



Checklist for creating Calibration-Pictures for a camera with shift-lens

Focal length (about 4-8 different ones covering the complete range)	Shift = 0			max. shift to right (see figure below)			
	picture 1	picture 2	picture 3	min. f-stop...	f-stop 2 ...	f-stop 3 ...	max. f-stop
min. focal length	No.	No.	No.	No.	No.	No.	No.
focal length 2	No.	No.	No.	No.	No.	No.	No.
focal length 3	No.	No.	No.	No.	No.	No.	No.
focal length 4	No.	No.	No.	No.	No.	No.	No.
focal length 5	No.	No.	No.	No.	No.	No.	No.
focal length 6	No.	No.	No.	No.	No.	No.	No.
focal length 7	No.	No.	No.	No.	No.	No.	No.
focal length 8	No.	No.	No.	No.	No.	No.	No.
focal length 9	No.	No.	No.	No.	No.	No.	No.
focal length 10	No.	No.	No.	No.	No.	No.	No.

Notice:

Because the pictures with and without shift are not taken separately from each other, numbering all pictures during the take in the order they are stored in the camera memory is highly recommended, to simplify sorting them into the different image-file lists afterwards.

Procedure:

- 1 Adjust the camera to optimal picture settings, therefore: maximal resolution, highest image quality (jpeg image quality is sufficient).
- 2 Adjust the camera to the lowest focal length / zoom level.
- 3 Adjust the shift-lens to shift = 0.
- 4 Align the camera in such a way that a sufficient number of calibration points can be captured. Take care that the Calibration-Map detail should be kept rather smaller than too large, since the Calibration-Map edges shall not be captured if possible, and not all points need to be visible in the picture (attention: the viewfinder of some digital SLRs display a smaller cut than is actually taken). The absolute minimum quantity of needed Calibration-Points is approximately 15x12.
- 5 With this setting take 2 or 3 pictures of the Calibration-Map. For shift = 0 it is not necessary to include multiple different f-stops.
- 6 Shift the lens to the maximum right position (see figure below).
- 7 Align the camera to the Calibration-Map analog to step 4.
- 8 In order to get all vignetting correction parameters, take about 4 pictures with different f-stops for this shifted setting (the range of all possible f-stops should be covered as evenly as possible).
- 9 Repeat steps 3 to 8 several times, while increasing the focal length up to the maximum value in 4-8 steps.

