

Reikan FoCal Aperture Sharpness Test Report

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

Test run on: 27/01/2016 00:28:52 with FoCal 2.0.6.2416W

Report created on: 27/01/2016 00:30:51 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)	16368
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

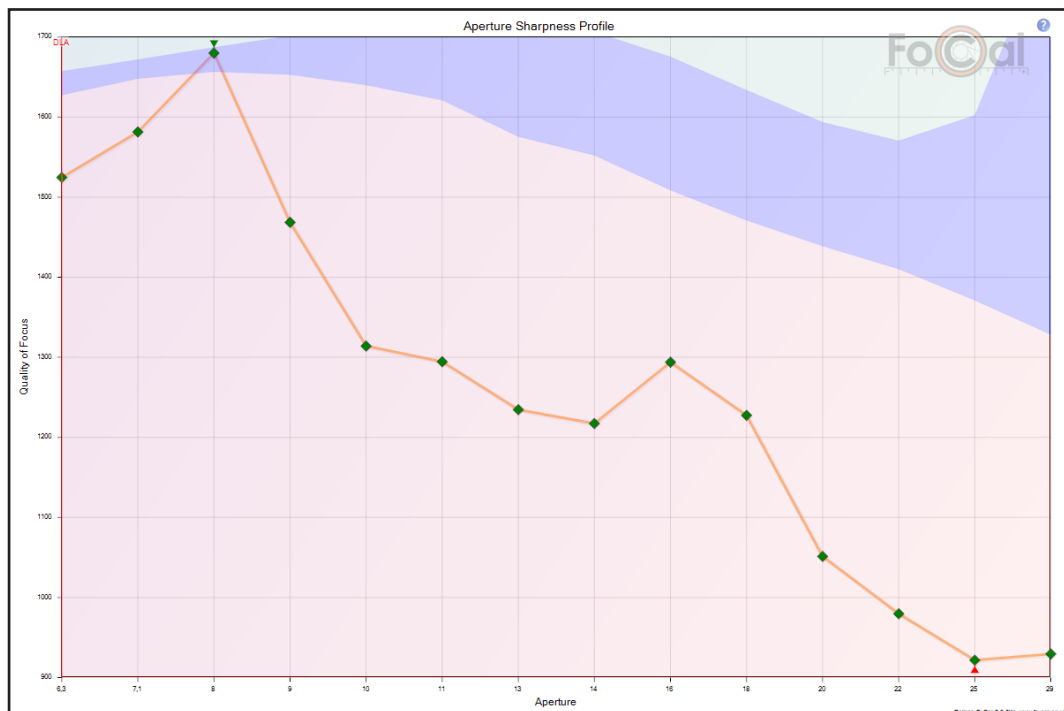
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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	45,8% ($\pm 44,9\%$)
Spectral Power Range	R: 31% ($\pm 0,1\%$) G: 32% ($\pm 0,2\%$) B: 36% ($\pm 0,3\%$)
Red:	
Red Optimal Aperture	f/8,0
Red Peak QoF	1668,4
Green:	
Green Optimal Aperture	f/8,0
Green Peak QoF	1777,1
Blue:	
Blue Optimal Aperture	f/8,0
Blue Peak QoF	1612,8

Aperture f/29

Aperture	f/29,0
Shutter Speed	1/13s
EV	13,4
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	929,5
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	928,4
Green Quality	936,9
Blue Quality	918,8
HVR	66,0%

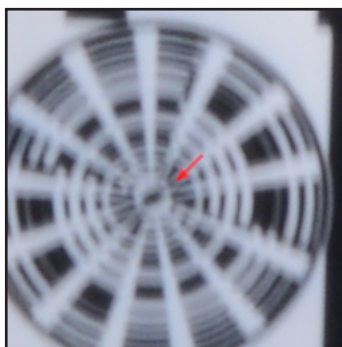
The following image is a crop of the section of image analysed by FoCal:



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	926,8
Green Quality	931,9
Blue Quality	907,2
HVR	82,5%

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	979,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	976,9
Green Quality	991,4
Blue Quality	971,5
HVR	90,7%

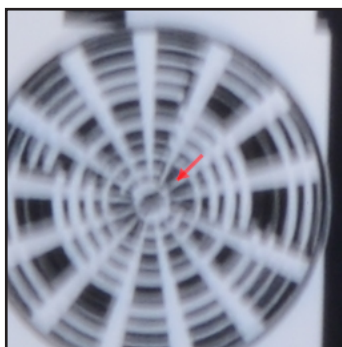
The following image is a crop of the section of image analysed by FoCal:



Aperture f/20

Aperture	f/20,0
Shutter Speed	1/25s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1051,3
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1018,6
Green Quality	1078,5
Blue Quality	1051,1
HVR	61,0%

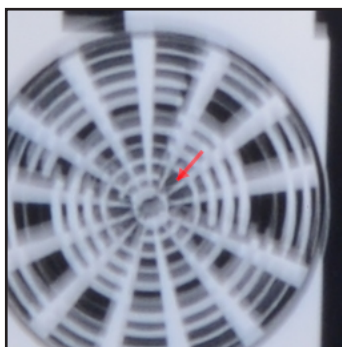
The following image is a crop of the section of image analysed by FoCal:



Aperture f/18

Aperture	f/18,0
Shutter Speed	1/30s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1227,5
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1219,2
Green Quality	1259,7
Blue Quality	1206,9
HVR	24,5%

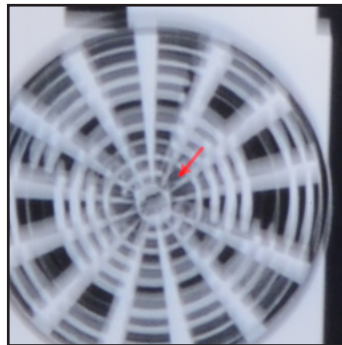
The following image is a crop of the section of image analysed by FoCal:



Aperture f/16

Aperture	f/16,0
Shutter Speed	1/40s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1293,9
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1298,0
Green Quality	1323,8
Blue Quality	1251,5
HVR	29,1%

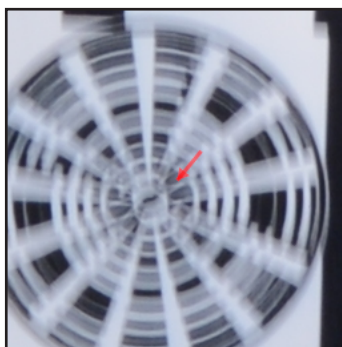
The following image is a crop of the section of image analysed by FoCal:



Aperture f/14

Aperture	f/14,0
Shutter Speed	1/50s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1217,3
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1228,9
Green Quality	1236,6
Blue Quality	1189,8
HVR	75,3%

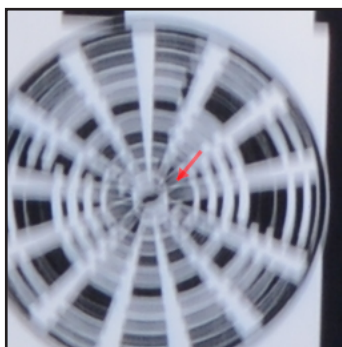
The following image is a crop of the section of image analysed by FoCal:



Aperture f/13

Aperture	f/13,0
Shutter Speed	1/59s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1234,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1232,7
Green Quality	1253,1
Blue Quality	1217,9
HVR	84,1%

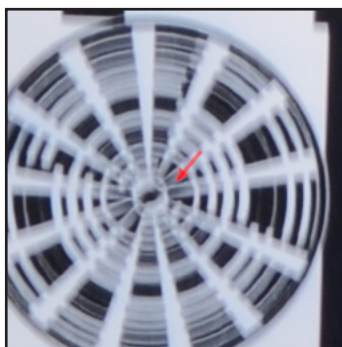
The following image is a crop of the section of image analysed by FoCal:



Aperture f/11

Aperture	f/11,0
Shutter Speed	1/80s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1294,5
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1306,2
Green Quality	1302,2
Blue Quality	1277,9
HVR	59,8%

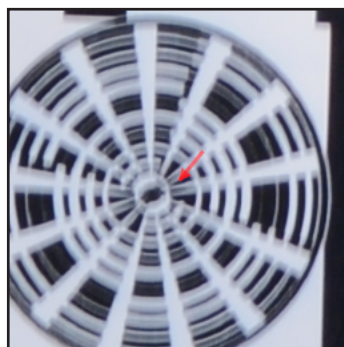
The following image is a crop of the section of image analysed by FoCal:



Aperture f/10

Aperture	f/10,0
Shutter Speed	1/100s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1314,1
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1291,9
Green Quality	1348,2
Blue Quality	1302,5
HVR	65,7%

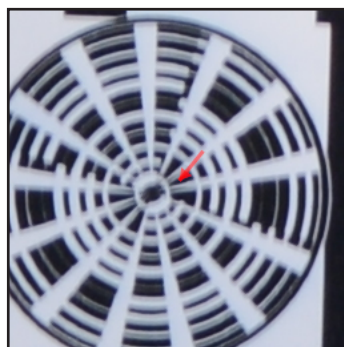
The following image is a crop of the section of image analysed by FoCal:



Aperture f/9

Aperture	f/9,0
Shutter Speed	1/125s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1468,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1449,3
Green Quality	1526,9
Blue Quality	1434,3
HVR	33,7%

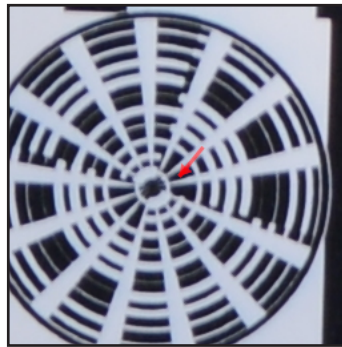
The following image is a crop of the section of image analysed by FoCal:



Aperture f/8

Aperture	f/8,0
Shutter Speed	1/160s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1680,0
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/37
Red Quality	1668,4
Green Quality	1777,1
Blue Quality	1612,8
HVR	10,0%

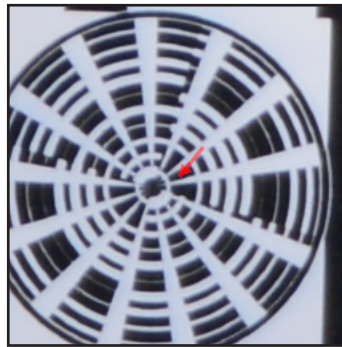
The following image is a crop of the section of image analysed by FoCal:



Aperture f/7,1

Aperture	f/7,1
Shutter Speed	1/200s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1581,5
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1549,2
Green Quality	1655,6
Blue Quality	1548,2
HVR	-1,9%

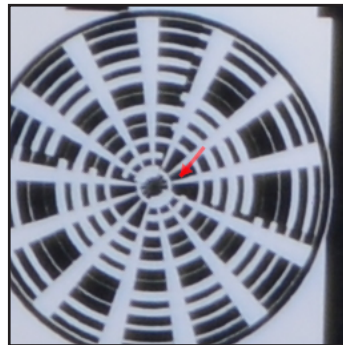
The following image is a crop of the section of image analysed by FoCal:



Aperture f/6,3

Aperture	f/6,3
Shutter Speed	1/250s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1524,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1503,5
Green Quality	1584,9
Blue Quality	1496,4
HVR	-0,9%

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



Aperture Sharpness Profile

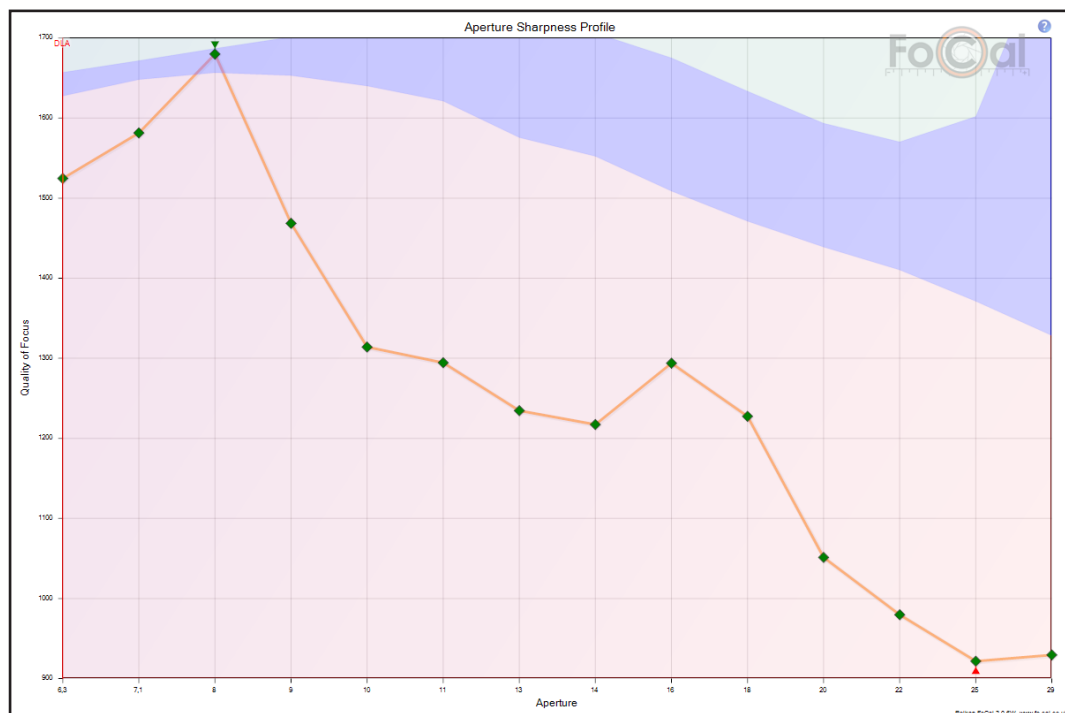
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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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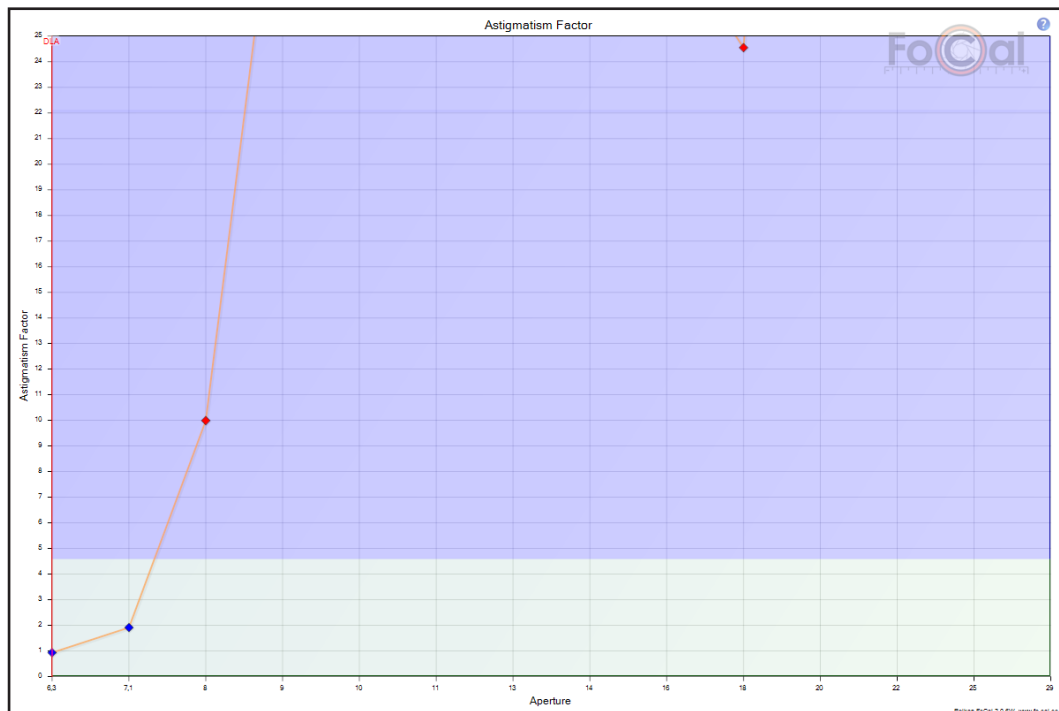


Astigmatism Factor

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.

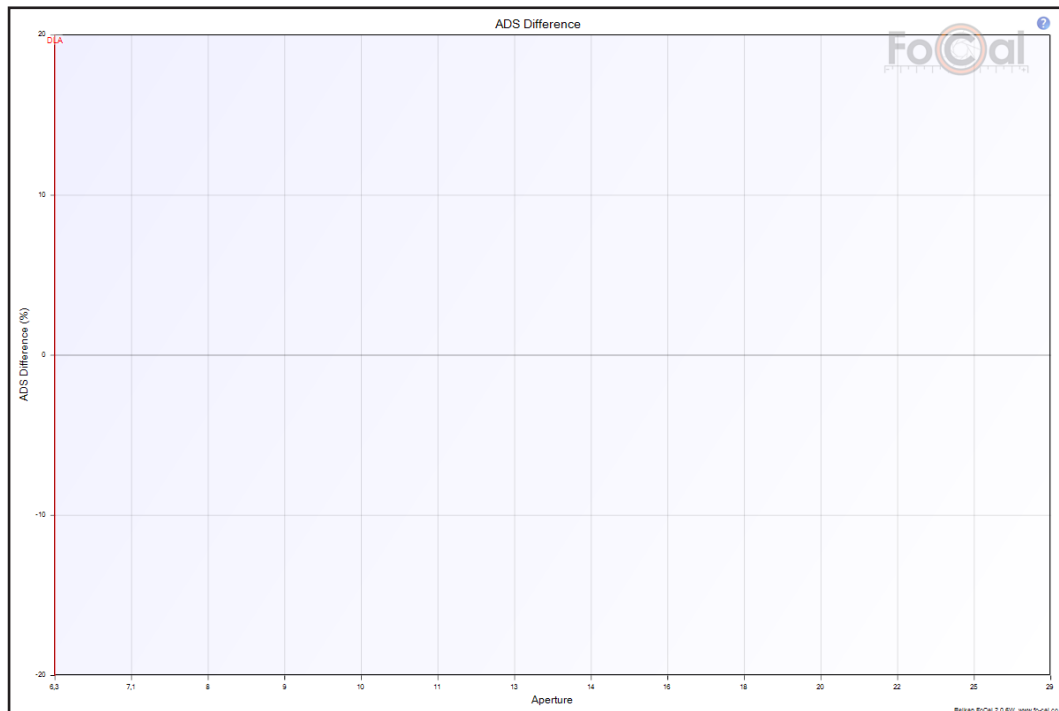


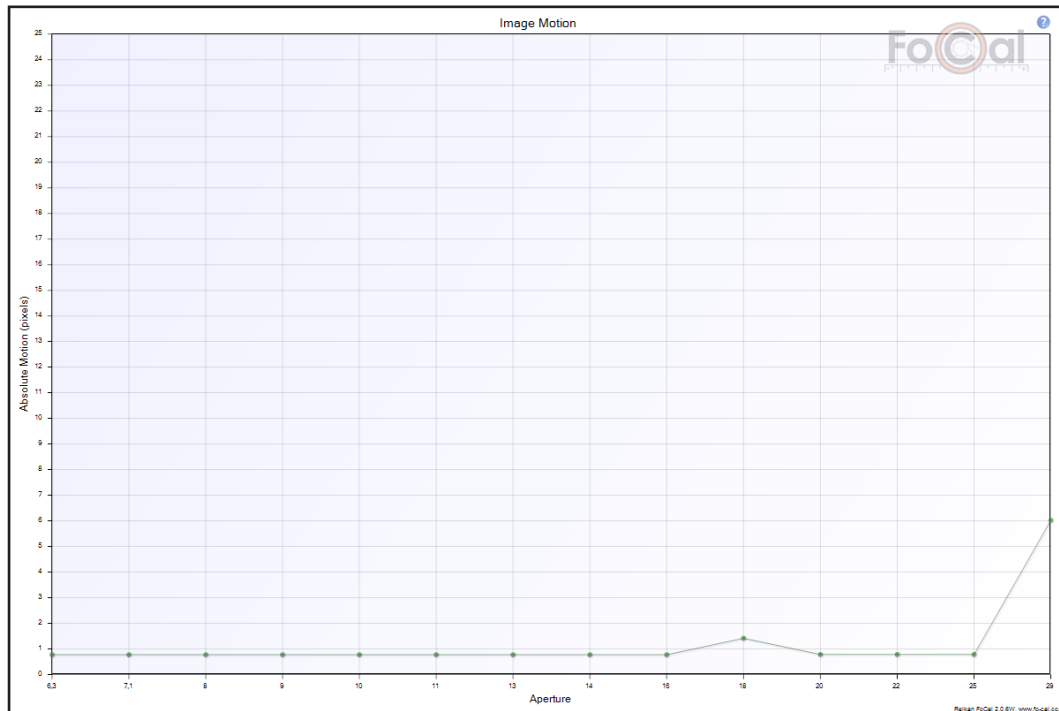
Image Motion

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.

