The reason (history).

1. With my Sony A100 I frequently experienced inconsistent sharpness, thought it was my fault, but then realized it's focus accuracy to be blamed. Some lenses produced non-suspicious results, thus it looked like the problem is in the lens.
2. I did the first test – with Sigma 18-125 lens, gave the lens to calibration which only made things worse. In the end of the long process, Sigma sent me a replacement lens that behaves just like the original one before calibration.
3. I thought the Sigma 18-125 lens is a bad design, decided to buy the ultimate alternative – Sony Carl Zeiss 16-80. No luck; it's even worse focusing-wise.
4. I realized my camera sample is faulty. Bought a second Sony A100 body and made the test described in this document. Bottom line: the result shows the whole system malfunctions.

The setup.

The target shown on Illustration 1. The angle of the ruler is not exactly 45 degrees, but this doesn't matter for claiming focus problems. There's a huge window on the right providing enough light for focusing.

Illustration 1: Focus test setup (the target)

The camera focused at the boundary of the black band on the box with its central censor.

Distance – around 2m. The camera set on tripod and fired with mirror lock-up.

The shots taken on largest aperture of each focal-lens setting.

Cameras and lenses used in the test.

Sony Alpha 100 serial number 765817; used for a year before the test. Denoted as #1.

Sony Alpha 100 serial number 4632925; new at the time of the test. Denoted as #2.

Sony Carl Zeiss 16-80 f/3.5-4.5 serial number 3816690

KonicaMinolta 18-70 f/3.5-5.6

Sigma 18-125 f/3.5-5.6

Minolta 50 f/1.7

Minolta 28 f/2

Sigma 28-70 f/2.8-4

Minolta 24-105 f/3.5-4.5

Minolta 100-300 f/4.5-5.6

Results representation.

For each comparison a sign is given that tells which camera sample was better, or all good, or all bad, or unclear.

More specifically:

- ? means no verdict – the result is unclear
- - means both cameras are totally bad
- + means both cameras are good
- -1 means #1 is better, but still bad
- -2 means #2 is better, but still bad
- 1 means #1 is better, though apparently not perfect – still unusable wide open
- 2 means #2 is better, though apparently not perfect – still unusable wide open
- +1 means #1 is better and is really good
- +2 means #2 is better and is really good
- ?1 means #1 is marginally better, though apparently not perfect – still unusable wide open
- ?2 means #2 is marginally better, though apparently not perfect - still unusable wide open

Test results – per a lens.

Sony Carl Zeiss 16-80 f/3.5-4.5

- 80mm 2
- 50mm 1
- 35mm 2
- 24mm -
- 16mm -

Conclusion: this lens is unusable

KonicaMinolta 18-70 f/3.5-5.6

- 70mm +2
- 50mm 2
- 35mm 2
- 28mm ?2
- 24mm ?2
- 18mm ?2

Conclusion: this lens could be used on camera #2 while closing-down the aperture

Sigma 18-125 f/3.5-5.6

- 125mm +2
- 100mm +2
- 70mm +2
- 50mm 2
- 35mm ?2
- 28mm -2
- 24mm -
- 18mm ?2

Conclusion: this lens could be used on camera #2 while closing-down the aperture on wide end; this is the combo I use most of the time.

Minolta 50 f/1.7

- 50mm +

Conclusion: this lens could be used on any camera.

Minolta 28 f/2

- 28mm ?1

Conclusion: this lens could be used on camera #1, though closed down at least a bit

Sigma 28-70 f/2.8-4

- 70mm 1
- 50mm -2
- 35mm ?2
- 28mm -1

Conclusion: this lens is unusable

Minolta 24-105 f/3.5-4.5

- 105mm +
- 70mm 2
- 50mm 2
- 35mm 2
- 24mm +2

Conclusion: this lens could be used on camera #2.

Minolta 100-300 f/4.5-5.6

- 300mm ?
- 135mm +2
- 100mm 2

Conclusion: this lens could be used on camera #2; though wasn't tested on the long end.

Result interpretation.

The system generally shows low AF accuracy, and neither of the 2 cameras is good enough. I'm not a pixel peeper, but an amateur photographer who tried to analyzed why pictures turn out non-sharp in practical shooting conditions.

Camera #2 is usually better, but some lenses are exceptions.

Two lenses show up as unusable – Sigma 28-70 f/2.8-4 and the pricey Carl Zeiss 16-80 f/3.5-4.5 .