

Reikan FoCal Aperture Sharpness Test Report

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

Test run on: 26/01/2016 17:18:59 with FoCal 2.0.6.2416W

Report created on: 26/01/2016 17:20:37 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)	16140
Test Colour Temp	3200 K
Lens	150-600mm f/5-6.3
Focal Length	600,0mm
Termination Reason	Success
Test ISO	400
Distance to Target	15,4m to 15,5m
Operation Mode	Normal Mode
Diffraction Limited Aperture	f/6,3
Worst Aperture	f/29,0
Optimal Aperture	f/8,0



Test Details

Aperture Sharpness Profile

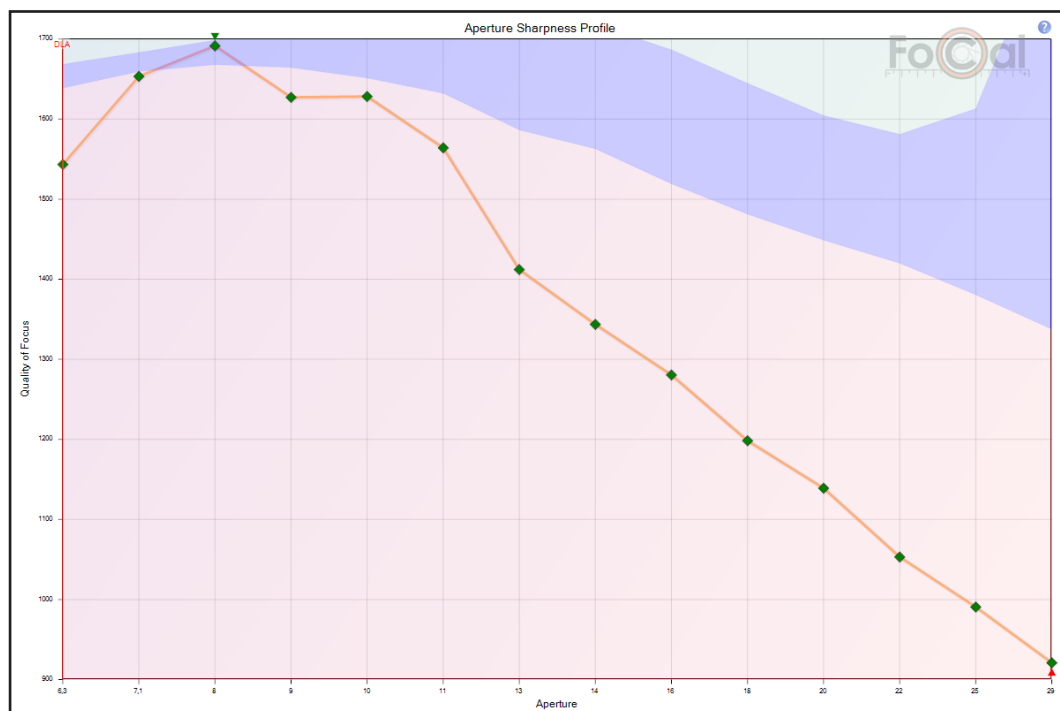
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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.



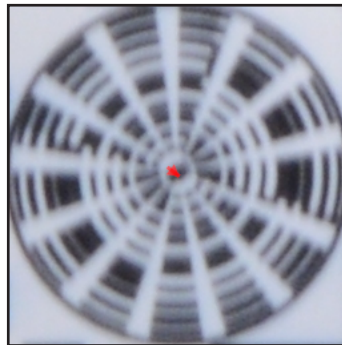
Analysis Details

Property	Description
Astigmatism Factor Range	23,7% ($\pm 21,5\%$)
Spectral Power Range	R: 32% ($\pm 0,3\%$) G: 32% ($\pm 0,2\%$) B: 36% ($\pm 0,4\%$)
Red:	
Red Optimal Aperture	f/8,0
Red Peak QoF	1720,4
Green:	
Green Optimal Aperture	f/7,1
Green Peak QoF	1774,8
Blue:	
Blue Optimal Aperture	f/7,1
Blue Peak QoF	1565,0

Aperture f/29

Aperture	f/29,0
Shutter Speed	1/50s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	920,9
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	899,1
Green Quality	940,3
Blue Quality	932,6
HVR	45,2%

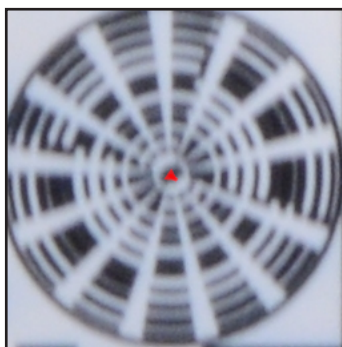
The following image is a crop of the section of image analysed by FoCal:



Aperture f/25

Aperture	f/25,0
Shutter Speed	1/59s
EV	13,1
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	990,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	957,3
Green Quality	1019,7
Blue Quality	986,5
HVR	42,2%

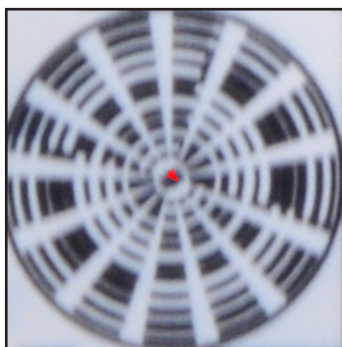
The following image is a crop of the section of image analysed by FoCal:



Aperture f/22

Aperture	f/22,0
Shutter Speed	1/80s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1053,1
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1021,5
Green Quality	1080,8
Blue Quality	1057,1
HVR	40,4%

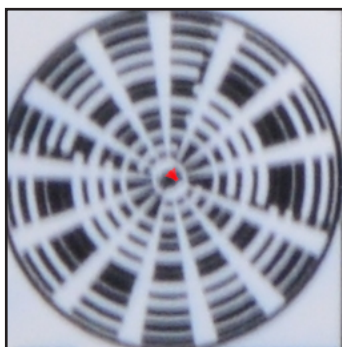
The following image is a crop of the section of image analysed by FoCal:



Aperture f/20

Aperture	f/20,0
Shutter Speed	1/100s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1139,0
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1105,4
Green Quality	1164,1
Blue Quality	1134,3
HVR	35,3%

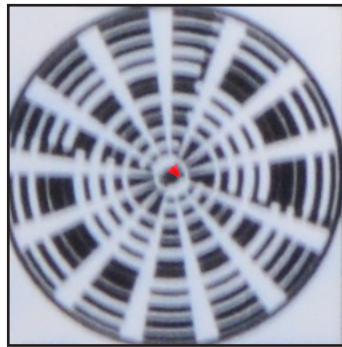
The following image is a crop of the section of image analysed by FoCal:



Aperture f/18

Aperture	f/18,0
Shutter Speed	1/125s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1198,3
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1154,3
Green Quality	1243,6
Blue Quality	1196,2
HVR	33,2%

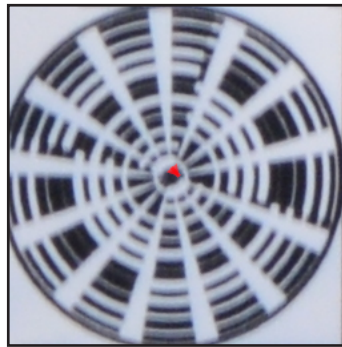
The following image is a crop of the section of image analysed by FoCal:



Aperture f/16

Aperture	f/16,0
Shutter Speed	1/160s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1280,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1245,6
Green Quality	1333,1
Blue Quality	1262,8
HVR	30,0%

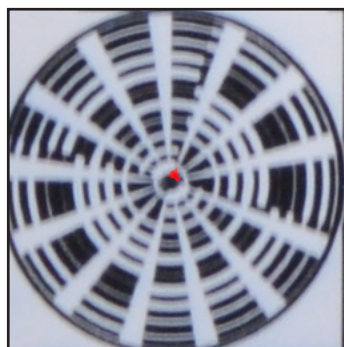
The following image is a crop of the section of image analysed by FoCal:



Aperture f/14

Aperture	f/14,0
Shutter Speed	1/200s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1343,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1320,2
Green Quality	1402,4
Blue Quality	1310,6
HVR	28,7%

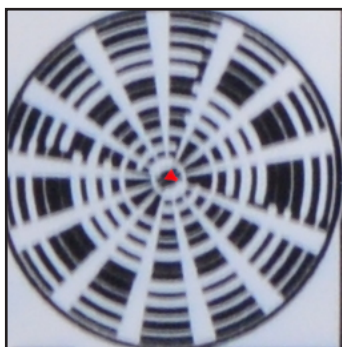
The following image is a crop of the section of image analysed by FoCal:



Aperture f/13

Aperture	f/13,0
Shutter Speed	1/250s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1412,1
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1385,8
Green Quality	1479,7
Blue Quality	1362,4
HVR	24,2%

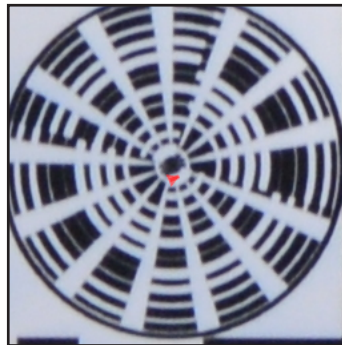
The following image is a crop of the section of image analysed by FoCal:



Aperture f/11

Aperture	f/11,0
Shutter Speed	1/320s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1564,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1553,5
Green Quality	1683,3
Blue Quality	1465,3
HVR	9,1%

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



Aperture f/10

Aperture	f/10,0
Shutter Speed	1/400s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1628,3
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1630,6
Green Quality	1778,2
Blue Quality	1491,8
HVR	5,9%

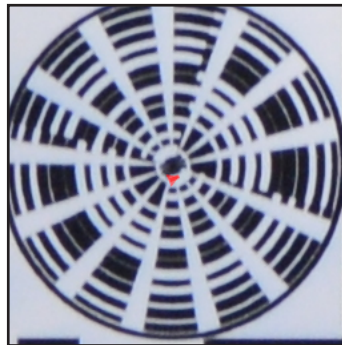
The following image is a crop of the section of image analysed by FoCal:



Aperture f/9

Aperture	f/9,0
Shutter Speed	1/500s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1627,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1640,5
Green Quality	1774,6
Blue Quality	1480,5
HVR	9,0%

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



Aperture f/8

Aperture	f/8,0
Shutter Speed	1/640s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1691,5
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/37
Red Quality	1720,4
Green Quality	1859,5
Blue Quality	1512,7
HVR	5,2%

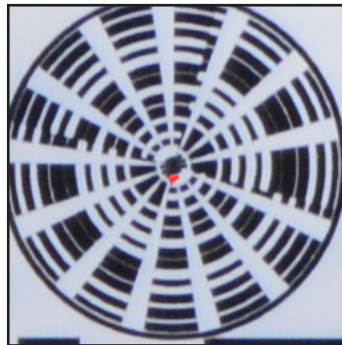
The following image is a crop of the section of image analysed by FoCal:



Aperture f/7,1

Aperture	f/7,1
Shutter Speed	1/800s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1653,3
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1632,5
Green Quality	1774,8
Blue Quality	1565,0
HVR	3,3%

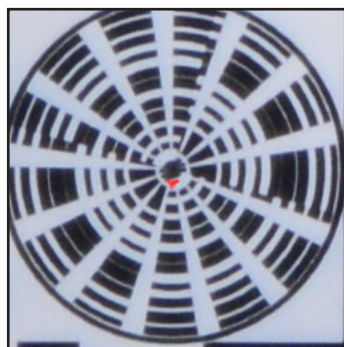
The following image is a crop of the section of image analysed by FoCal:



Aperture f/6,3

Aperture	f/6,3
Shutter Speed	1/1000s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1543,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1508,9
Green Quality	1617,2
Blue Quality	1497,1
HVR	2,3%

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



Aperture Sharpness Profile

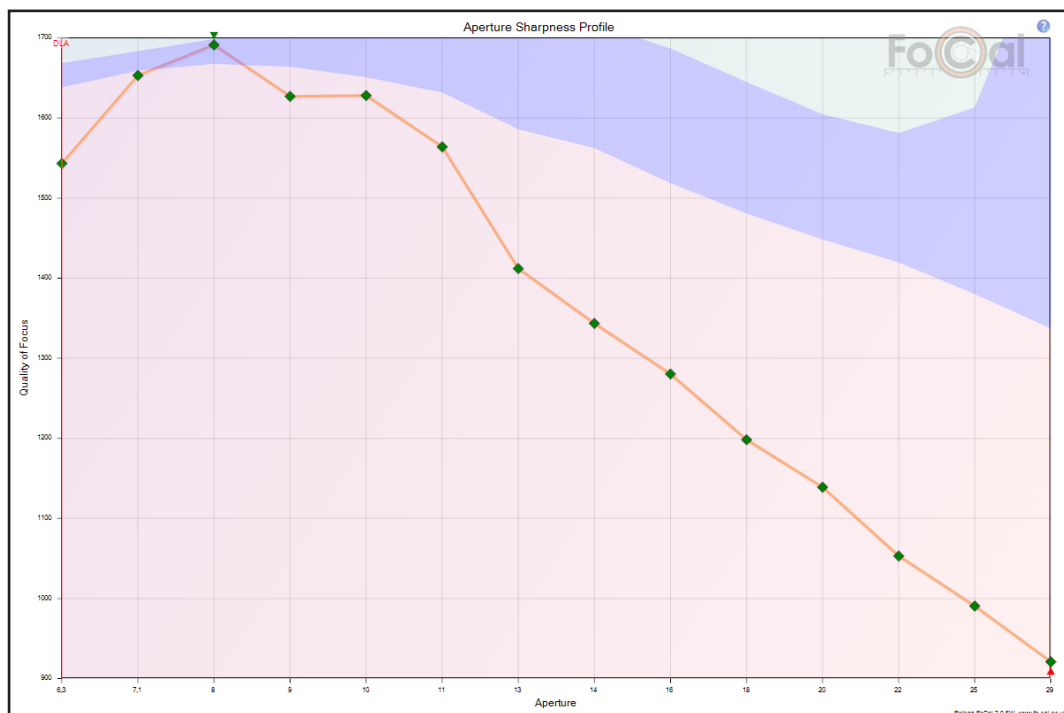
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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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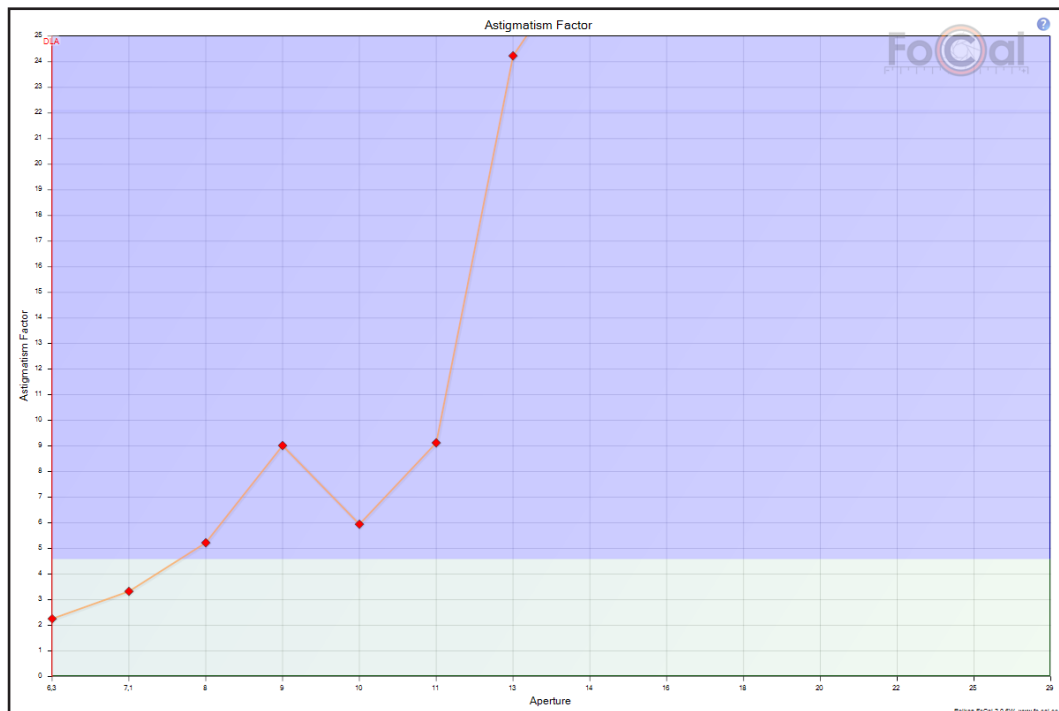


Astigmatism Factor

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.

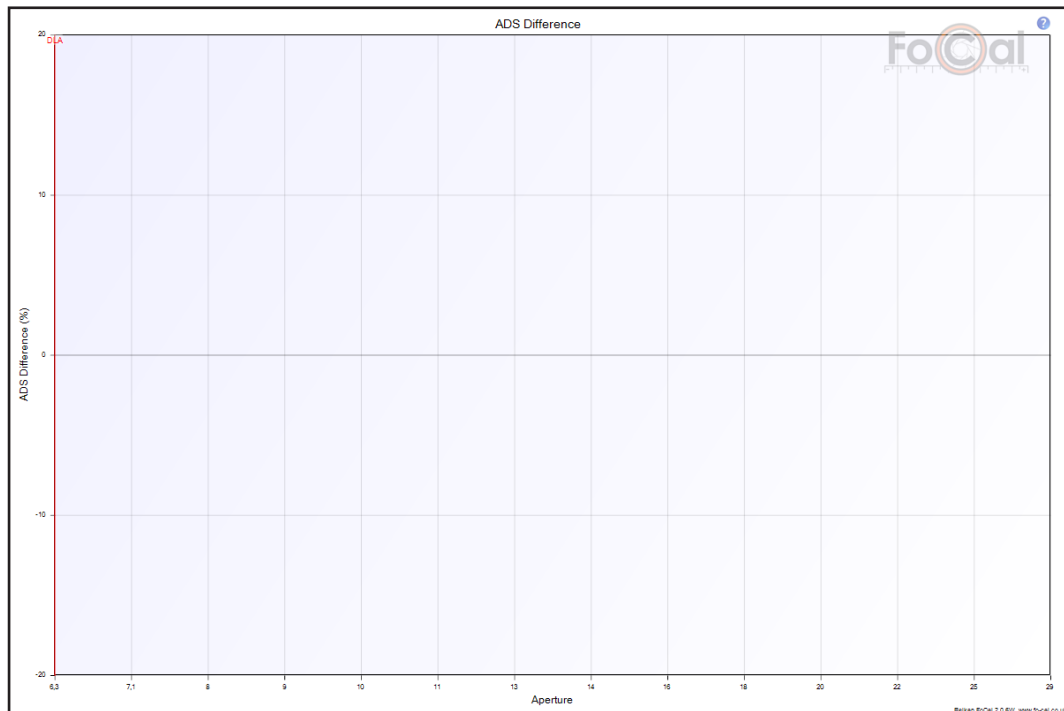


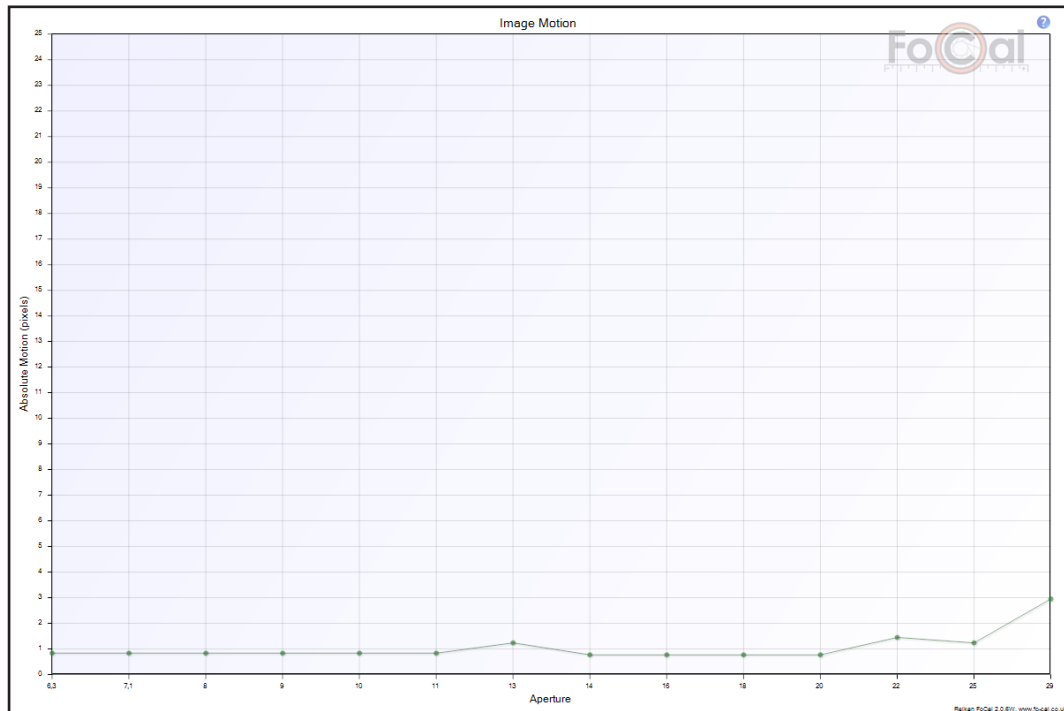
Image Motion

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.

