

Reikan FoCal Aperture Sharpness Test Report

for D7100 (serial number 4341964) with 150-600mm f/5-6.3

Test run on: 26/01/2016 17:10:38 with FoCal 2.0.6.2416W

Report created on: 26/01/2016 17:12:18 with FoCal 2.0.6W

Overview

Test Information

Property	Description
Data Creation FoCal Version	2.0.6.2416W
Data Analysis FoCal Version	2.0.6W
OS Version	Microsoft Windows NT 6.2.9200.0
Source Mode	Camera Mode
Image Capture Mode	JPEG
Analysis Method	Multi-ESH (RGB)
Camera Model	D7100
Firmware Version	V1.02
Serial Number	4341964
Shutter count (start)	16109
Test Colour Temp	3200 K
Lens	150-600mm f/5-6.3
Focal Length	600,0mm
Termination Reason	Success
Test ISO	100
Distance to Target	15,4m to 15,4m
Operation Mode	Normal Mode
Diffraction Limited Aperture	f/6,3
Worst Aperture	f/22,0
Optimal Aperture	f/8,0



Test Details

Aperture Sharpness Profile

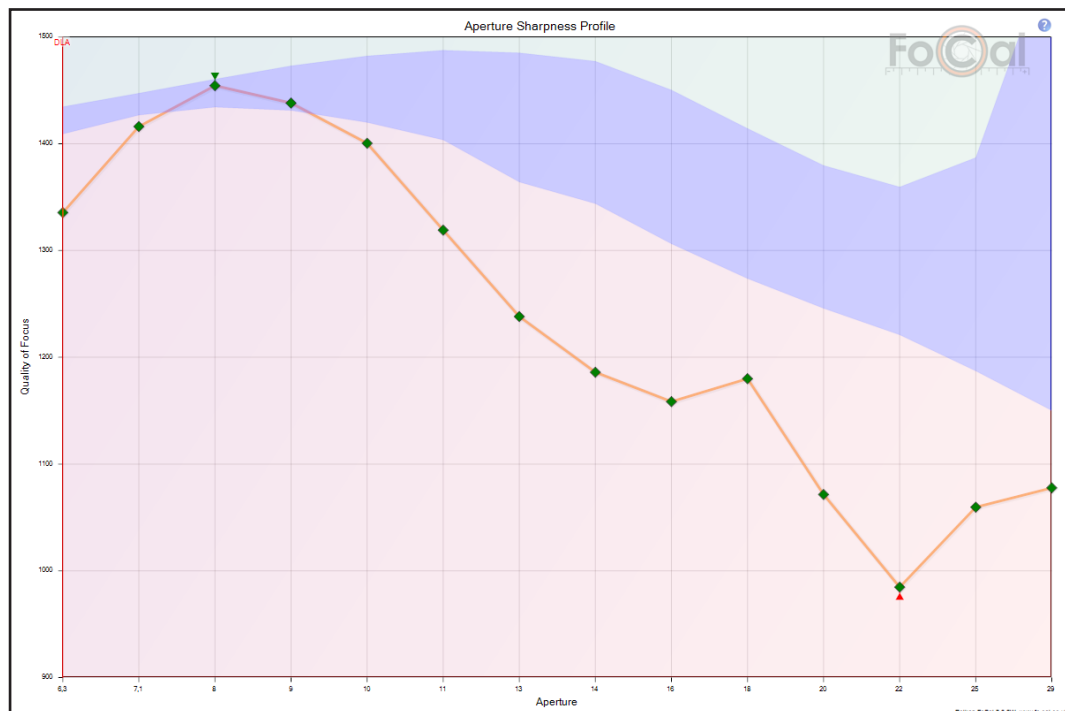
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

At small apertures (large f-numbers), diffraction will soften the image and reduce the sharpness. Where possible, the chart will include a red vertical marker at the Diffraction Limited Aperture (DLA) to indicate where diffraction will start to affect the sharpness of the image.

Lenses typically perform less well when close to maximum aperture (smallest f-number) which also results in a drop in sharpness.

If FoCal Comparison Data is available for this camera and lens a red/blue/green overlay will be added to indicate how your camera and lens performance compares with other users as follows:

- Red: indicates below-average performance,
- Blue: typical performance experienced by other users
- Green: above average performance.



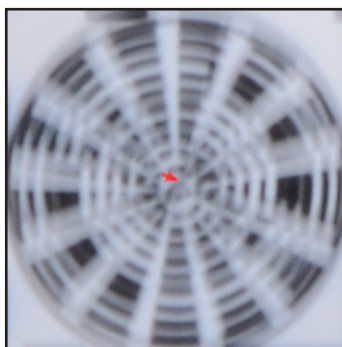
Analysis Details

Property	Description
Astigmatism Factor Range	43,3% ($\pm 30,6\%$)
Spectral Power Range	R: 32% ($\pm 0,1\%$) G: 32% ($\pm 0,1\%$) B: 36% ($\pm 0,2\%$)
Red:	
Red Optimal Aperture	f/8,0
Red Peak QoF	1446,7
Green:	
Green Optimal Aperture	f/8,0
Green Peak QoF	1517,2
Blue:	
Blue Optimal Aperture	f/8,0
Blue Peak QoF	1405,5

Aperture f/29

Aperture	f/29,0
Shutter Speed	1/10s
EV	13,0
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1077,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1079,6
Green Quality	1076,8
Blue Quality	1071,5
HVR	12,8%

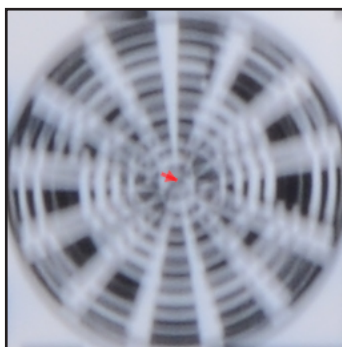
The following image is a crop of the section of image analysed by FoCal:



Aperture f/25

Aperture	f/25,0
Shutter Speed	1/13s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1059,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1076,6
Green Quality	1080,9
Blue Quality	1059,9
HVR	52,9%

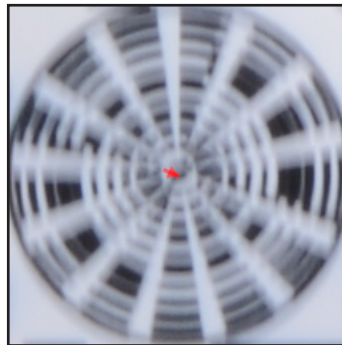
The following image is a crop of the section of image analysed by FoCal:



Aperture f/22

Aperture	f/22,0
Shutter Speed	1/20s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	984,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1025,8
Green Quality	986,5
Blue Quality	940,4
HVR	72,1%

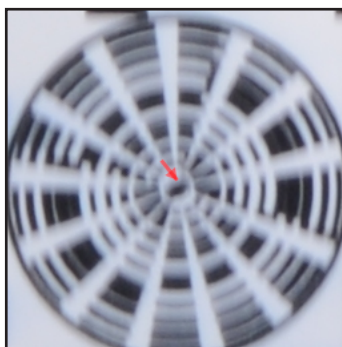
The following image is a crop of the section of image analysed by FoCal:



Aperture f/20

Aperture	f/20,0
Shutter Speed	1/25s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1071,5
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1052,6
Green Quality	1090,0
Blue Quality	1075,3
HVR	73,9%

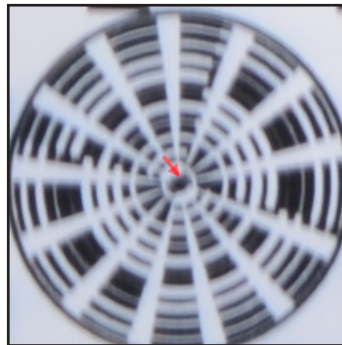
The following image is a crop of the section of image analysed by FoCal:



Aperture f/18

Aperture	f/18,0
Shutter Speed	1/30s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1180,0
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1154,9
Green Quality	1206,1
Blue Quality	1177,3
HVR	48,8%

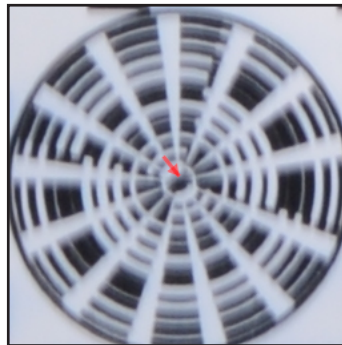
The following image is a crop of the section of image analysed by FoCal:



Aperture f/16

Aperture	f/16,0
Shutter Speed	1/40s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1158,5
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1137,5
Green Quality	1188,2
Blue Quality	1153,3
HVR	70,4%

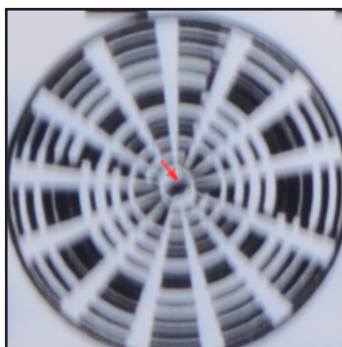
The following image is a crop of the section of image analysed by FoCal:



Aperture f/14

Aperture	f/14,0
Shutter Speed	1/50s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1186,0
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1172,7
Green Quality	1214,7
Blue Quality	1176,4
HVR	68,4%

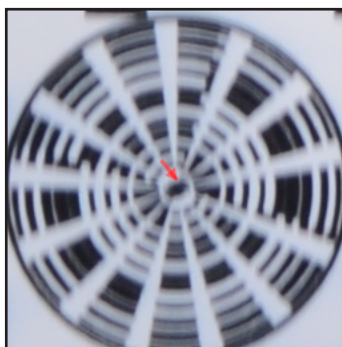
The following image is a crop of the section of image analysed by FoCal:



Aperture f/13

Aperture	f/13,0
Shutter Speed	1/59s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1238,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1223,0
Green Quality	1273,3
Blue Quality	1226,3
HVR	58,5%

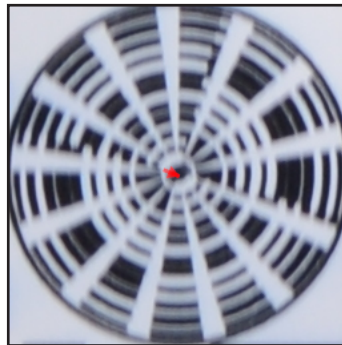
The following image is a crop of the section of image analysed by FoCal:



Aperture f/11

Aperture	f/11,0
Shutter Speed	1/80s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1319,1
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1308,7
Green Quality	1369,8
Blue Quality	1285,2
HVR	47,9%

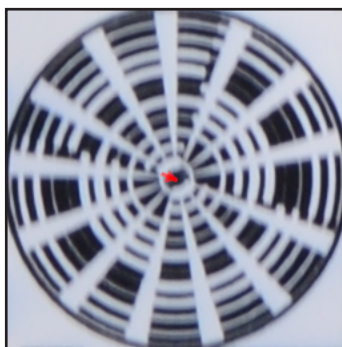
The following image is a crop of the section of image analysed by FoCal:



Aperture f/10

Aperture	f/10,0
Shutter Speed	1/100s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1400,5
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1393,4
Green Quality	1468,3
Blue Quality	1341,8
HVR	38,4%

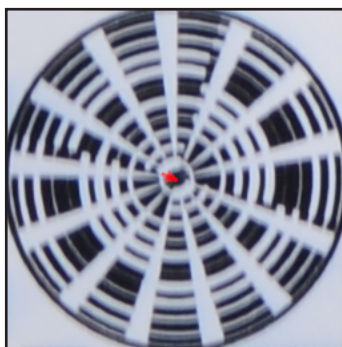
The following image is a crop of the section of image analysed by FoCal:



Aperture f/9

Aperture	f/9,0
Shutter Speed	1/125s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1438,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1429,4
Green Quality	1516,8
Blue Quality	1387,4
HVR	36,3%

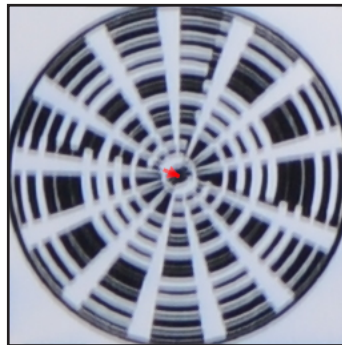
The following image is a crop of the section of image analysed by FoCal:



Aperture f/8

Aperture	f/8,0
Shutter Speed	1/125s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1454,5
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1446,7
Green Quality	1517,2
Blue Quality	1405,5
HVR	37,3%

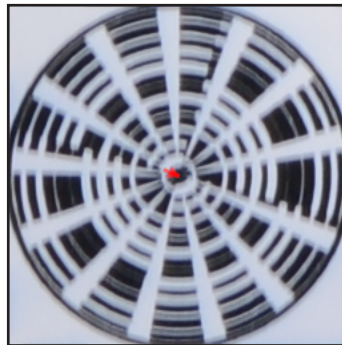
The following image is a crop of the section of image analysed by FoCal:



Aperture f/7,1

Aperture	f/7,1
Shutter Speed	1/200s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1416,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1375,6
Green Quality	1450,8
Blue Quality	1419,6
HVR	38,3%

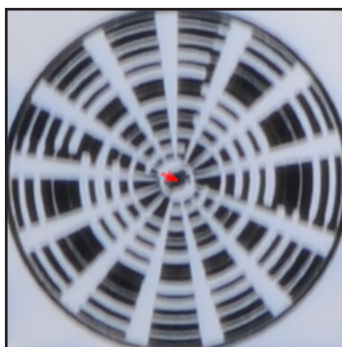
The following image is a crop of the section of image analysed by FoCal:



Aperture f/6,3

Aperture	f/6,3
Shutter Speed	1/200s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1335,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1291,8
Green Quality	1357,2
Blue Quality	1345,8
HVR	37,3%

The following image is a crop of the section of image analysed by FoCal:



Aperture Sharpness Profile

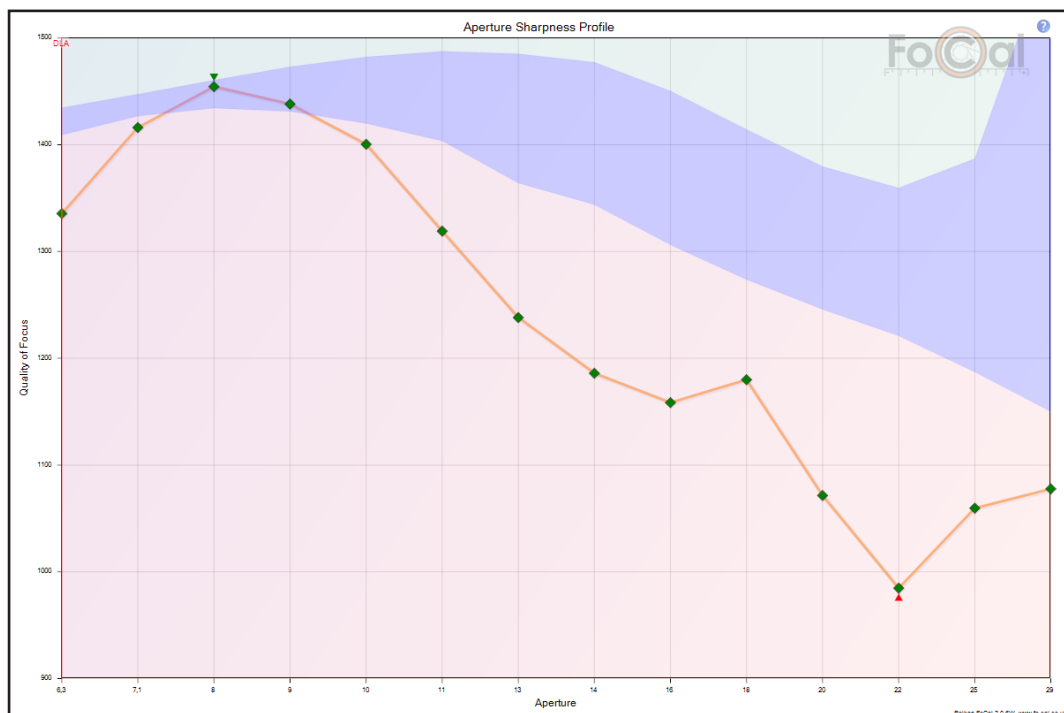
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

At small apertures (large f-numbers), diffraction will soften the image and reduce the sharpness. Where possible, the chart will include a red vertical marker at the Diffraction Limited Aperture (DLA) to indicate where diffraction will start to affect the sharpness of the image.

Lenses typically perform less well when close to maximum aperture (smallest f-number) which also results in a drop in sharpness.

If FoCal Comparison Data is available for this camera and lens a red/blue/green overlay will be added to indicate how your camera and lens performance compares with other users as follows:

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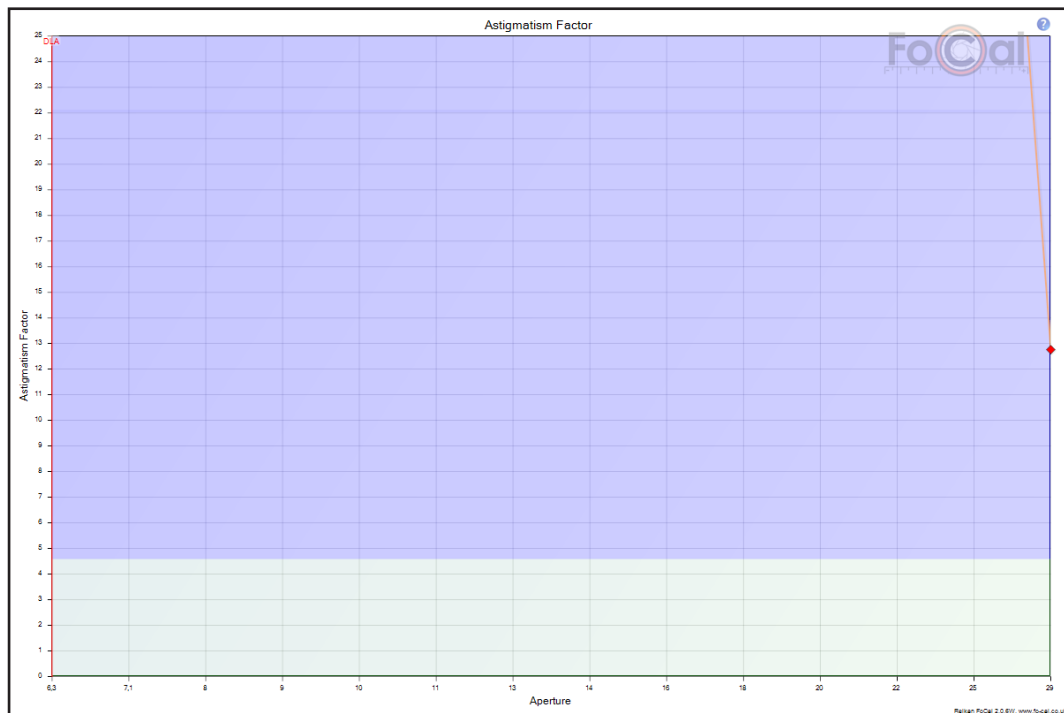


Astigmatism Factor

The Astigmatism Factor chart shows the image quality ratio between the horizontal and vertical analysis directions. If this value varies by more than 10% across the range, or the average value is more than $\pm 5\%$ then your lens may be suffering from some decentering or lens element alignment issues.

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ADS Difference

The ADS Difference chart shows the point-by-point difference between the data captured from your camera and lens and the processed data from many FoCal users.

The blue line indicates the difference between your data and the median value of other users, while the green area indicates the 25th and 75th percentile data from other users. The median of all the points is shown as a blue horizontal marker line.

Where possible, the chart will include a red vertical marker at the Diffraction Limited Aperture (DLA) to indicate where diffraction will start to affect the sharpness of the image.

A large variation or a median variation significantly away from the zero may indicate that your lens is not performing in the same way as a typical lens.

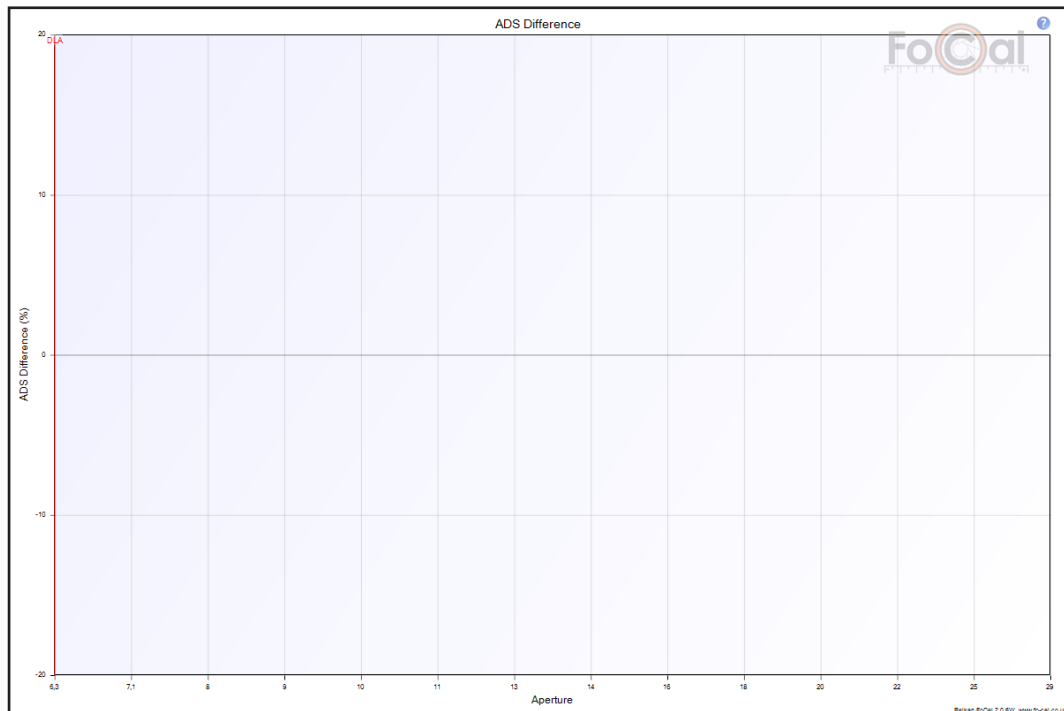


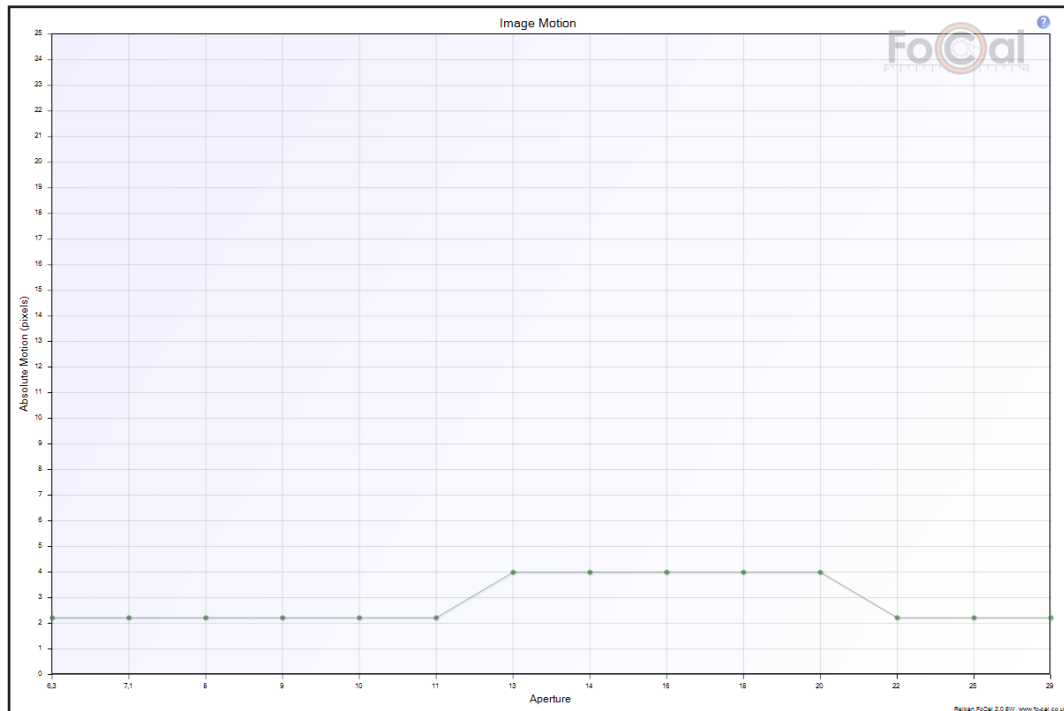
Image Motion

As changes are made inside a lens (e.g. focussing or aperture change), the image projected onto the sensor can move slightly. The Image Motion chart shows the absolute number of pixels moved for each image compared to the first image captured.

Typically, the Image Motion should be significantly less than 10 pixels, and a repeatable higher value could indicate misaligned lens optics, camera movement or vibration during the test or other environmental or lens issues.

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Corner Brightness Profile

The Corner Brightness Profile chart shows the relative change in brightness of the corners of the full-frame image through the test. The results use the centre of the image to compensate for common exposure differences. If the corners of the frame are unchanging and not completely dark, this chart can give an idea of the vignetting produced by this lens.

Be aware that a lot of cameras have in-camera lens corrections which are applied to JPEG images, so for a true indication of potential vignetting you should run the test with raw images.

