

Reikan FoCal Aperture Sharpness Test Report

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

Test run on: 27/01/2016 00:44:58 with FoCal 2.0.6.2416W

Report created on: 27/01/2016 00:51:44 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)	16413
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	15,3m to 15,3m
Operation Mode	Normal Mode
Diffraction Limited Aperture	f/6,3
Worst Aperture	f/25,0
Optimal Aperture	f/8,0

User Notes

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Test Details

Aperture Sharpness Profile

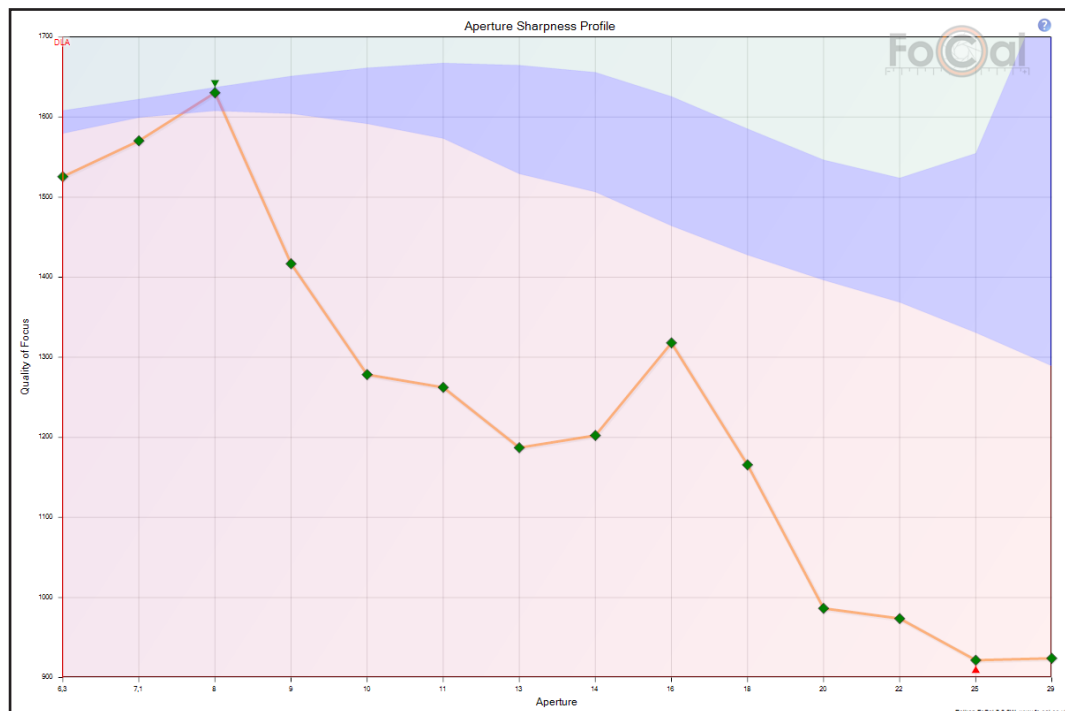
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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.



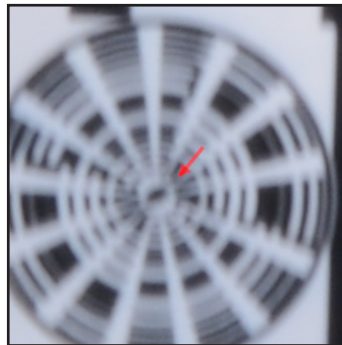
Analysis Details

Property	Description
Astigmatism Factor Range	45,5% ($\pm 44,0\%$)
Spectral Power Range	R: 32% ($\pm 0,2\%$) G: 32% ($\pm 0,1\%$) B: 36% ($\pm 0,2\%$)
Red:	
Red Optimal Aperture	f/8,0
Red Peak QoF	1595,9
Green:	
Green Optimal Aperture	f/6,3
Green Peak QoF	1574,2
Blue:	
Blue Optimal Aperture	f/8,0
Blue Peak QoF	1579,3

Aperture f/29

Aperture	f/29,0
Shutter Speed	1/13s
EV	13,4
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	924,0
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	921,5
Green Quality	929,9
Blue Quality	920,7
HVR	66,7%

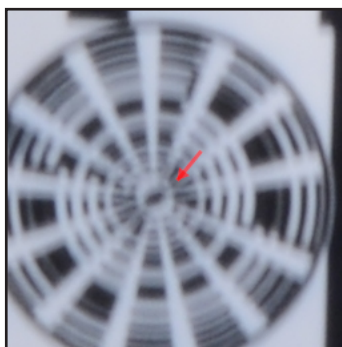
The following image is a crop of the section of image analysed by FoCal:



Aperture f/25

Aperture	f/25,0
Shutter Speed	1/14s
EV	13,1
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	921,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	933,5
Green Quality	925,8
Blue Quality	909,6
HVR	82,9%

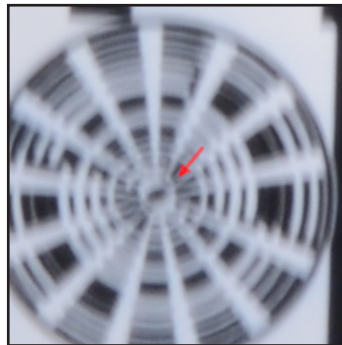
The following image is a crop of the section of image analysed by FoCal:



Aperture f/22

Aperture	f/22,0
Shutter Speed	1/20s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	973,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	960,6
Green Quality	984,9
Blue Quality	970,5
HVR	89,5%

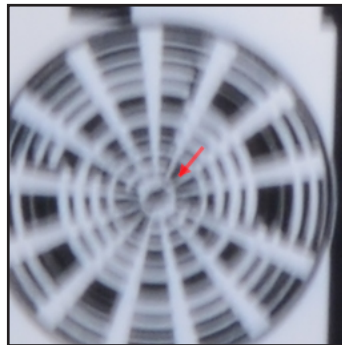
The following image is a crop of the section of image analysed by FoCal:



Aperture f/20

Aperture	f/20,0
Shutter Speed	1/25s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	986,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	982,2
Green Quality	992,5
Blue Quality	978,0
HVR	86,9%

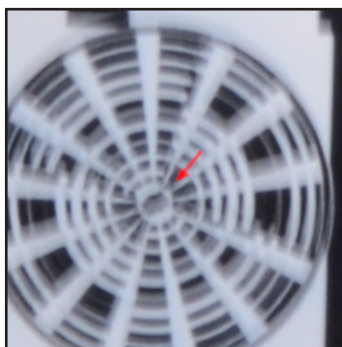
The following image is a crop of the section of image analysed by FoCal:



Aperture f/18

Aperture	f/18,0
Shutter Speed	1/30s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1165,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1145,8
Green Quality	1201,4
Blue Quality	1142,6
HVR	32,0%

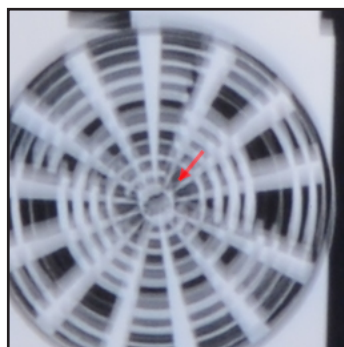
The following image is a crop of the section of image analysed by FoCal:



Aperture f/16

Aperture	f/16,0
Shutter Speed	1/40s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1318,0
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1322,3
Green Quality	1350,1
Blue Quality	1285,5
HVR	26,7%

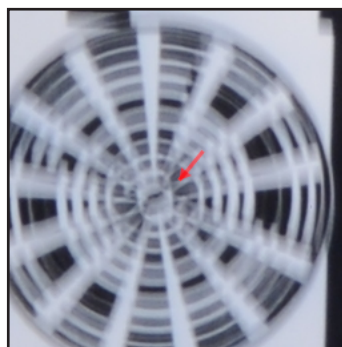
The following image is a crop of the section of image analysed by FoCal:



Aperture f/14

Aperture	f/14,0
Shutter Speed	1/50s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1202,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1210,0
Green Quality	1225,9
Blue Quality	1190,3
HVR	57,6%

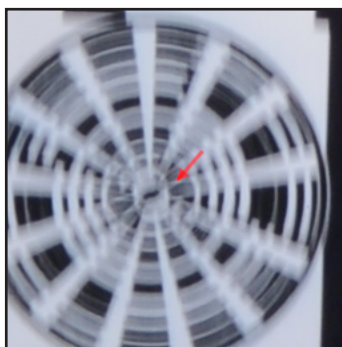
The following image is a crop of the section of image analysed by FoCal:



Aperture f/13

Aperture	f/13,0
Shutter Speed	1/59s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1187,1
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1192,8
Green Quality	1213,4
Blue Quality	1163,7
HVR	87,3%

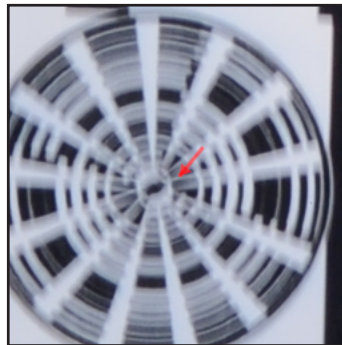
The following image is a crop of the section of image analysed by FoCal:



Aperture f/11

Aperture	f/11,0
Shutter Speed	1/80s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1262,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1265,2
Green Quality	1276,8
Blue Quality	1247,0
HVR	69,2%

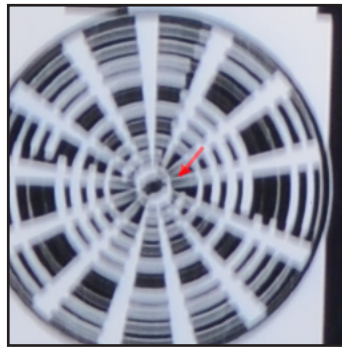
The following image is a crop of the section of image analysed by FoCal:



Aperture f/10

Aperture	f/10,0
Shutter Speed	1/100s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1278,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1256,3
Green Quality	1303,9
Blue Quality	1276,8
HVR	70,2%

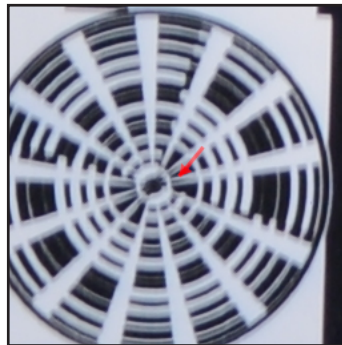
The following image is a crop of the section of image analysed by FoCal:



Aperture f/9

Aperture	f/9,0
Shutter Speed	1/125s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1416,9
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1391,2
Green Quality	1466,3
Blue Quality	1396,8
HVR	43,7%

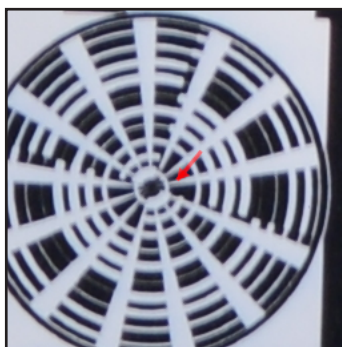
The following image is a crop of the section of image analysed by FoCal:



Aperture f/8

Aperture	f/8,0
Shutter Speed	1/160s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1630,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1595,9
Green Quality	1720,2
Blue Quality	1579,3
HVR	15,7%

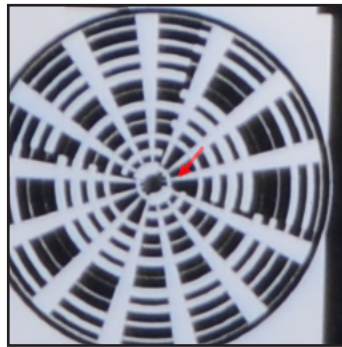
The following image is a crop of the section of image analysed by FoCal:



Aperture f/7,1

Aperture	f/7,1
Shutter Speed	1/160s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1570,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1531,4
Green Quality	1635,8
Blue Quality	1554,4
HVR	1,7%

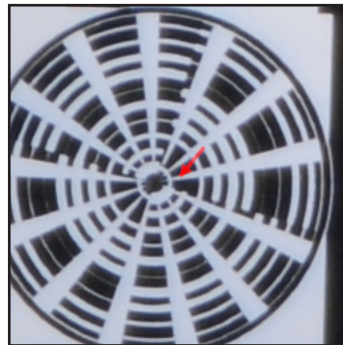
The following image is a crop of the section of image analysed by FoCal:



Aperture f/6,3

Aperture	f/6,3
Shutter Speed	1/250s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1525,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1495,5
Green Quality	1574,2
Blue Quality	1508,3
HVR	-1,4%

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



Aperture Sharpness Profile

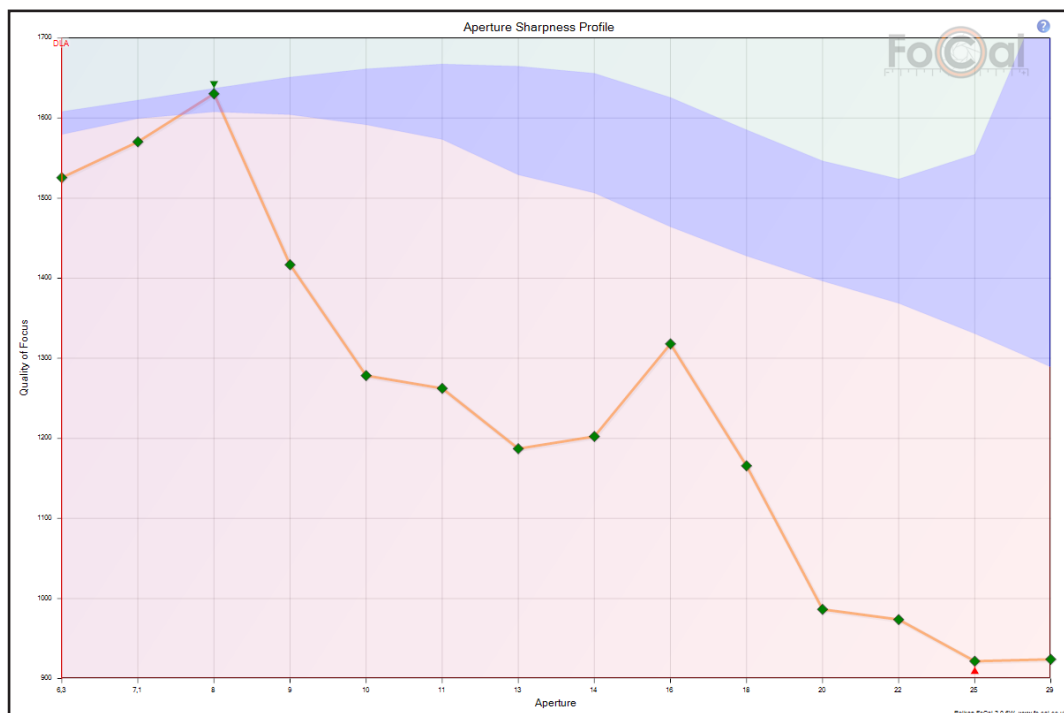
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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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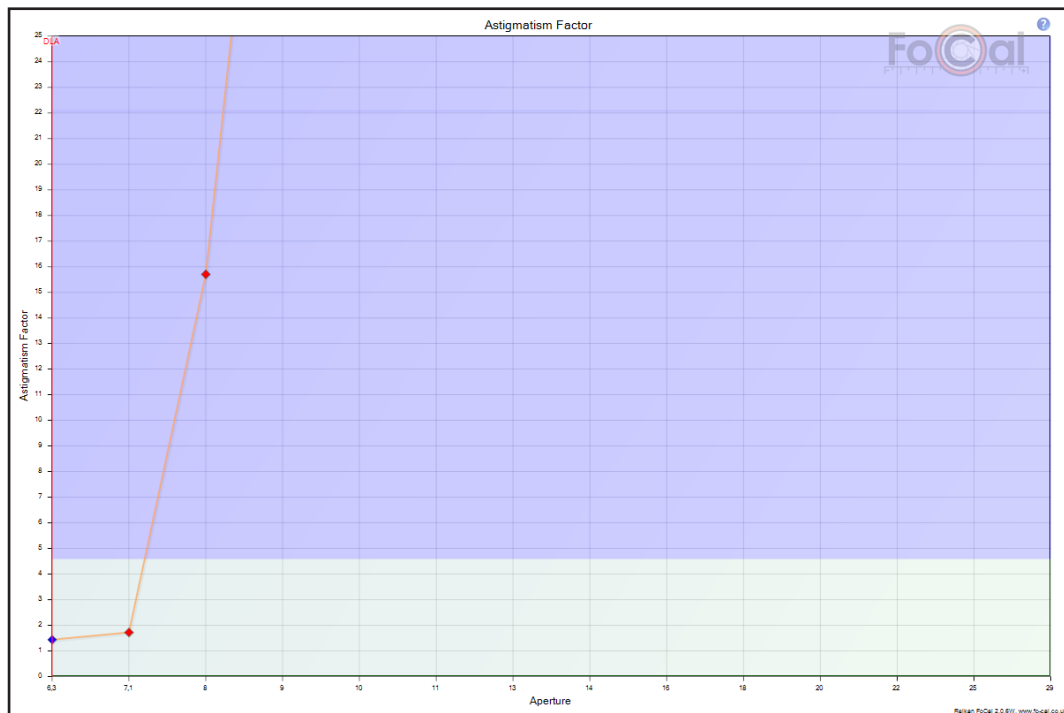


Astigmatism Factor

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.

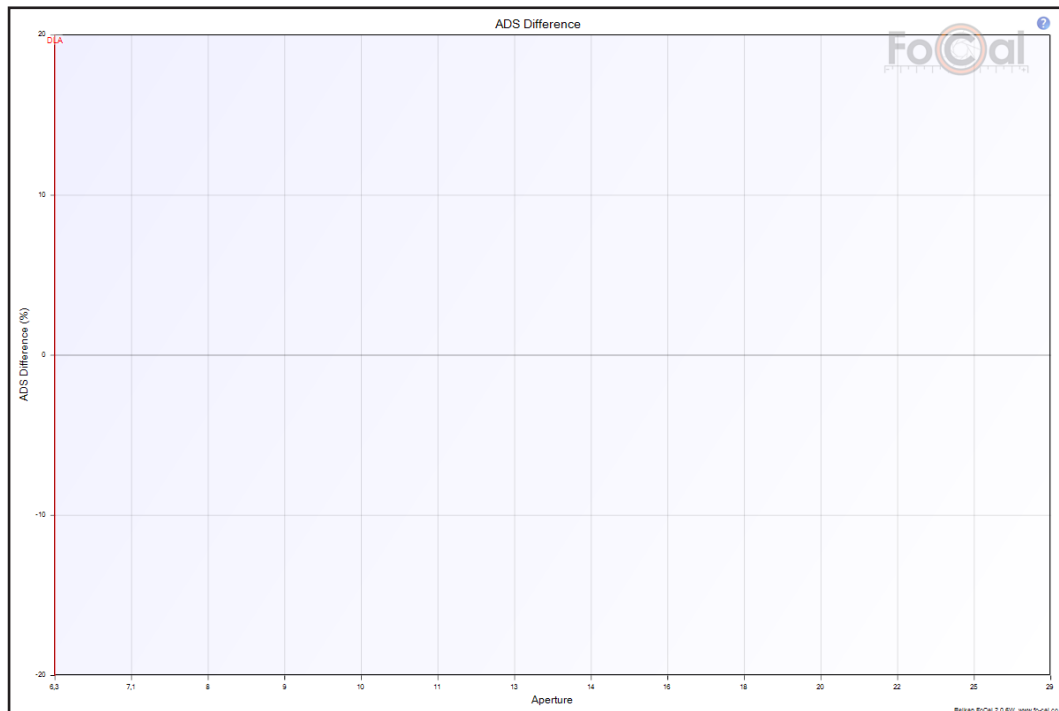


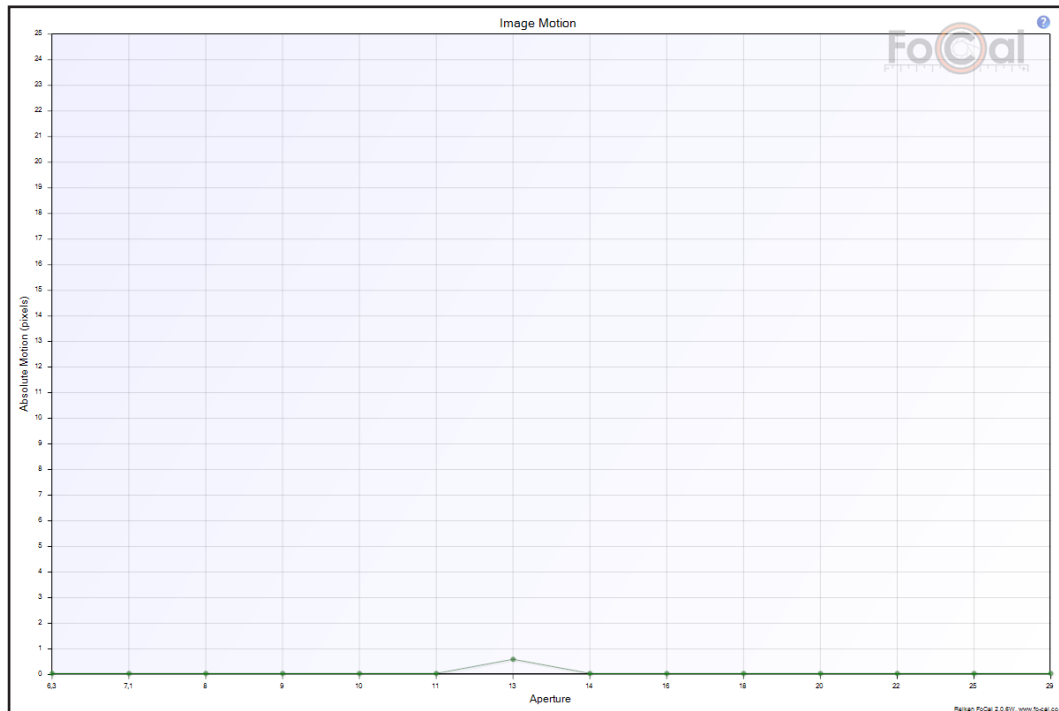
Image Motion

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.

