

Reikan FoCal Aperture Sharpness Test Report

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

Test run on: 10/02/2016 19:53:58 with FoCal 2.0.6.2416W

Report created on: 10/02/2016 19:55:56 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)	19259
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	3,2m to 3,2m
Operation Mode	Normal Mode
Diffraction Limited Aperture	f/6,3
Worst Aperture	f/29,0
Optimal Aperture	f/7,1

User Notes

AF -6

Test Details

Aperture Sharpness Profile

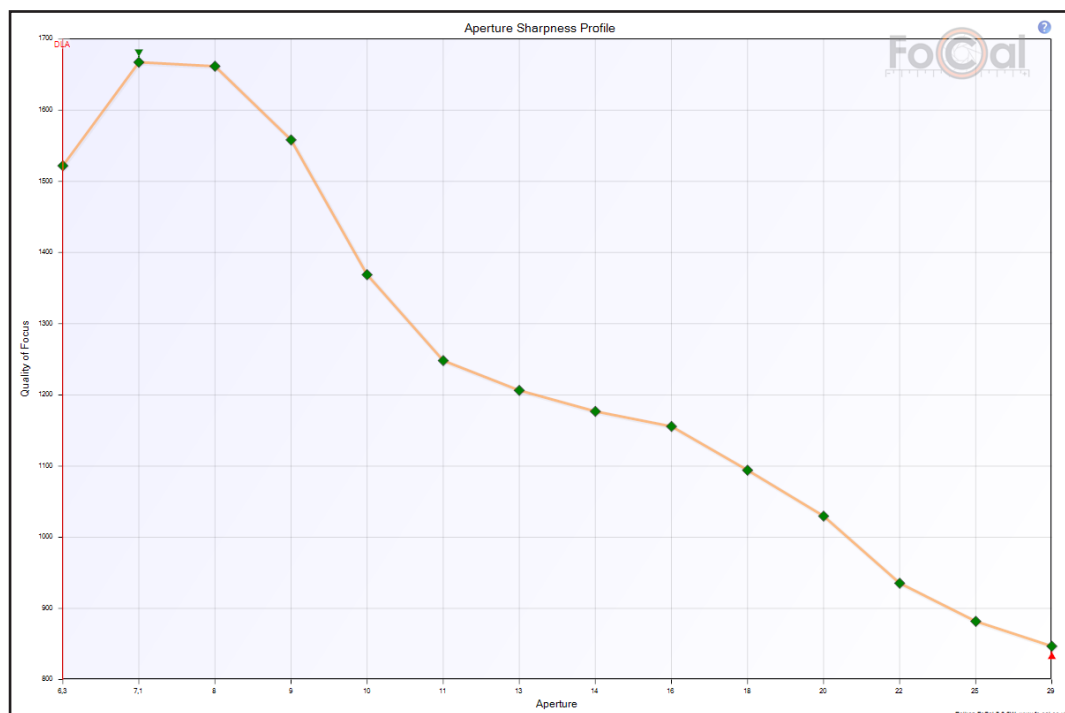
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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.



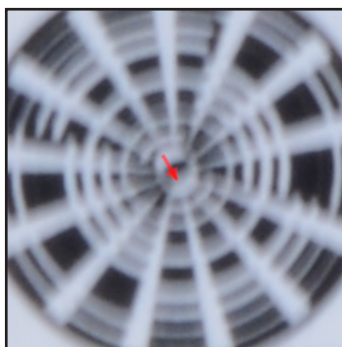
Analysis Details

Property	Description
Astigmatism Factor Range	26,2% ($\pm 22,1\%$)
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	1663,4
Green:	
Green Optimal Aperture	f/7,1
Green Peak QoF	1749,6
Blue:	
Blue Optimal Aperture	f/7,1
Blue Peak QoF	1615,2

Aperture f/29

Aperture	f/29,0
Shutter Speed	1/8s
EV	12,7
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	846,8
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	826,9
Green Quality	854,5
Blue Quality	856,4
HVR	37,0%

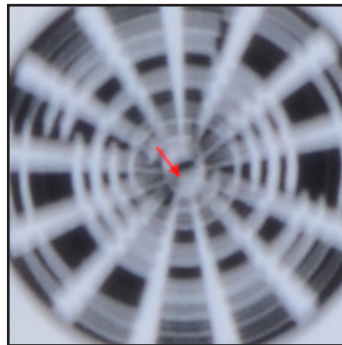
The following image is a crop of the section of image analysed by FoCal:



Aperture f/25

Aperture	f/25,0
Shutter Speed	1/10s
EV	12,5
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	881,8
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	864,1
Green Quality	904,6
Blue Quality	880,8
HVR	37,7%

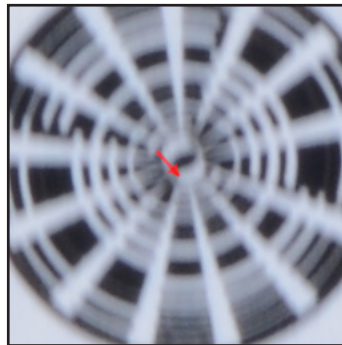
The following image is a crop of the section of image analysed by FoCal:



Aperture f/22

Aperture	f/22,0
Shutter Speed	1/13s
EV	12,6
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	935,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	912,5
Green Quality	949,0
Blue Quality	939,6
HVR	48,3%

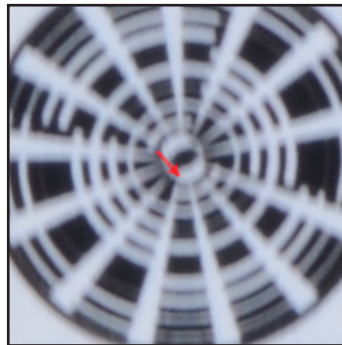
The following image is a crop of the section of image analysed by FoCal:



Aperture f/20

Aperture	f/20,0
Shutter Speed	1/14s
EV	12,5
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1029,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1011,4
Green Quality	1047,1
Blue Quality	1032,4
HVR	36,0%

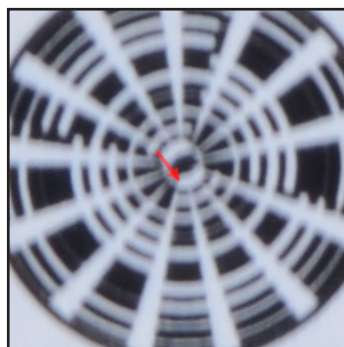
The following image is a crop of the section of image analysed by FoCal:



Aperture f/18

Aperture	f/18,0
Shutter Speed	1/20s
EV	12,6
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1094,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1081,6
Green Quality	1113,3
Blue Quality	1089,0
HVR	30,4%

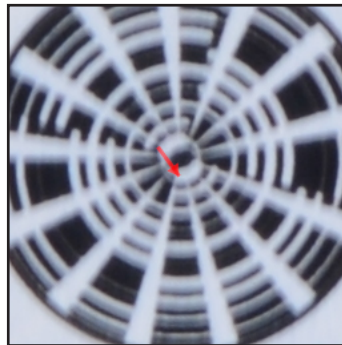
The following image is a crop of the section of image analysed by FoCal:



Aperture f/16

Aperture	f/16,0
Shutter Speed	1/25s
EV	12,6
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1155,7
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1142,9
Green Quality	1177,4
Blue Quality	1146,5
HVR	38,9%

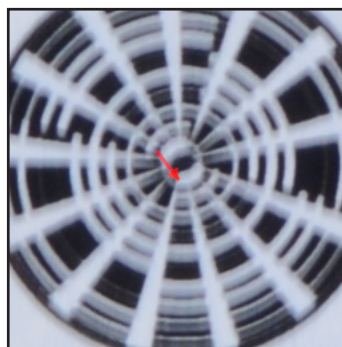
The following image is a crop of the section of image analysed by FoCal:



Aperture f/14

Aperture	f/14,0
Shutter Speed	1/30s
EV	12,5
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1176,8
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1180,7
Green Quality	1203,9
Blue Quality	1151,1
HVR	43,3%

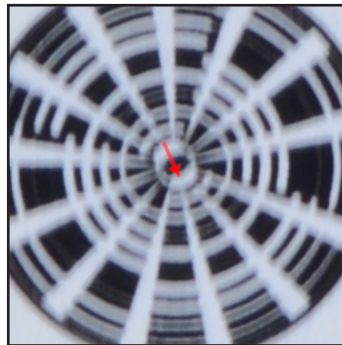
The following image is a crop of the section of image analysed by FoCal:



Aperture f/13

Aperture	f/13,0
Shutter Speed	1/40s
EV	12,7
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1206,3
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1193,3
Green Quality	1217,9
Blue Quality	1198,8
HVR	44,6%

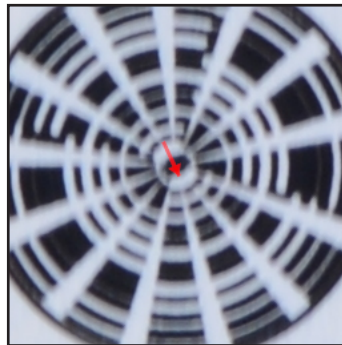
The following image is a crop of the section of image analysed by FoCal:



Aperture f/11

Aperture	f/11,0
Shutter Speed	1/50s
EV	12,5
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1248,2
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1237,7
Green Quality	1277,8
Blue Quality	1234,7
HVR	34,8%

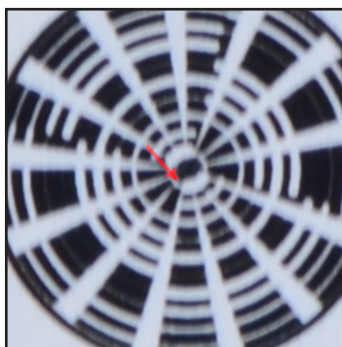
The following image is a crop of the section of image analysed by FoCal:



Aperture f/10

Aperture	f/10,0
Shutter Speed	1/59s
EV	12,5
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1368,9
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/33/36
Red Quality	1372,2
Green Quality	1422,3
Blue Quality	1316,9
HVR	24,7%

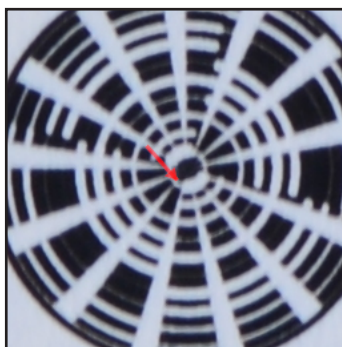
The following image is a crop of the section of image analysed by FoCal:



Aperture f/9

Aperture	f/9,0
Shutter Speed	1/80s
EV	12,6
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1558,3
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1578,9
Green Quality	1652,5
Blue Quality	1454,9
HVR	11,4%

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



Aperture f/8

Aperture	f/8,0
Shutter Speed	1/100s
EV	12,6
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1661,8
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	31/32/36
Red Quality	1663,4
Green Quality	1770,2
Blue Quality	1556,0
HVR	8,1%

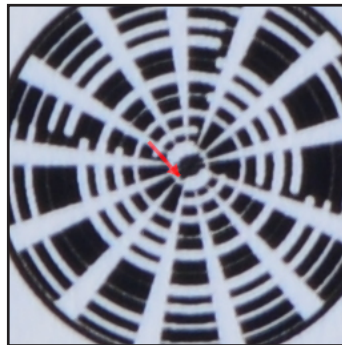
The following image is a crop of the section of image analysed by FoCal:



Aperture f/7,1

Aperture	f/7,1
Shutter Speed	1/125s
EV	12,6
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1667,4
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1649,6
Green Quality	1749,6
Blue Quality	1615,2
HVR	4,2%

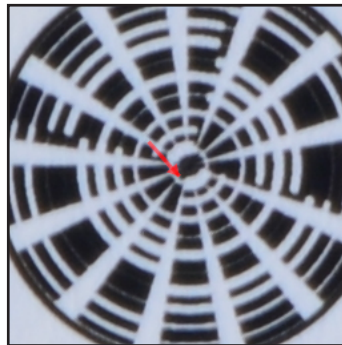
The following image is a crop of the section of image analysed by FoCal:



Aperture f/6,3

Aperture	f/6,3
Shutter Speed	1/160s
EV	12,6
Colour Temperature	Unknown
Camera Temperature	Unknown
Quality Measure	1522,0
Optimised	Yes
Ignored	No
Spectral Power (R/G/B)	32/33/36
Red Quality	1450,9
Green Quality	1560,7
Blue Quality	1548,3
HVR	4,6%

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



Aperture Sharpness Profile

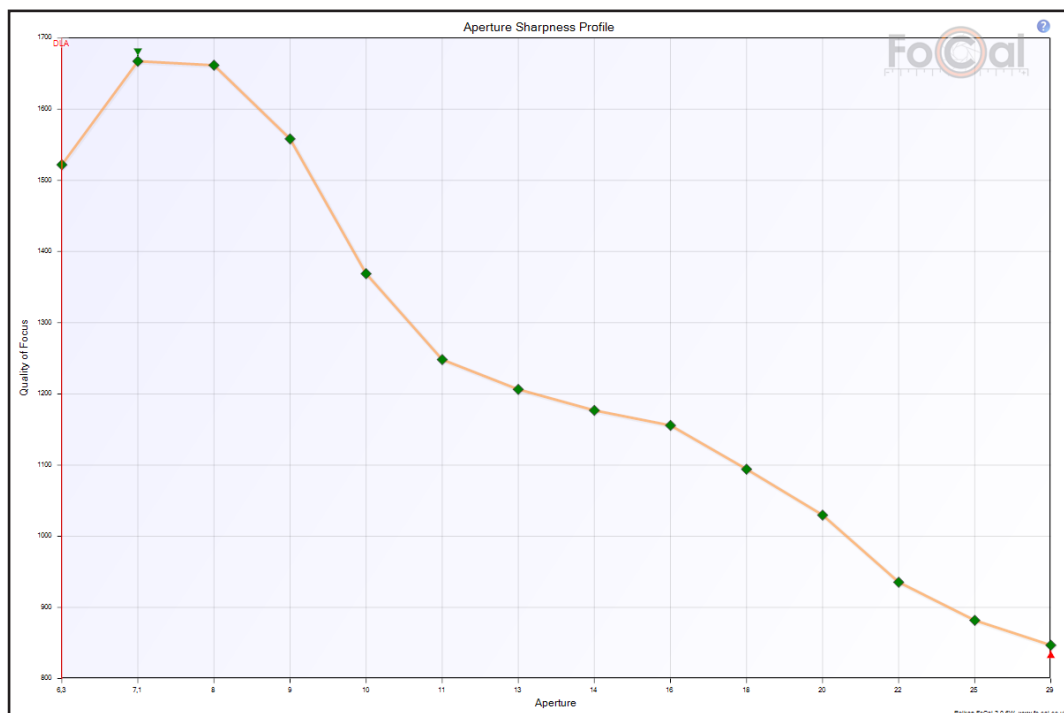
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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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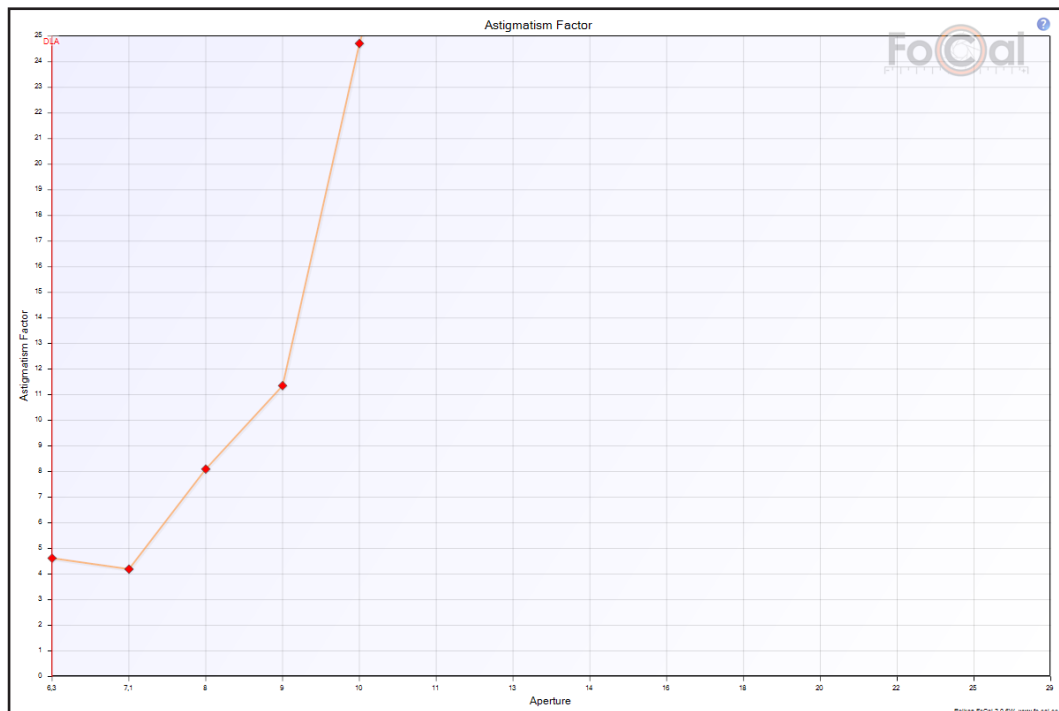


Astigmatism Factor

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.

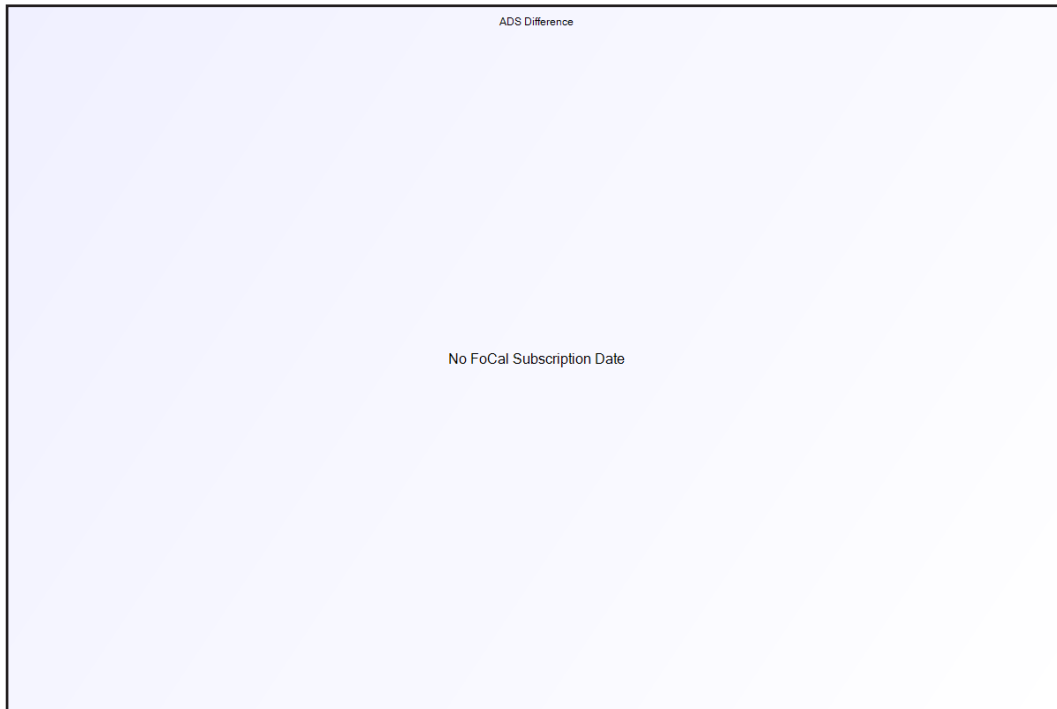


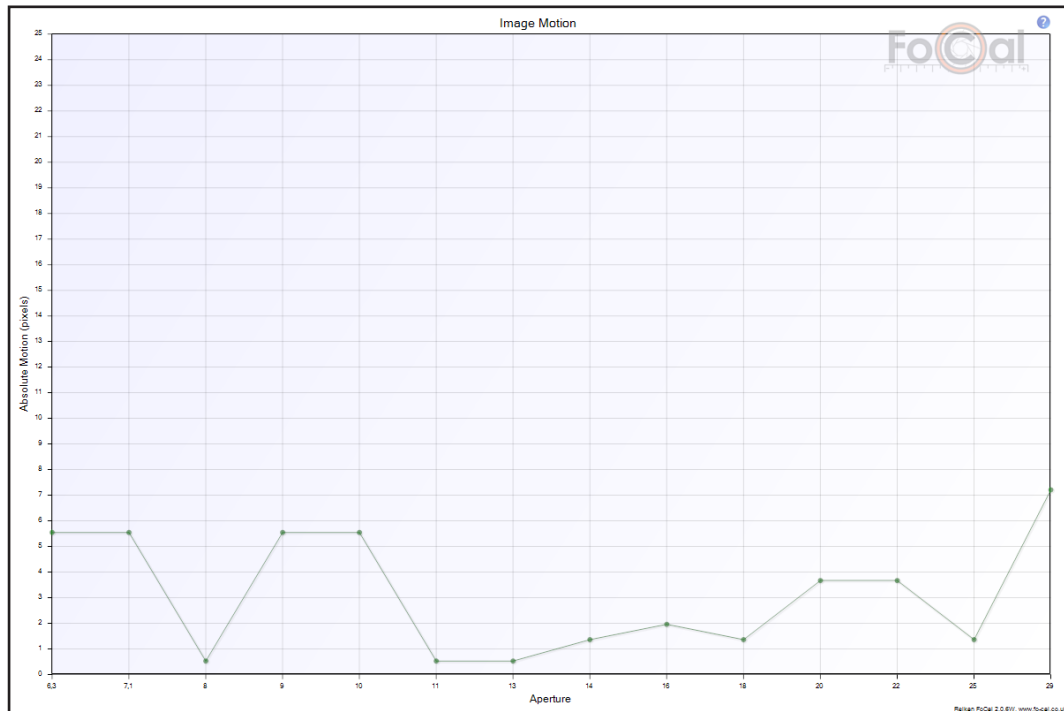
Image Motion

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.

