

Reikan FoCal Aperture Sharpness Test Report

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

Test run on: 27/01/2016 00:53:55 with FoCal 2.0.6.2416W

Report created on: 27/01/2016 00:58:33 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)	16428
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 15,4m
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

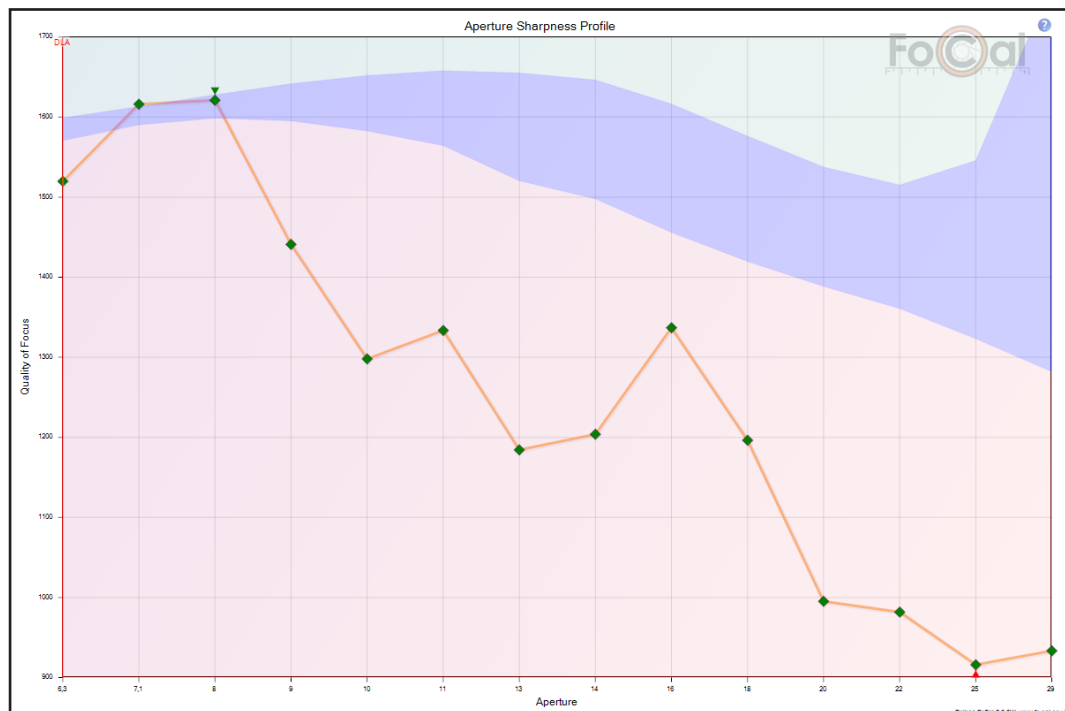
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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.



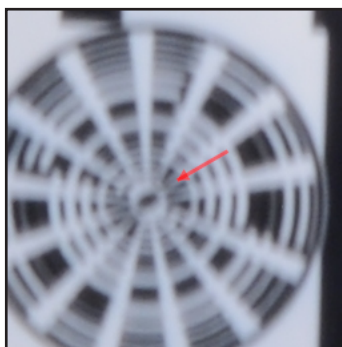
Analysis Details

Property	Description
Astigmatism Factor Range	44,8% ($\pm 43,4\%$)
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	1590,4
Green:	
Green Optimal Aperture	f/7,1
Green Peak QoF	1681,9
Blue:	
Blue Optimal Aperture	f/8,0
Blue Peak QoF	1564,6

Aperture f/29

Aperture	f/29,0
Shutter Speed	1/13s
EV	13,4
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	933,5
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	931,0
Green Quality	938,0
Blue Quality	931,5
HVR	67,0%

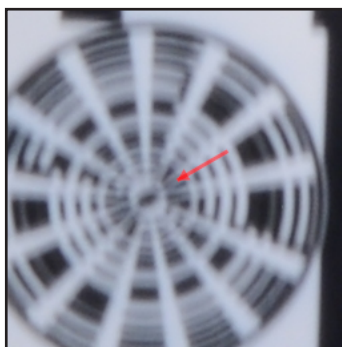
The following image is a crop of the section of image analysed by FoCal:



Aperture f/25

Aperture	f/25,0
Shutter Speed	1/14s
EV	13,1
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	916,0
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	924,9
Green Quality	915,7
Blue Quality	908,6
HVR	77,9%

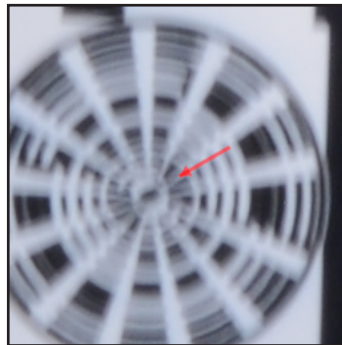
The following image is a crop of the section of image analysed by FoCal:



Aperture f/22

Aperture	f/22,0
Shutter Speed	1/20s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	981,8
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	979,3
Green Quality	991,9
Blue Quality	979,1
HVR	88,1%

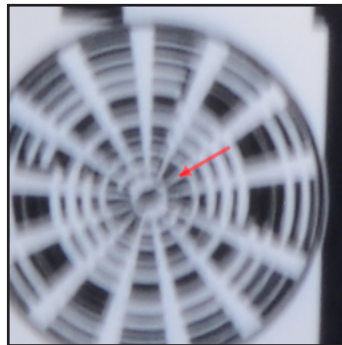
The following image is a crop of the section of image analysed by FoCal:



Aperture f/20

Aperture	f/20,0
Shutter Speed	1/25s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	995,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	994,7
Green Quality	1005,3
Blue Quality	977,1
HVR	82,5%

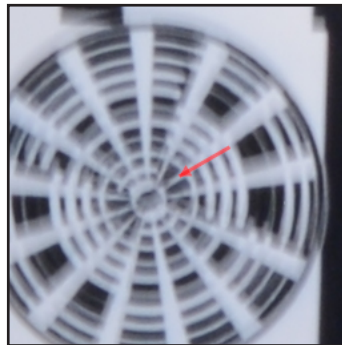
The following image is a crop of the section of image analysed by FoCal:



Aperture f/18

Aperture	f/18,0
Shutter Speed	1/30s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1196,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1174,9
Green Quality	1231,8
Blue Quality	1204,4
HVR	27,6%

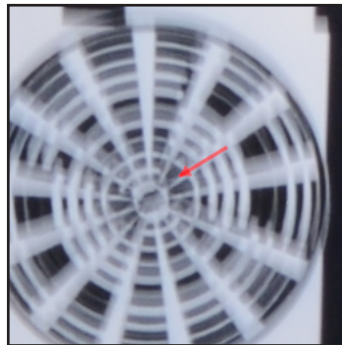
The following image is a crop of the section of image analysed by FoCal:



Aperture f/16

Aperture	f/16,0
Shutter Speed	1/40s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1336,9
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1343,7
Green Quality	1364,1
Blue Quality	1302,5
HVR	24,3%

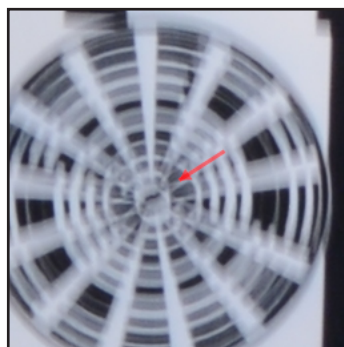
The following image is a crop of the section of image analysed by FoCal:



Aperture f/14

Aperture	f/14,0
Shutter Speed	1/50s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1203,9
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1212,2
Green Quality	1230,6
Blue Quality	1182,5
HVR	61,0%

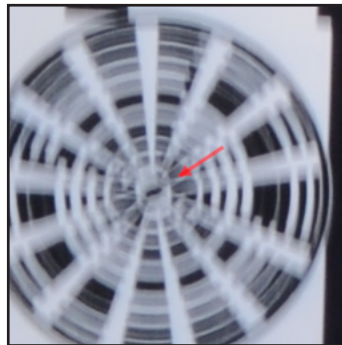
The following image is a crop of the section of image analysed by FoCal:



Aperture f/13

Aperture	f/13,0
Shutter Speed	1/59s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1184,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1189,0
Green Quality	1207,5
Blue Quality	1159,4
HVR	84,9%

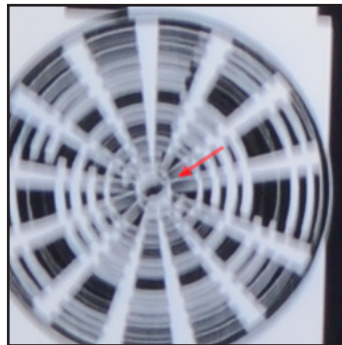
The following image is a crop of the section of image analysed by FoCal:



Aperture f/11

Aperture	f/11,0
Shutter Speed	1/80s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1333,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1333,8
Green Quality	1358,2
Blue Quality	1310,6
HVR	54,9%

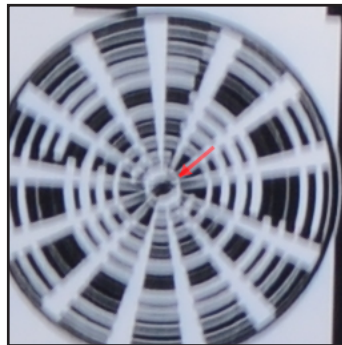
The following image is a crop of the section of image analysed by FoCal:



Aperture f/10

Aperture	f/10,0
Shutter Speed	1/100s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1298,0
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1280,6
Green Quality	1332,0
Blue Quality	1281,3
HVR	66,5%

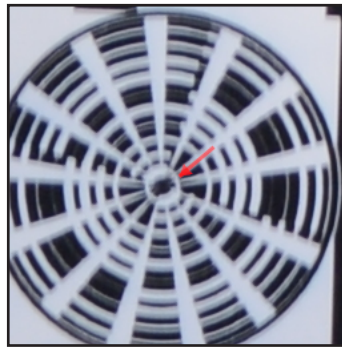
The following image is a crop of the section of image analysed by FoCal:



Aperture f/9

Aperture	f/9,0
Shutter Speed	1/125s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1441,1
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1419,6
Green Quality	1501,1
Blue Quality	1401,9
HVR	40,1%

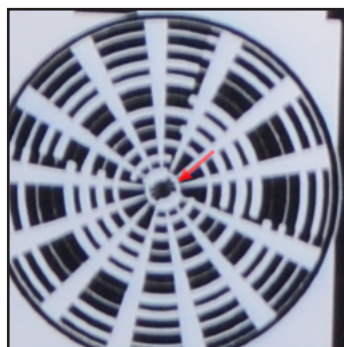
The following image is a crop of the section of image analysed by FoCal:



Aperture f/8

Aperture	f/8,0
Shutter Speed	1/160s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1621,1
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1590,4
Green Quality	1716,9
Blue Quality	1564,6
HVR	14,0%

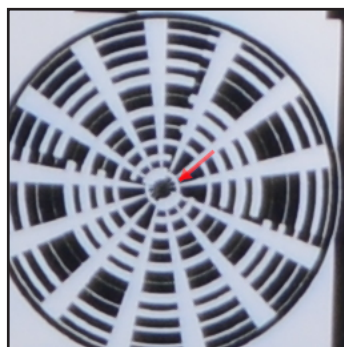
The following image is a crop of the section of image analysed by FoCal:



Aperture f/7,1

Aperture	f/7,1
Shutter Speed	1/200s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1616,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1558,5
Green Quality	1681,9
Blue Quality	1592,4
HVR	1,9%

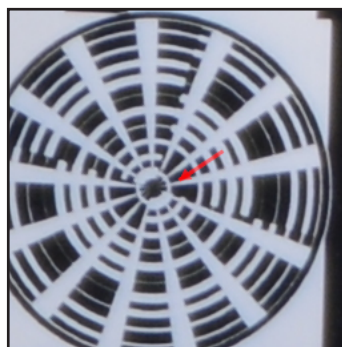
The following image is a crop of the section of image analysed by FoCal:



Aperture f/6,3

Aperture	f/6,3
Shutter Speed	1/250s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1519,9
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1474,5
Green Quality	1581,7
Blue Quality	1506,9
HVR	-1,4%

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



Aperture Sharpness Profile

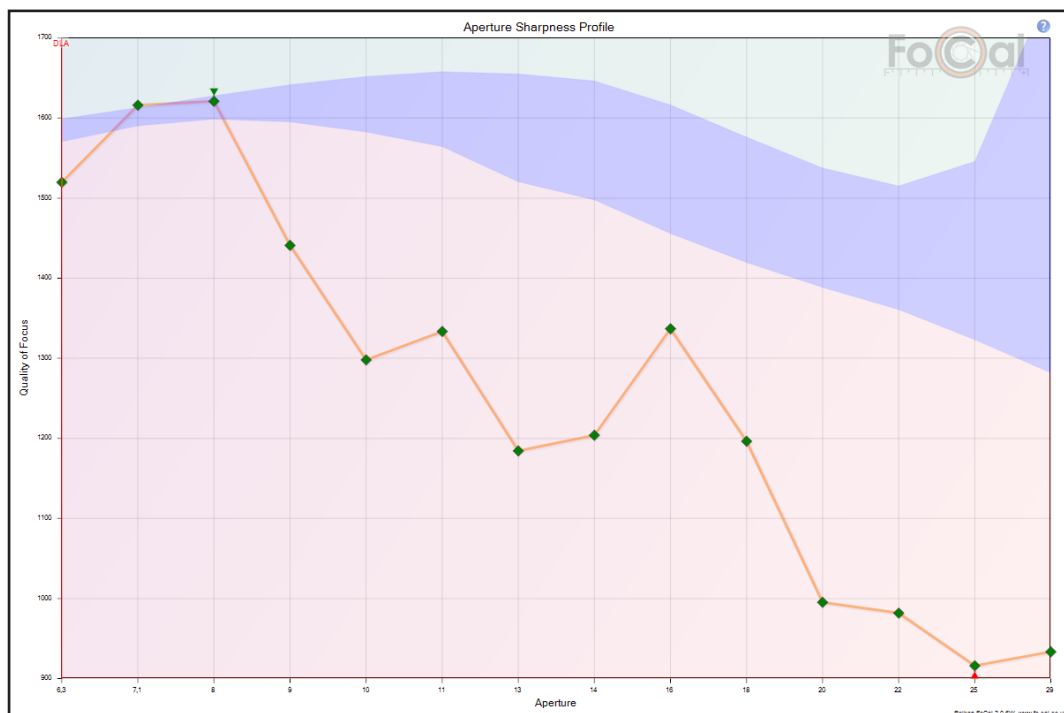
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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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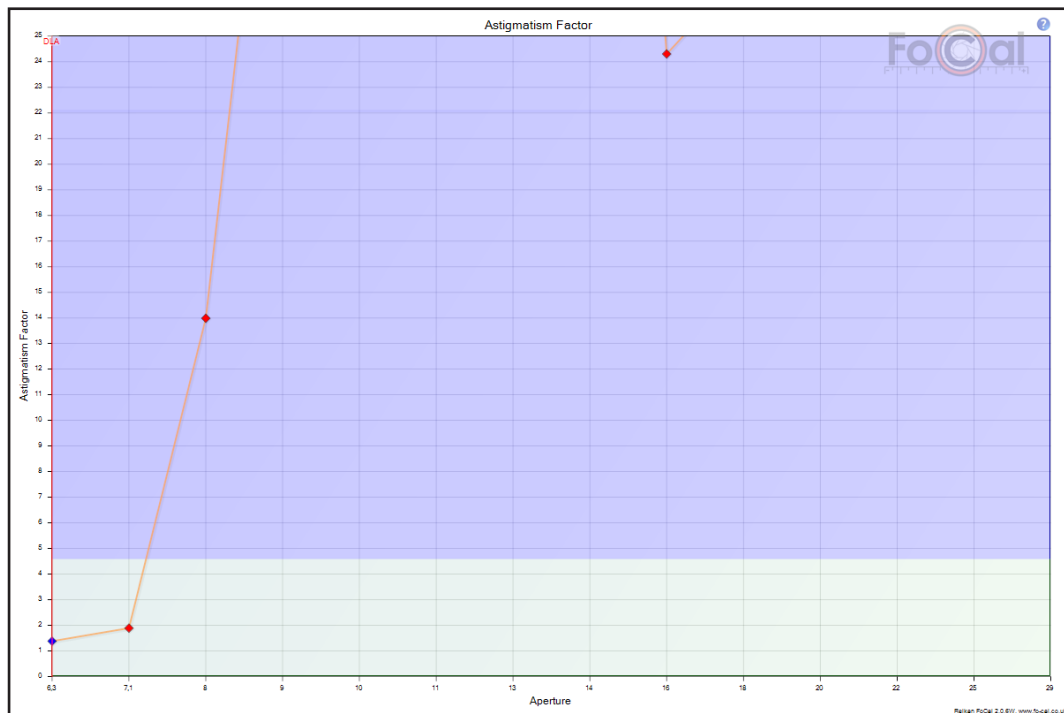


Astigmatism Factor

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.

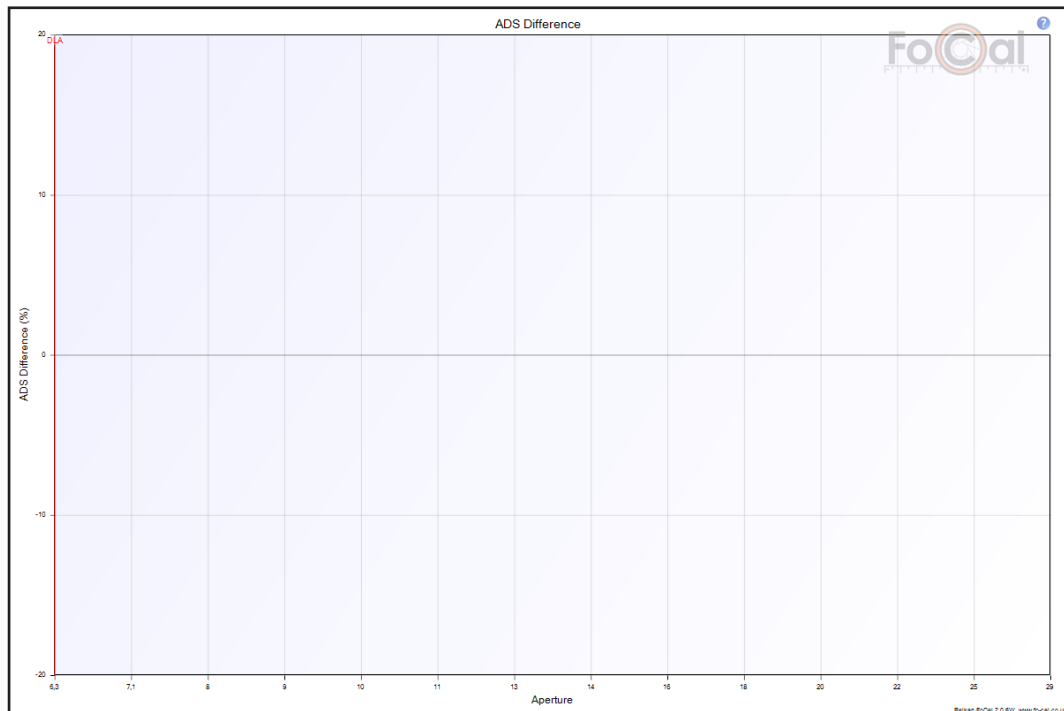


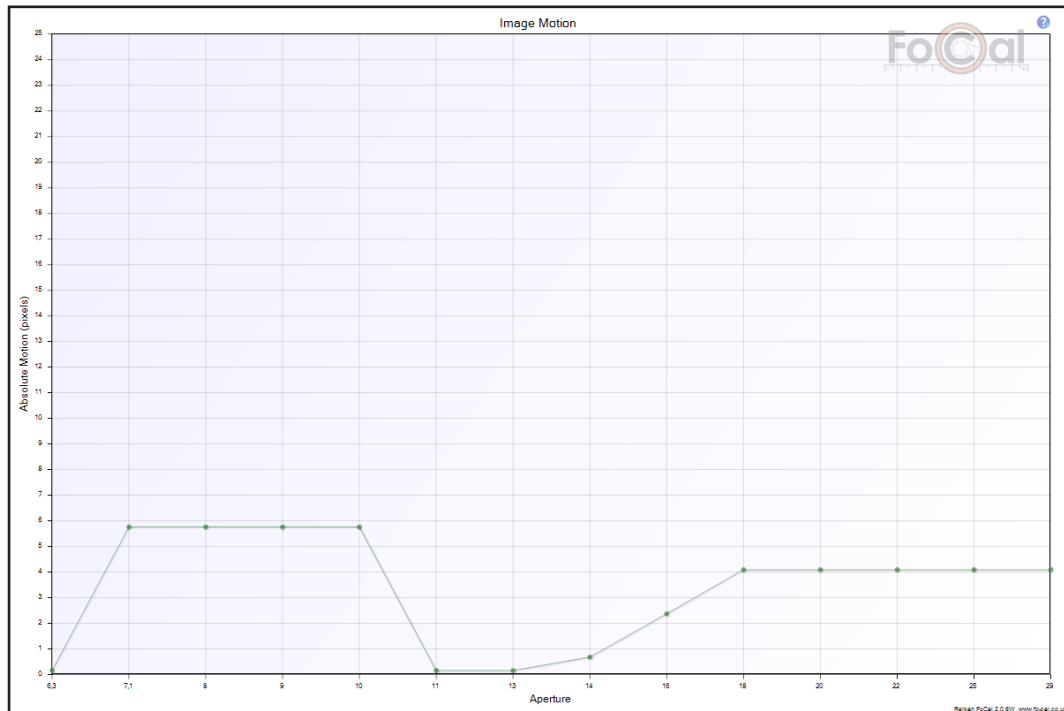
Image Motion

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.

