green to magenta. This occurs mainly with non-retrofocus wide-angle lenses. Most non-retrofocus wide-angle lenses do not have sufficient lens coverage for wide image sensors. Shifting and tilting such a lens adds to the lens falloff. See: Leaf Technical Notes/Cast Effects in Wide Angle Photography (PDF)

Lens Calibration Guide

Creating a Lens Calibration in the studio.

Setting up to take the Calibration Shot

What you will need: a Leaf diffuser or any white diffusing sheet that will fully cover the lenses to be used.

1. Connect the camera back to the Leaf Capture software.
2. Place the camera in front of a uniform light source.

Tip: A studio flash with a soft box is recommended.

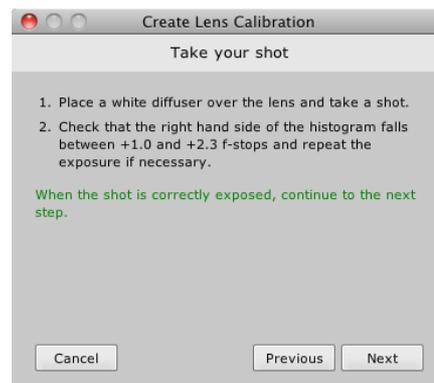


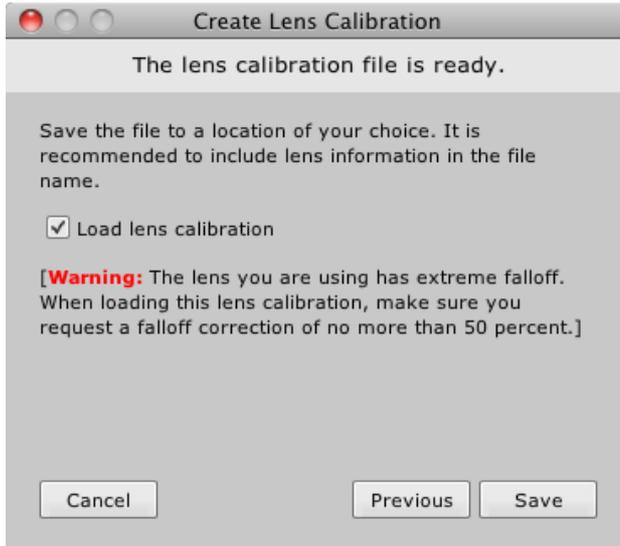
With this setup, you can now create the lens calibration file using Leaf Capture's calibration wizard.

Creating and Loading the Lens Calibration File

Create files wizard

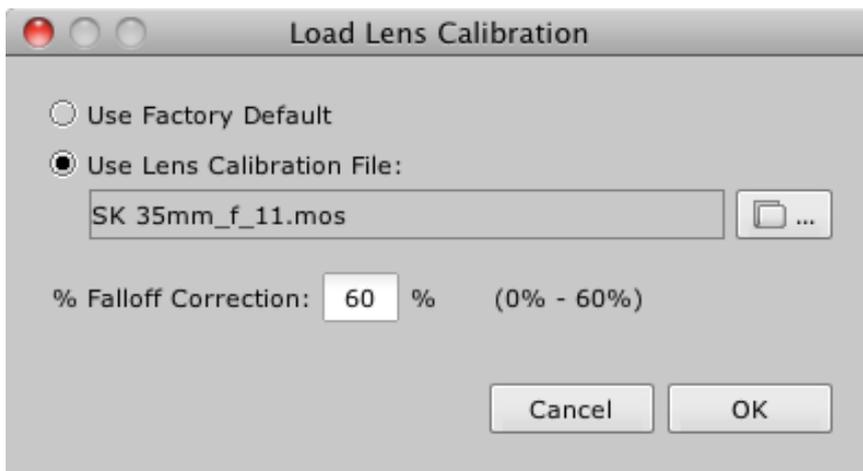
1. In the **Camera** menu, select **Lens Calibration>Create Files Wizard**.
2. Follow the steps in the lens calibration wizard.



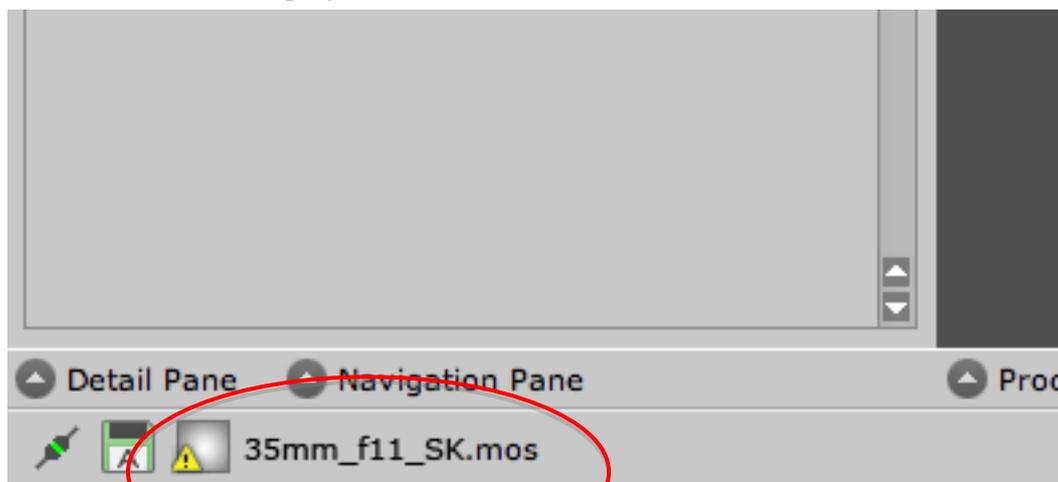


Note: The warning message may or may not appear depending on the lens in use.

3. Select the **Load lens calibration** check box to load the lens calibration file to your camera back after it is created. This enables you to take shots while using the lens calibration file.



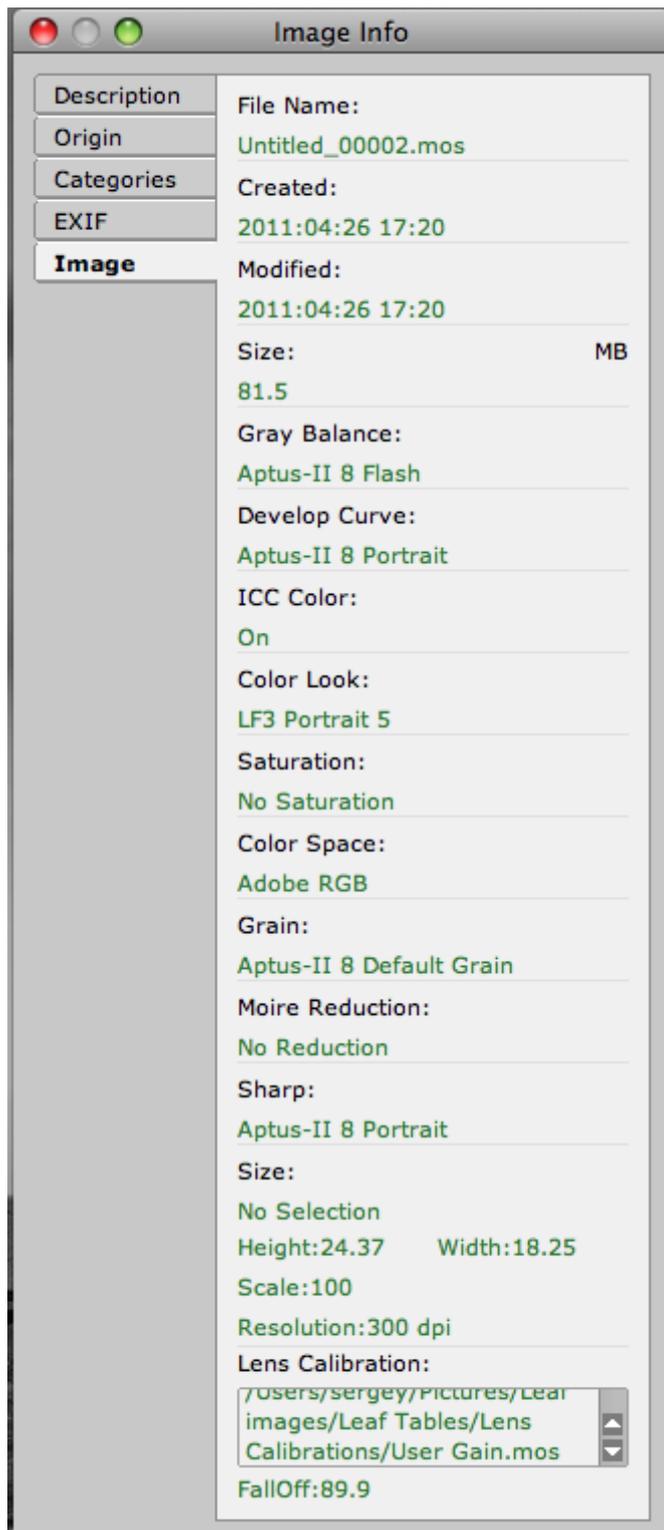
4. Click **OK**.
5. A small icon appears in the bottom left corner of the Leaf Capture window to remind you that a Lens Calibration is loaded. The name of the Lens Calibration is displayed next to the icon.



Notes:

- In the example above Leaf Capture has limited the lens falloff correction to 60%. You can reduce this number as desired.
- The falloff correction is applied for this load only.

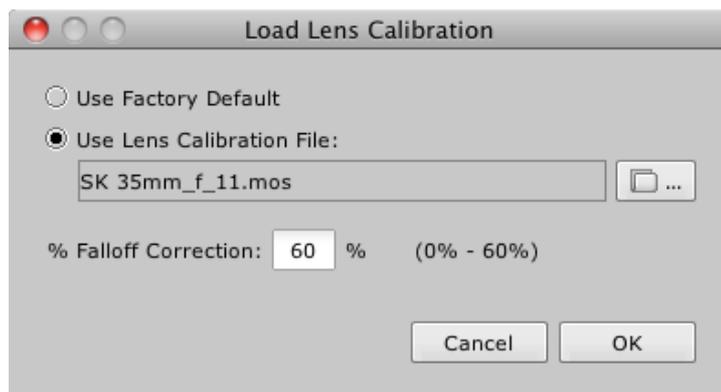
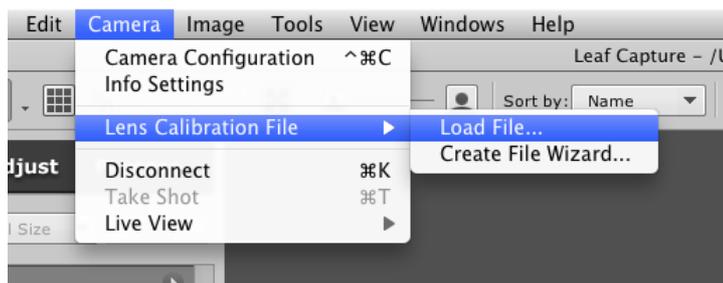
The name and path of the Lens Calibration and the % Falloff correction used, will appear in the Image Info of images shot with the Lens Calibration.



Load Lens Calibration

When shooting tethered, previously created Lens Calibrations can be loaded to the back to be used for shooting.

1. Start the Leaf Capture software.
2. Connect the back to the computer.
3. Click **Camera/Lens Calibration File/Load File** to open the Load Lens Calibration dialog box.



4. Select **Use Lens Calibration File** and click the browse icon to select the appropriate lens calibration file and click **OK**.

The lens calibration file is loaded and fall off correction is applied. You can now shoot using the lens calibration file.

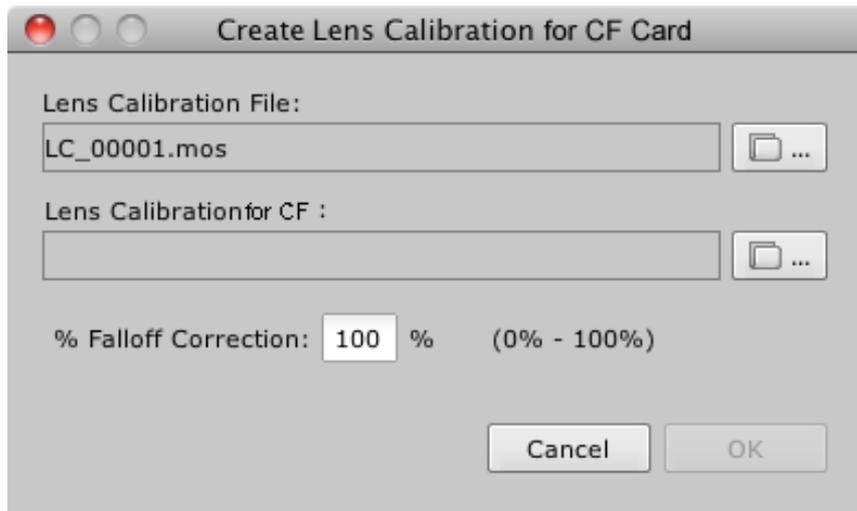
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While shooting to CF card

A lens calibration can be loaded to the back for using when shooting to CF card.

Preparing a Lens Calibration file for CF card

1. Quick format a CF card in the Aptus II back.
2. Create a Lens Calibration for tethered use.
3. Click **Camera/Lens Calibration File/CreateFile for CF card...**



4. Browse to the Lens Calibration file from step 2.
5. Give a meaningful name to the lens calibration for CF and specify its location.
6. Copy the Lens Calibration for CF to the following folder on the CF card:
CF/LEAFDM SYS/Lens_Calibration



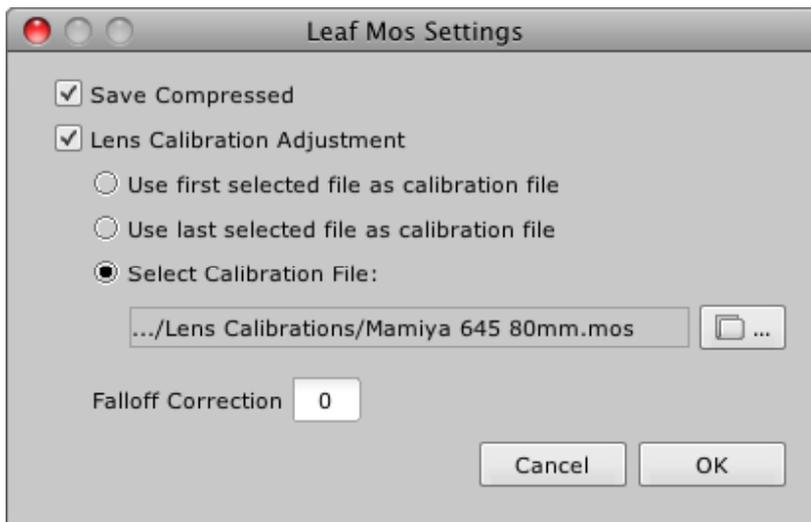
7. Insert the CF card into the back.
8. Load the Lens Calibration file:
Tap Camera → Camera Settings → Lens Calibration → Select desired lens calibration → Tap OK.

Applying a Lens Calibration

After shooting you can apply a Lens Calibration to images that were shot without one. You can do this in both Leaf Capture and in Capture One.

After shoot – Leaf Capture

1. In Leaf Capture, select the images you would like to process.
2. In the Process panel, select Leaf Mos in the Format list.
3. Click Settings.
4. The Leaf Mos Settings dialog box opens.



5. To save the mos file with lossless compression, check **Save Compressed**.
6. Check **Lens Calibration Adjustment**.
7. Select **Select Calibration File** and click the browse icon.
8. Select the lens calibration file for the lens used to create the image(s).

Tip: Click **Lens Calibration Folder** to access the default lens calibration files folder directly.

9. In the **Falloff Correction** box, type the desired correction percentage to adjust the fall off.

Note: There is no limitation to the amount of falloff correction that can be entered in this box. It can be anything between 0 and 100%. If the resulting image is not satisfactory, you will need to reduce the amount of falloff correction.

10. Click **OK**.
Your lens calibration settings are saved.
11. Process your images to apply the lens calibration file.

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Creating a Lens Calibration in the field

1. Before a shoot, prepare the Leaf diffuser or any white diffusing sheet that will fully cover the lenses to be used.
2. Set up and shoot your image(s).

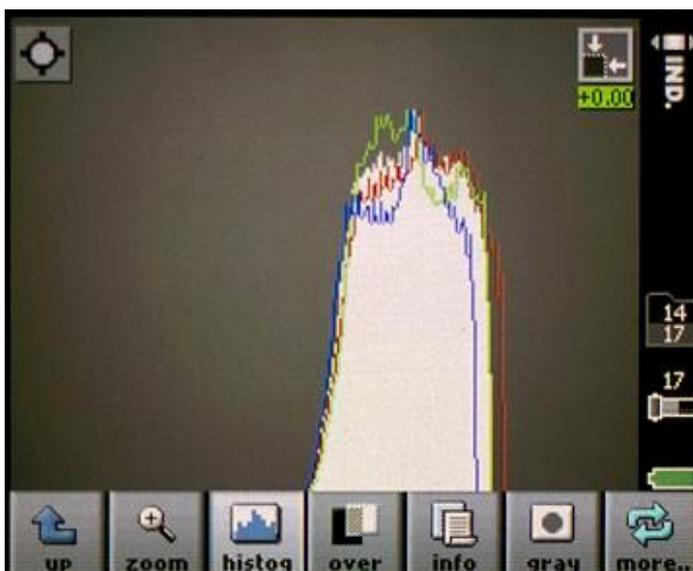


3. Place the white diffuser in front of the lens so that it covers the entire surface, and take a shot.



Note: To achieve good results, do not move the camera or lens position, or change the aperture before taking the diffuse calibration shot.

4. On the imaging module, display the diffused calibration image in **Shoot** view.
5. Tap **histog** to open the histogram.



Your overall exposure should be between -0.8 and +0.4. The exposure meter **+0.00** shows the overall exposure in f-stops.

If the calibration image is over or underexposed, adjust your shutter speed. Do not adjust the aperture setting.

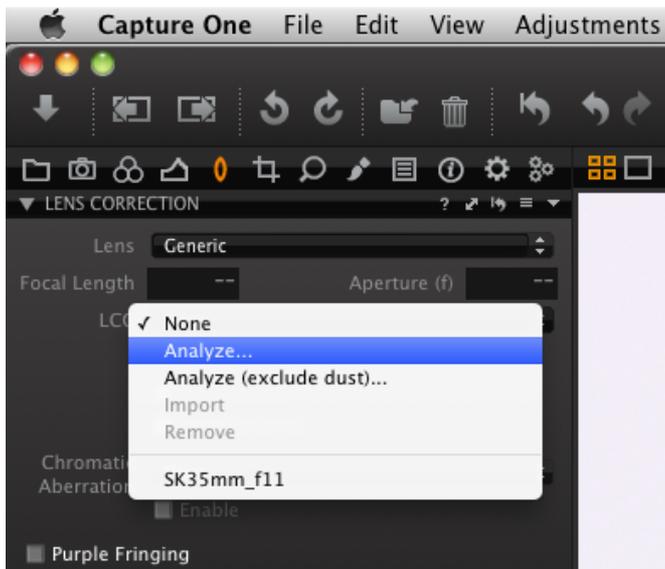
Note: It is recommended that you rename the calibration shot to include the lens and exposure information in the file name.

After shoot - Capture One

To create and apply a Lens Cast Correction (LCC) the images must meet the following condition:

The image must have been shot portably and not saved in Leaf Capture.

1. In Capture One, select the reference image that you shot through the diffuser.
2. In the Lens panel open Lens Correction.
3. In the LCC drop down menu select Analyze.



4. The software will analyze the image and then create a LCC file.
5. Select the image to be corrected and then select the LCC file made in the previous step.
6. You can activate Color Cast, Light Falloff and Dust Removal by checking the appropriate checkbox.
7. The image will be corrected.

Brightness compensation

Using Lens Falloff correction tends to create images that seem brighter. You can adjust brightness or the develop curve to compensate for this or shoot the images at a lower exposure level.

Creating the calibration shot in low light

In some conditions, you may not be able to create an optimally exposed calibration file as described above because the required exposure time is greater than the maximum. This could happen when you are shooting using indoor lighting, under a low sun, and so on.

In these cases take the calibration shot at the maximum permitted exposure, even if it will be underexposed.

Note: It is important that the illumination of the calibration shot be as close as possible in color temperature to that of the scene. Therefore don't use additional lighting when taking the calibration shot.