Reikan Technology

FoCal
Focus Calibration and Analysis Software

Reikan FoCal Aperture Sharpness Test Report

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

Test run on: 26/01/2016 17:02:00 with FoCal 2.0.6.2416W

Report created on: 26/01/2016 17:03:39 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)	16077
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	22,9m to 23,0m
Operation Mode	Normal Mode
Diffraction Limited Aperture	f/6,3
Worst Aperture	f/25,0
Optimal Aperture	f/8,0

Test Details

Aperture Sharpness Profile

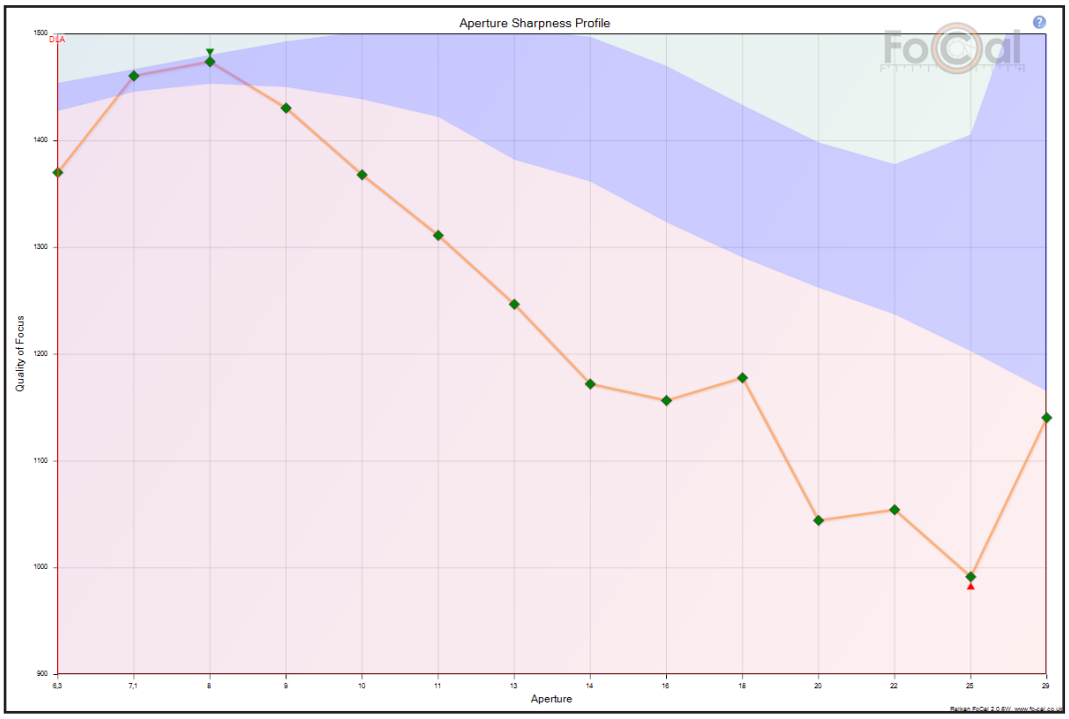
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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.



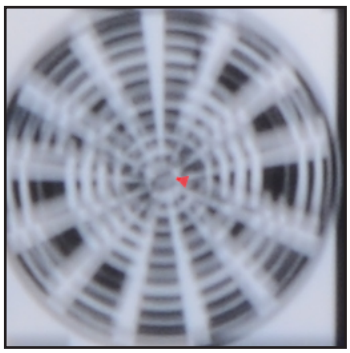
Analysis Details

Property	Description
Astigmatism Factor Range	69,0% (±41,2%)
Spectral Power Range	R: 32% (±0,2%) G: 32% (±0,1%) B: 36% (±0,3%)
Red:	
Red Optimal Aperture	f/8,0
Red Peak QoF	1471,5
Green:	
Green Optimal Aperture	f/7,1
Green Peak QoF	1518,2
Blue:	
Blue Optimal Aperture	f/9,0
Blue Peak QoF	1368,4

Aperture f/29

Aperture	f/29,0
Shutter Speed	1/13s
EV	13,4
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1140,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1121,4
Green Quality	1145,7
Blue Quality	1146,6
HVR	36,0%

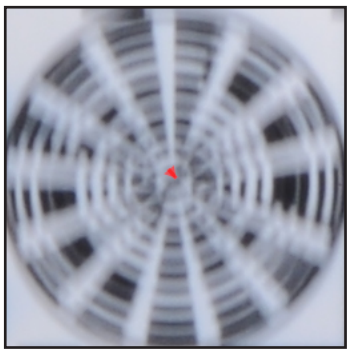
The following image is a crop of the section of image analysed by FoCal:



Aperture f/25

Aperture	f/25,0
Shutter Speed	1/14s
EV	13,1
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	991,6
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1038,4
Green Quality	995,2
Blue Quality	953,9
HVR	59,4%

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



Aperture f/22

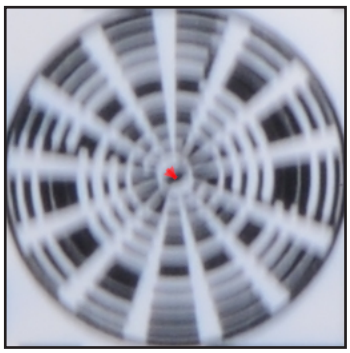
Aperture	f/22,0
Shutter Speed	1/20s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1054,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1051,1
Green Quality	1059,9
Blue Quality	1034,4
HVR	110,2%

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	1044,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1021,0
Green Quality	1070,2
Blue Quality	1049,6
HVR	80,2%

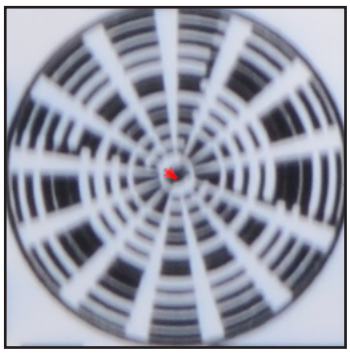
The following image is a crop of the section of image analysed by FoCal:



Aperture f/18

Aperture	f/18,0
Shutter Speed	1/25s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1178,0
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1156,3
Green Quality	1208,2
Blue Quality	1172,5
HVR	46,8%

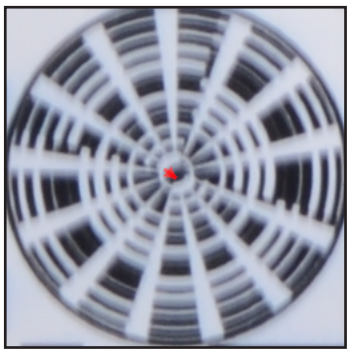
The following image is a crop of the section of image analysed by FoCal:



Aperture f/16

Aperture	f/16,0
Shutter Speed	1/40s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1156,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1140,1
Green Quality	1184,6
Blue Quality	1150,9
HVR	66,7%

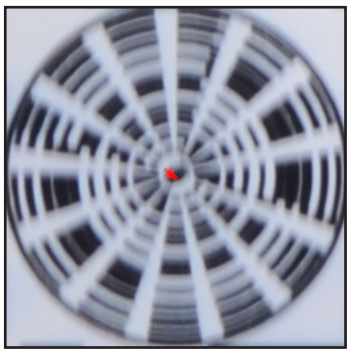
The following image is a crop of the section of image analysed by FoCal:



Aperture f/14

Aperture	f/14,0
Shutter Speed	1/50s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1172,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1169,0
Green Quality	1201,5
Blue Quality	1154,3
HVR	71,4%

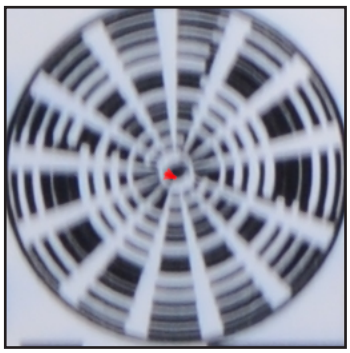
The following image is a crop of the section of image analysed by FoCal:



Aperture f/13

Aperture	f/13,0
Shutter Speed	1/59s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1246,9
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1236,3
Green Quality	1283,8
Blue Quality	1215,3
HVR	60,5%

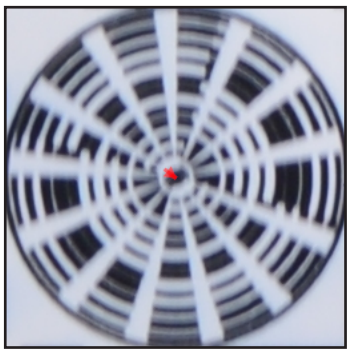
The following image is a crop of the section of image analysed by FoCal:



Aperture f/11

Aperture	f/11,0
Shutter Speed	1/80s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1311,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1300,7
Green Quality	1360,0
Blue Quality	1273,9
HVR	48,8%

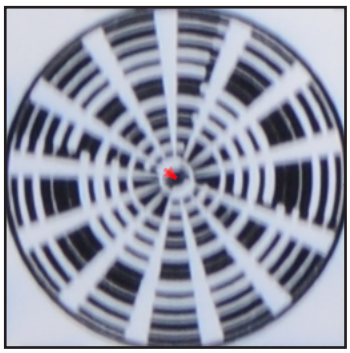
The following image is a crop of the section of image analysed by FoCal:



Aperture f/10

Aperture	f/10,0
Shutter Speed	1/100s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1368,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1365,7
Green Quality	1436,0
Blue Quality	1313,4
HVR	41,7%

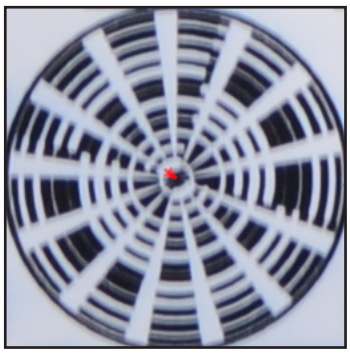
The following image is a crop of the section of image analysed by FoCal:



Aperture f/9

Aperture	f/9,0
Shutter Speed	1/125s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1430,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1440,2
Green Quality	1511,0
Blue Quality	1368,4
HVR	35,7%

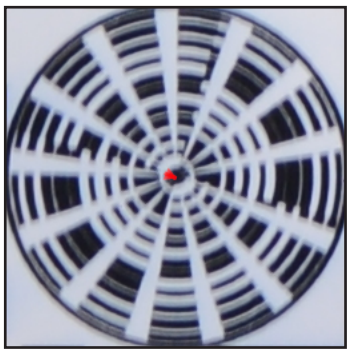
The following image is a crop of the section of image analysed by FoCal:



Aperture f/8

Aperture	f/8,0
Shutter Speed	1/160s
EV	13,3
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1474,1
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/32/36
Red Quality	1471,5
Green Quality	1547,0
Blue Quality	1394,6
HVR	32,1%

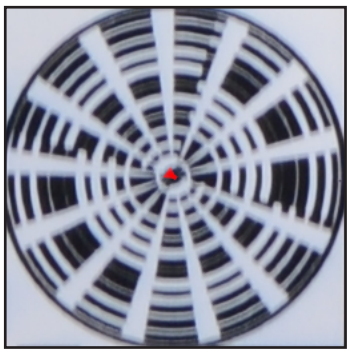
The following image is a crop of the section of image analysed by FoCal:



Aperture f/7,1

Aperture	f/7,1
Shutter Speed	1/200s
EV	13,2
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1460,8
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1440,1
Green Quality	1518,2
Blue Quality	1430,2
HVR	31,3%

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



Aperture f/6,3

Aperture	f/6,3
Shutter Speed	1/200s
EV	12,9
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1370,3
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1329,7
Green Quality	1406,9
Blue Quality	1372,5
HVR	27,8%

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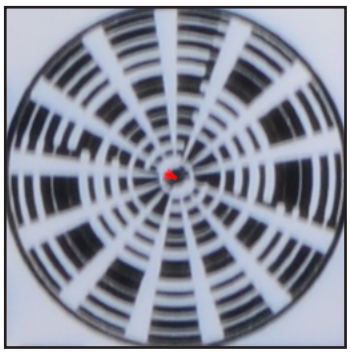

Aperture Sharpness Profile

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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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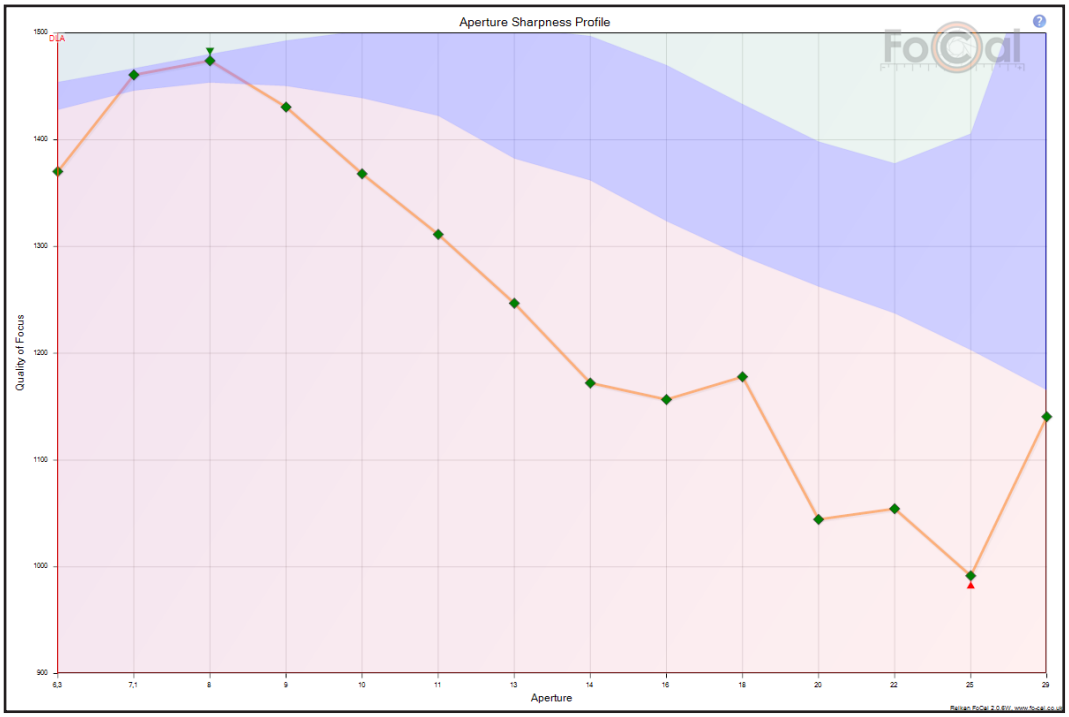

Astigmatism Factor

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 +/- 5% then your lens may be suffering from some decentering or lens element alignment issues.

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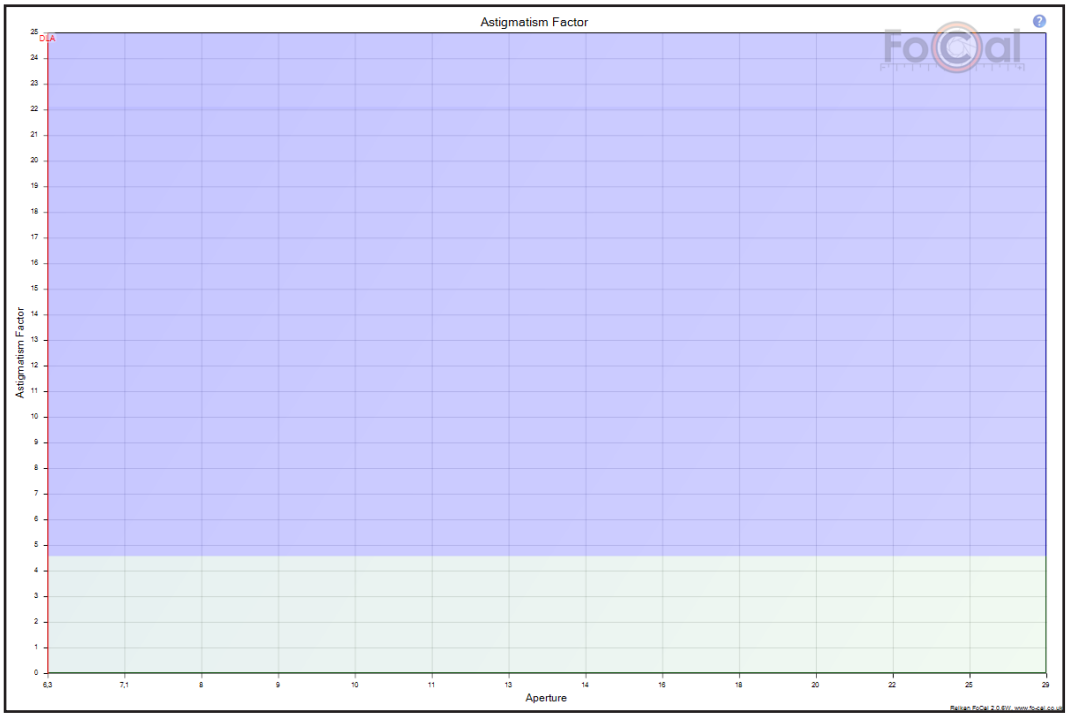

ADS Difference

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.

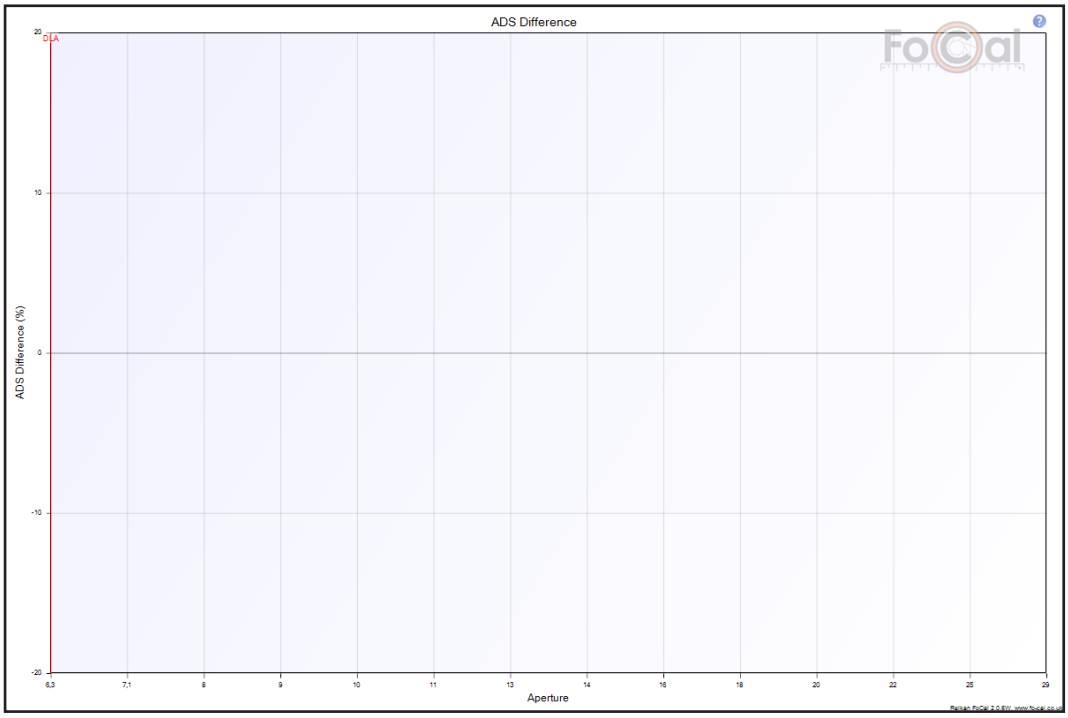

Image Motion

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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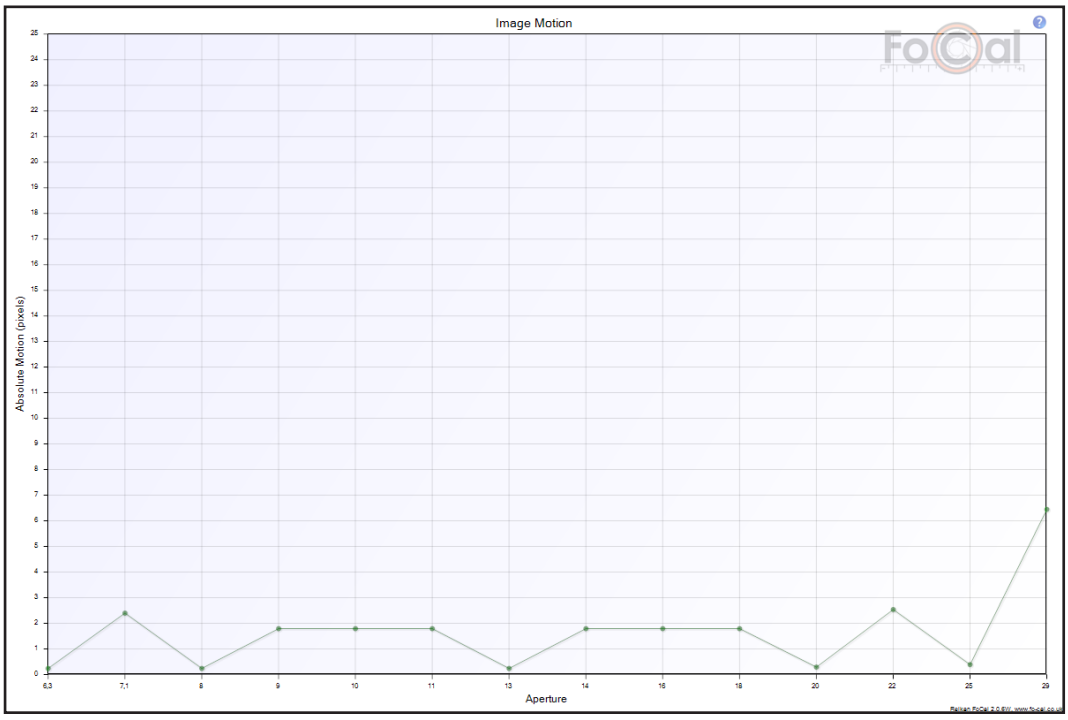

Corner Brightness Profile

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.