

Reikan FoCal Aperture Sharpness Test Report

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

Test run on: 26/01/2016 17:54:11 with FoCal 2.0.6.2416W

Report created on: 26/01/2016 17:55:59 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) | 16183 |
| 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 15,3m |
| Operation Mode | Normal Mode |
| Diffraction Limited Aperture | f/6,3 |
| Worst Aperture | f/29,0 |
| Optimal Aperture | f/8,0 |

User Notes

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Test Details

Aperture Sharpness Profile

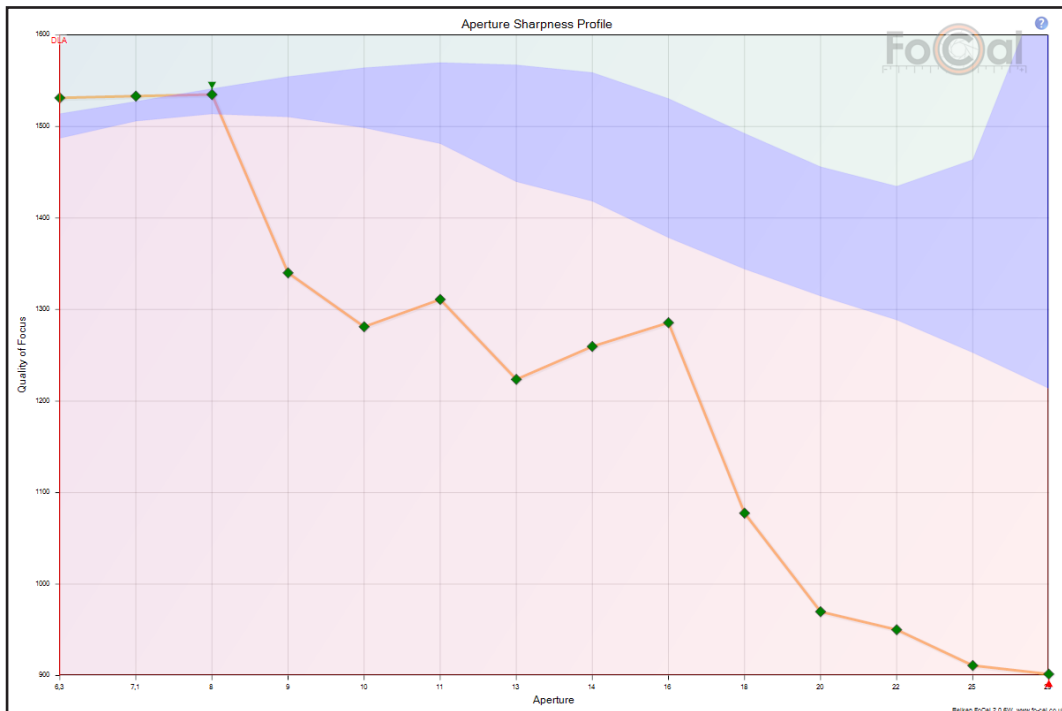
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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.



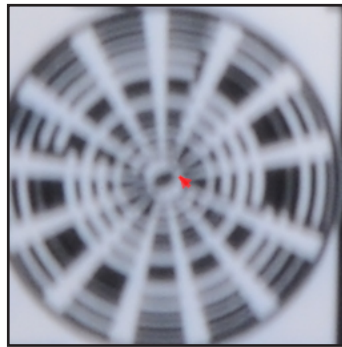
Analysis Details

| Property | Description |
|--------------------------|--|
| Astigmatism Factor Range | 43,2% (±42,4%) |
| Spectral Power Range | R: 32% (±0,1%) G: 32% (±0,1%) B: 36% (±0,2%) |
| Red: | |
| Red Optimal Aperture | f/8,0 |
| Red Peak QoF | 1508,5 |
| Green: | |
| Green Optimal Aperture | f/6,3 |
| Green Peak QoF | 1582,9 |
| Blue: | |
| Blue Optimal Aperture | f/8,0 |
| Blue Peak QoF | 1504,1 |

Aperture f/29

| | |
|------------------------|----------|
| Aperture | f/29,0 |
| Shutter Speed | 1/10s |
| EV | 13,0 |
| Colour Temperature | Unknown |
| Camera Temperature | Unknown |
| Quality Measure | 901,6 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 909,0 |
| Green Quality | 899,1 |
| Blue Quality | 897,1 |
| HVR | 49,4% |

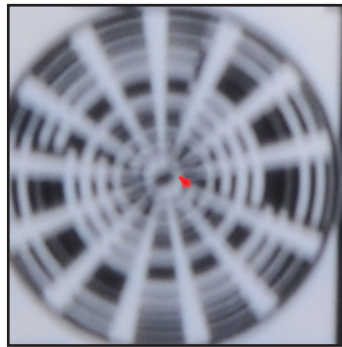
The following image is a crop of the section of image analysed by FoCal:



Aperture f/25

| | |
|------------------------|----------|
| Aperture | f/25,0 |
| Shutter Speed | 1/13s |
| EV | 12,9 |
| Colour Temperature | Unknown |
| Camera Temperature | Unknown |
| Quality Measure | 911,0 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 906,5 |
| Green Quality | 916,5 |
| Blue Quality | 902,0 |
| HVR | 62,2% |

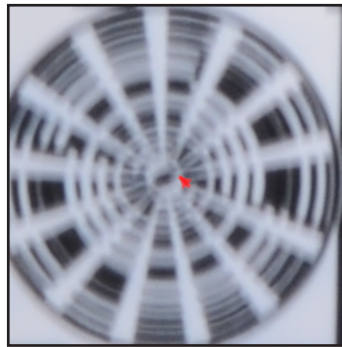
The following image is a crop of the section of image analysed by FoCal:



Aperture f/22

| | |
|------------------------|----------|
| Aperture | f/22,0 |
| Shutter Speed | 1/14s |
| EV | 12,8 |
| Colour Temperature | Unknown |
| Camera Temperature | Unknown |
| Quality Measure | 950,1 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 946,1 |
| Green Quality | 964,5 |
| Blue Quality | 945,5 |
| HVR | 85,6% |

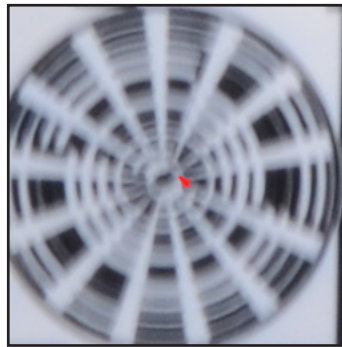
The following image is a crop of the section of image analysed by FoCal:



Aperture f/20

| | |
|------------------------|----------|
| Aperture | f/20,0 |
| Shutter Speed | 1/20s |
| EV | 12,9 |
| Colour Temperature | Unknown |
| Camera Temperature | Unknown |
| Quality Measure | 969,8 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 965,1 |
| Green Quality | 985,5 |
| Blue Quality | 959,7 |
| HVR | 72,8% |

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 | 1077,5 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 1058,3 |
| Green Quality | 1103,9 |
| Blue Quality | 1068,7 |
| HVR | 47,3% |

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 | 1285,7 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 1279,3 |
| Green Quality | 1314,1 |
| Blue Quality | 1270,5 |
| HVR | 23,6% |

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 | 1259,7 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 1251,3 |
| Green Quality | 1291,6 |
| Blue Quality | 1255,5 |
| HVR | 42,7% |

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



Aperture f/13

| | |
|------------------------|----------|
| Aperture | f/13,0 |
| Shutter Speed | 1/50s |
| EV | 13,0 |
| Colour Temperature | Unknown |
| Camera Temperature | Unknown |
| Quality Measure | 1223,7 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 1231,1 |
| Green Quality | 1249,4 |
| Blue Quality | 1191,2 |
| HVR | 78,2% |

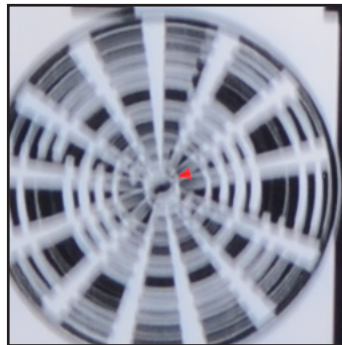
The following image is a crop of the section of image analysed by FoCal:



Aperture f/11

| | |
|------------------------|----------|
| Aperture | f/11,0 |
| Shutter Speed | 1/59s |
| EV | 12,8 |
| Colour Temperature | Unknown |
| Camera Temperature | Unknown |
| Quality Measure | 1311,1 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 1310,1 |
| Green Quality | 1343,5 |
| Blue Quality | 1284,7 |
| HVR | 62,4% |

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 | 1281,2 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 1278,5 |
| Green Quality | 1296,5 |
| Blue Quality | 1269,3 |
| HVR | 70,0% |

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 | 1340,1 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/32/36 |
| Red Quality | 1330,0 |
| Green Quality | 1376,8 |
| Blue Quality | 1313,3 |
| HVR | 58,1% |

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



Aperture f/8

| | |
|------------------------|----------|
| Aperture | f/8,0 |
| Shutter Speed | 1/125s |
| EV | 12,9 |
| Colour Temperature | Unknown |
| Camera Temperature | Unknown |
| Quality Measure | 1535,0 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/32/36 |
| Red Quality | 1508,5 |
| Green Quality | 1599,3 |
| Blue Quality | 1504,1 |
| HVR | 29,1% |

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



Aperture f/7,1

| | |
|------------------------|----------|
| Aperture | f/7,1 |
| Shutter Speed | 1/160s |
| EV | 12,9 |
| Colour Temperature | Unknown |
| Camera Temperature | Unknown |
| Quality Measure | 1533,3 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 1498,3 |
| Green Quality | 1585,6 |
| Blue Quality | 1507,4 |
| HVR | 7,6% |

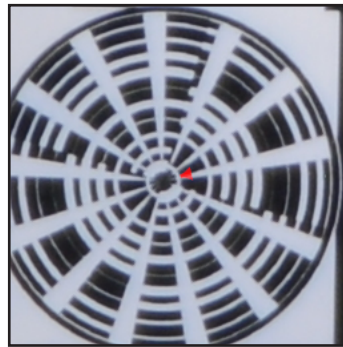
The following image is a crop of the section of image analysed by FoCal:



Aperture f/6,3

| | |
|------------------------|----------|
| Aperture | f/6,3 |
| Shutter Speed | 1/200s |
| EV | 12,9 |
| Colour Temperature | Unknown |
| Camera Temperature | Unknown |
| Quality Measure | 1531,4 |
| Optimised | Yes |
| Ignored | No |
| Spectral Power (R/G/B) | 32/33/36 |
| Red Quality | 1502,4 |
| Green Quality | 1582,9 |
| Blue Quality | 1512,2 |
| HVR | 0,8% |

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



Aperture Sharpness Profile

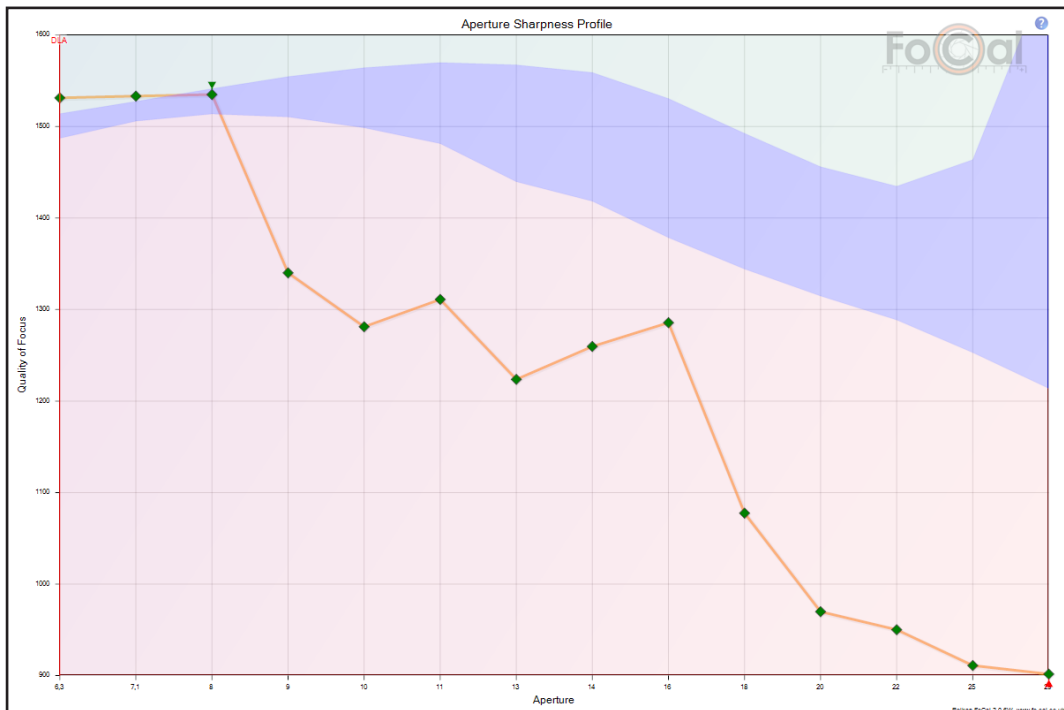
The Aperture Sharpness Profile shows how the image sharpness changes across the tested aperture range.

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,
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- Green: above average performance.

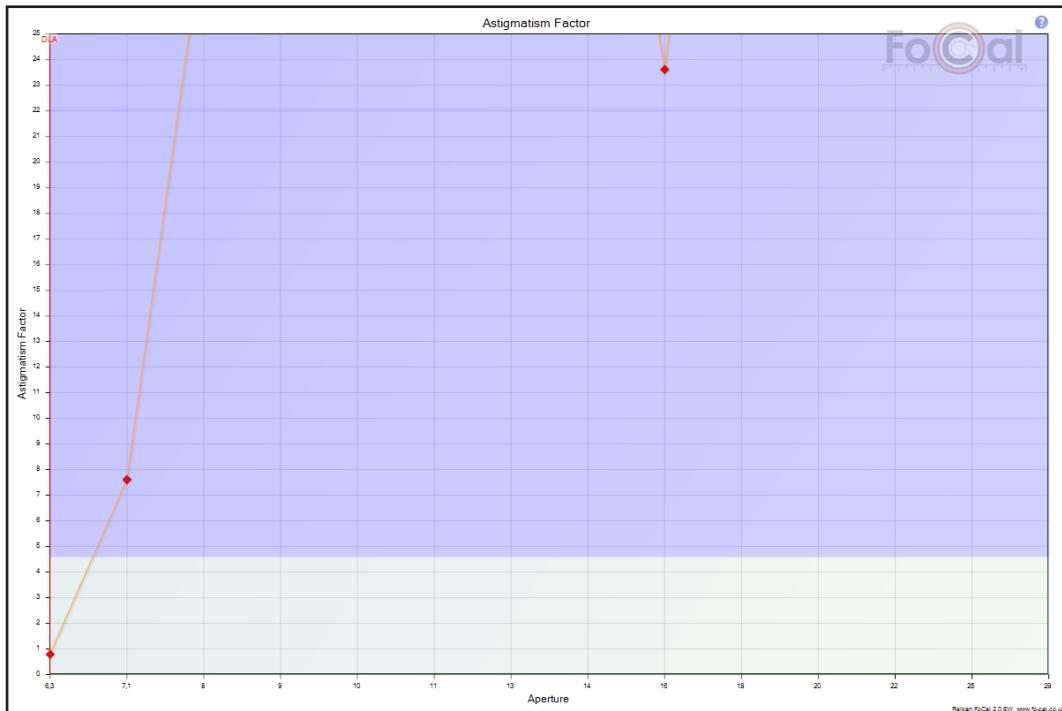


Astigmatism Factor

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

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- Green: above average performance.



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.

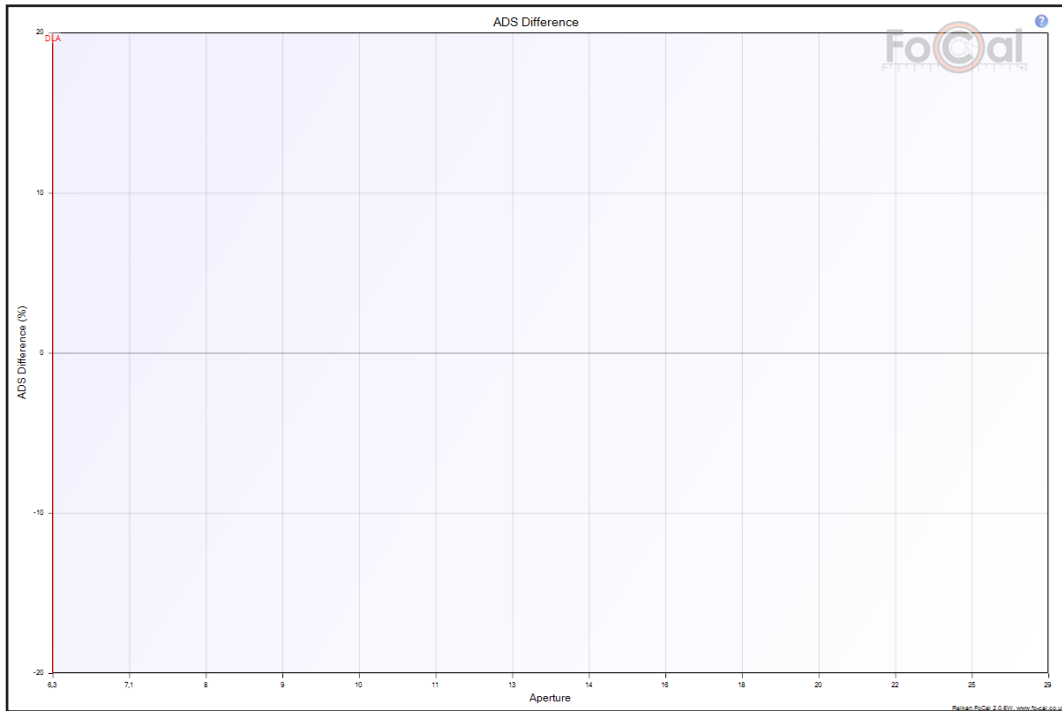


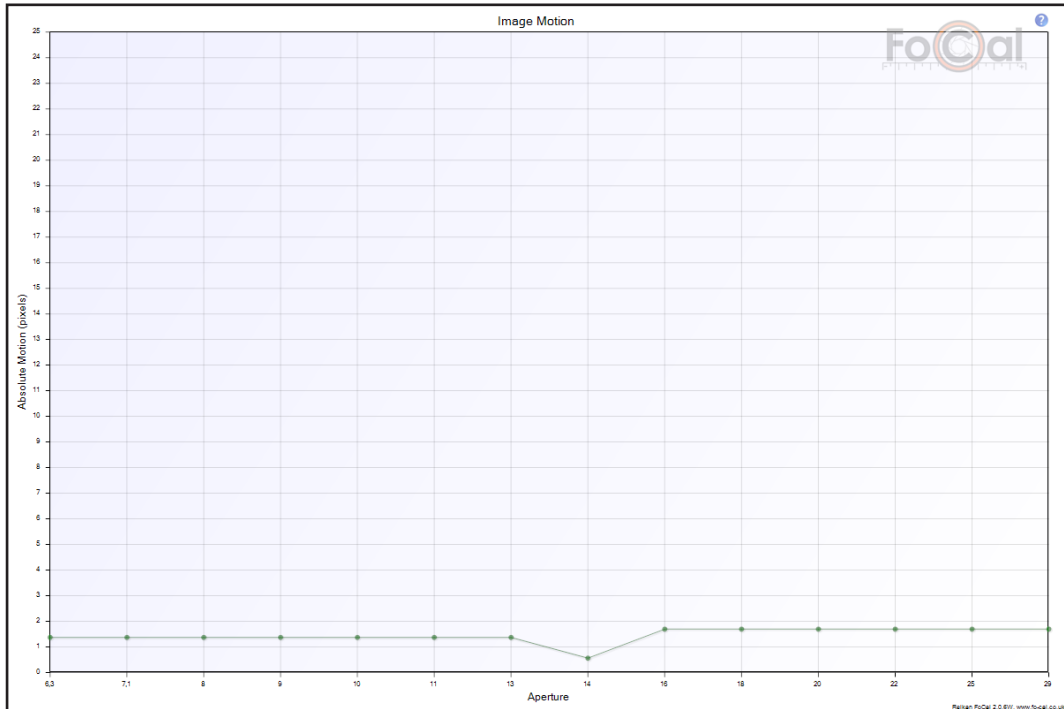
Image Motion

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.

