

Reikan FoCal Aperture Sharpness Test Report

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

Test run on: 26/01/2016 17:22:50 with FoCal 2.0.6.2416W

Report created on: 26/01/2016 17:24:30 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)	16154
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/29,0
Optimal Aperture	f/7,1

User Notes

sans stabilisation



Test Details

Aperture Sharpness Profile

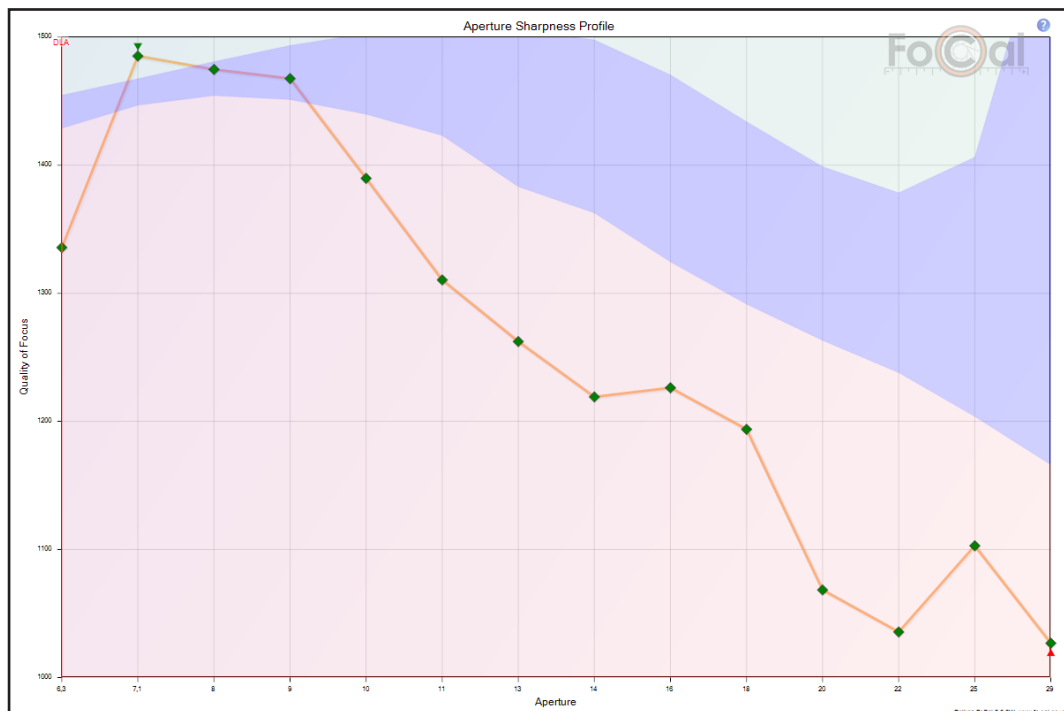
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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	47,5% (±41,3%)
Spectral Power Range	R: 32% (±0,2%) G: 32% (±0,1%) B: 36% (±0,3%)
Red:	
Red Optimal Aperture	f/9,0
Red Peak QoF	1471,7
Green:	
Green Optimal Aperture	f/7,1
Green Peak QoF	1531,1
Blue:	
Blue Optimal Aperture	f/8,0
Blue Peak QoF	1419,2

Aperture f/29

Aperture	f/29,0
Shutter Speed	1/10s
EV	13,0
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1026,8
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	993,1
Green Quality	1041,7
Blue Quality	1047,2
HVR	6,2%

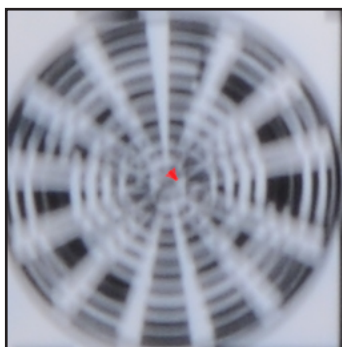
The following image is a crop of the section of image analysed by FoCal:



Aperture f/25

Aperture	f/25,0
Shutter Speed	1/13s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1102,9
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1071,4
Green Quality	1129,2
Blue Quality	1112,9
HVR	78,5%

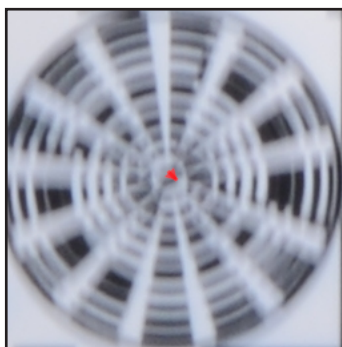
The following image is a crop of the section of image analysed by FoCal:



Aperture f/22

Aperture	f/22,0
Shutter Speed	1/14s
EV	12,8
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1035,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1055,0
Green Quality	1035,6
Blue Quality	1005,8
HVR	65,1%

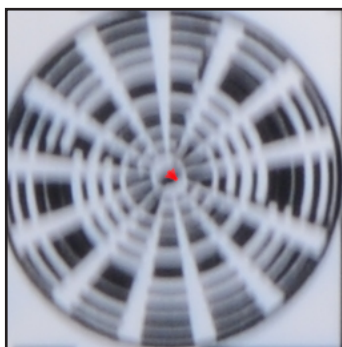
The following image is a crop of the section of image analysed by FoCal:



Aperture f/20

Aperture	f/20,0
Shutter Speed	1/20s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1068,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1054,9
Green Quality	1078,2
Blue Quality	1070,9
HVR	88,9%

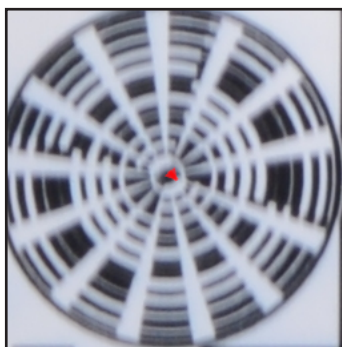
The following image is a crop of the section of image analysed by FoCal:



Aperture f/18

Aperture	f/18,0
Shutter Speed	1/25s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1193,8
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1165,9
Green Quality	1220,0
Blue Quality	1199,5
HVR	52,8%

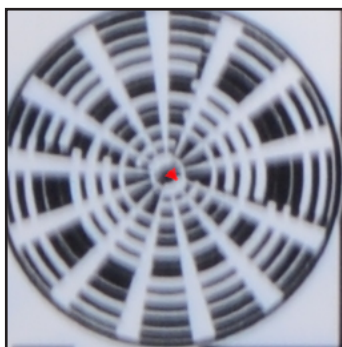
The following image is a crop of the section of image analysed by FoCal:



Aperture f/16

Aperture	f/16,0
Shutter Speed	1/30s
EV	12,8
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1226,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1199,6
Green Quality	1256,2
Blue Quality	1225,4
HVR	52,3%

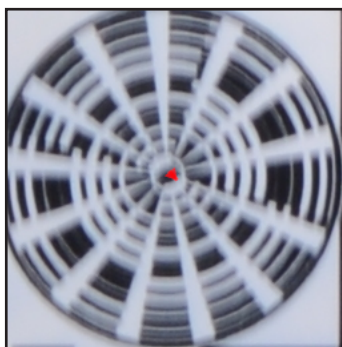
The following image is a crop of the section of image analysed by FoCal:



Aperture f/14

Aperture	f/14,0
Shutter Speed	1/40s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1219,1
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1196,2
Green Quality	1243,7
Blue Quality	1217,0
HVR	72,5%

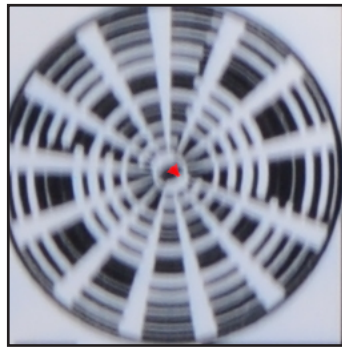
The following image is a crop of the section of image analysed by FoCal:



Aperture f/13

Aperture	f/13,0
Shutter Speed	1/50s
EV	13,0
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1262,3
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1246,6
Green Quality	1290,8
Blue Quality	1249,8
HVR	63,2%

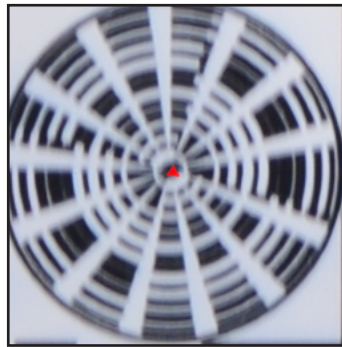
The following image is a crop of the section of image analysed by FoCal:



Aperture f/11

Aperture	f/11,0
Shutter Speed	1/59s
EV	12,8
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1310,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1300,2
Green Quality	1357,0
Blue Quality	1282,2
HVR	53,2%

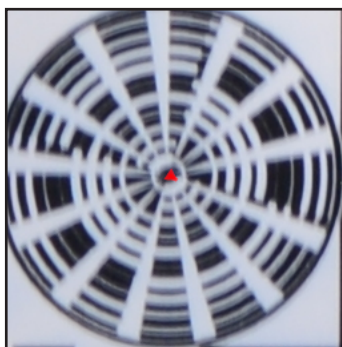
The following image is a crop of the section of image analysed by FoCal:



Aperture f/10

Aperture	f/10,0
Shutter Speed	1/80s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1389,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1371,6
Green Quality	1457,3
Blue Quality	1337,8
HVR	41,1%

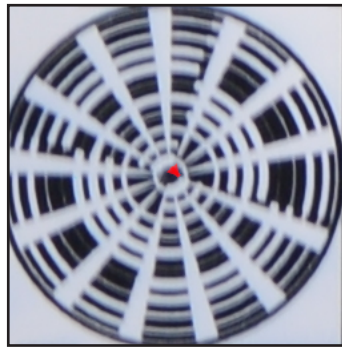
The following image is a crop of the section of image analysed by FoCal:



Aperture f/9

Aperture	f/9,0
Shutter Speed	1/100s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1467,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1471,7
Green Quality	1554,9
Blue Quality	1389,7
HVR	31,2%

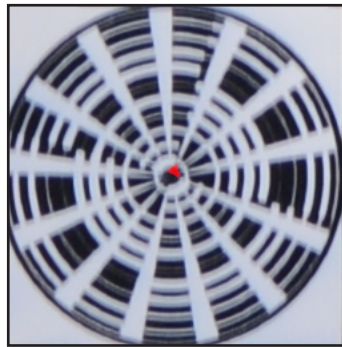
The following image is a crop of the section of image analysed by FoCal:



Aperture f/8

Aperture	f/8,0
Shutter Speed	1/125s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1474,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1464,5
Green Quality	1553,2
Blue Quality	1419,2
HVR	34,3%

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



Aperture f/7,1

Aperture	f/7,1
Shutter Speed	1/160s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1485,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1448,8
Green Quality	1531,1
Blue Quality	1461,1
HVR	28,2%

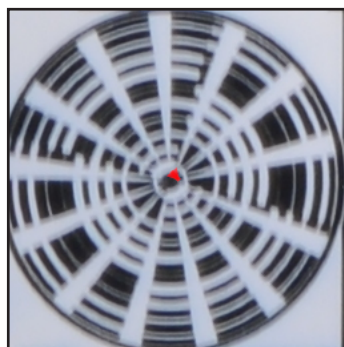
The following image is a crop of the section of image analysed by FoCal:



Aperture f/6,3

Aperture	f/6,3
Shutter Speed	1/200s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1335,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1283,7
Green Quality	1363,9
Blue Quality	1361,2
HVR	33,0%

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



Aperture Sharpness Profile

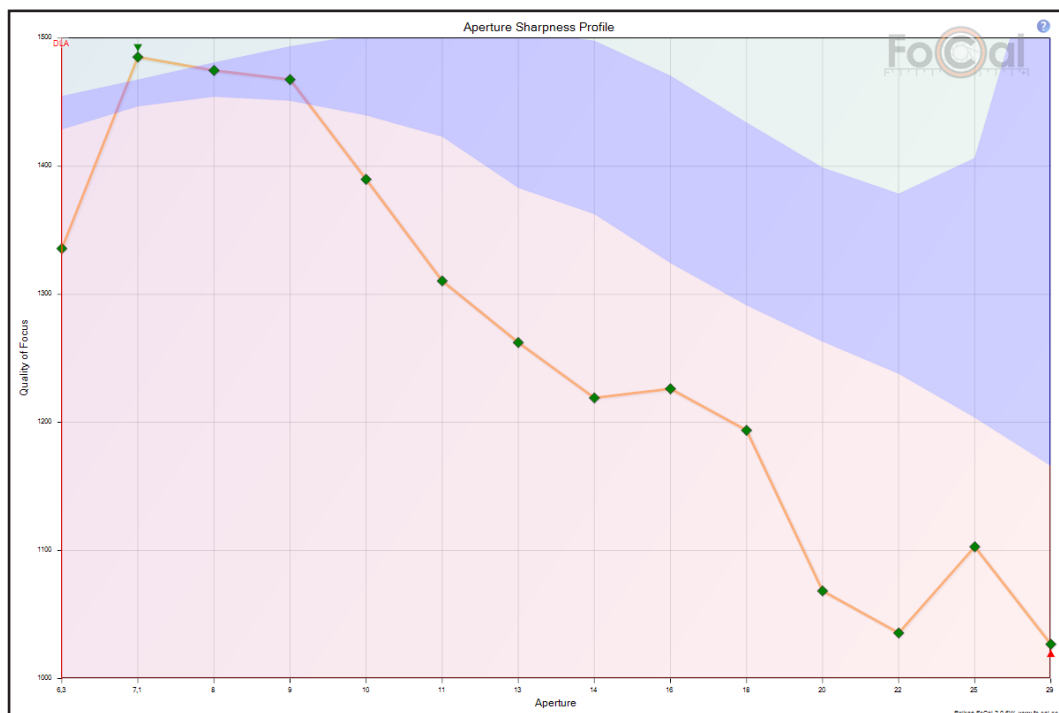
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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:

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

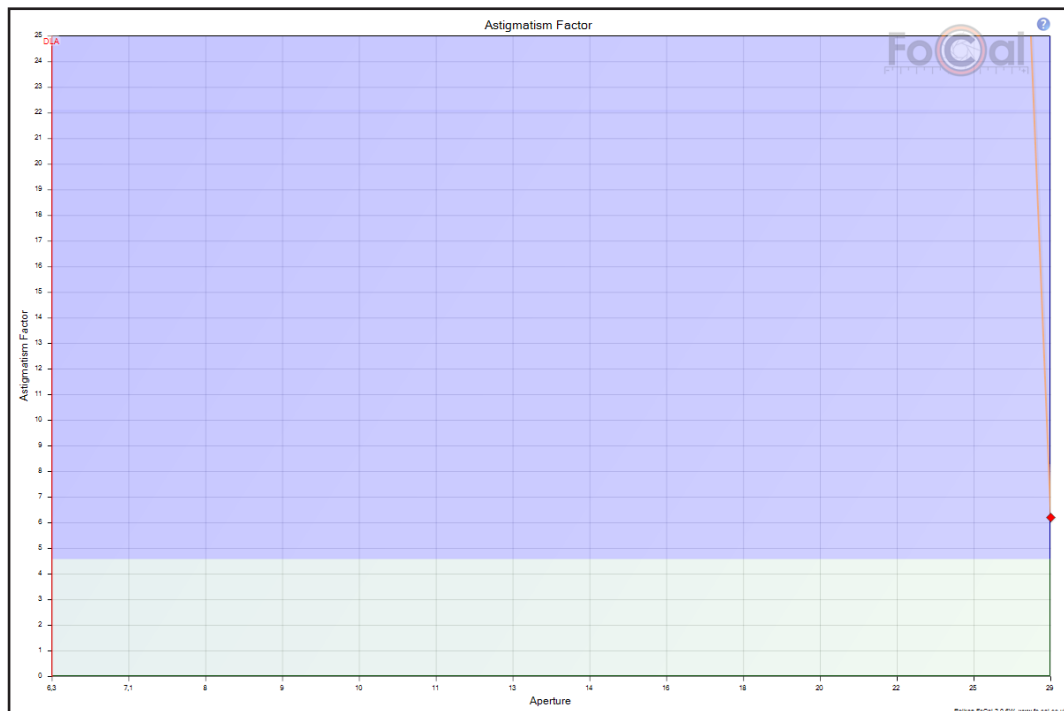


Astigmatism Factor

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.

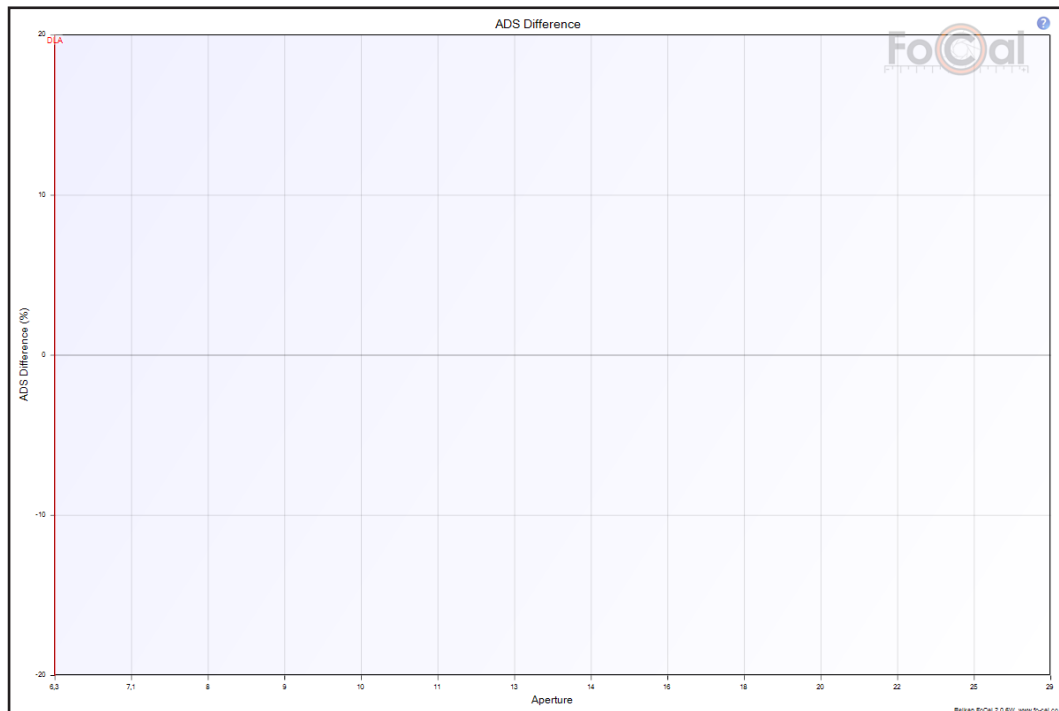


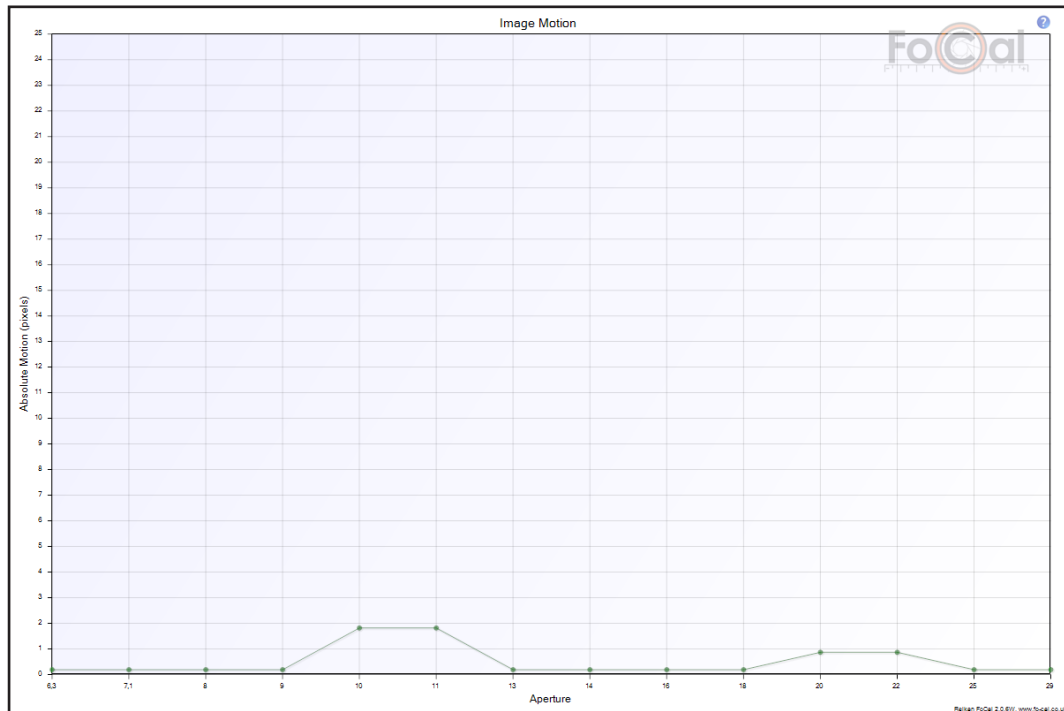
Image Motion

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.

