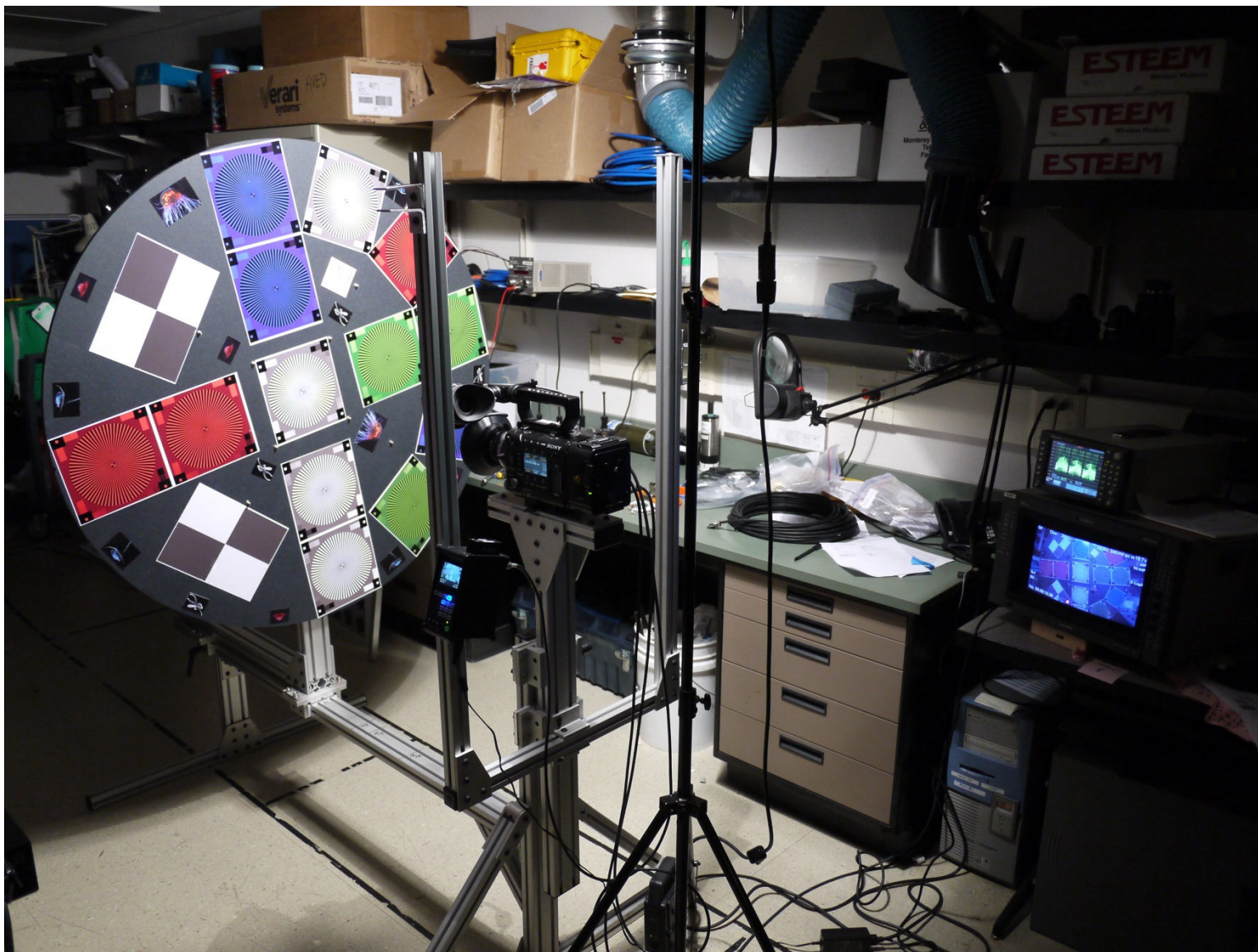


i2MAP Camera and Lens Testing – Summary of Sony 11mm Results

Mark Chaffey
MBARI
chma@mbari.org
August 6, 2014

Camera Test Setup

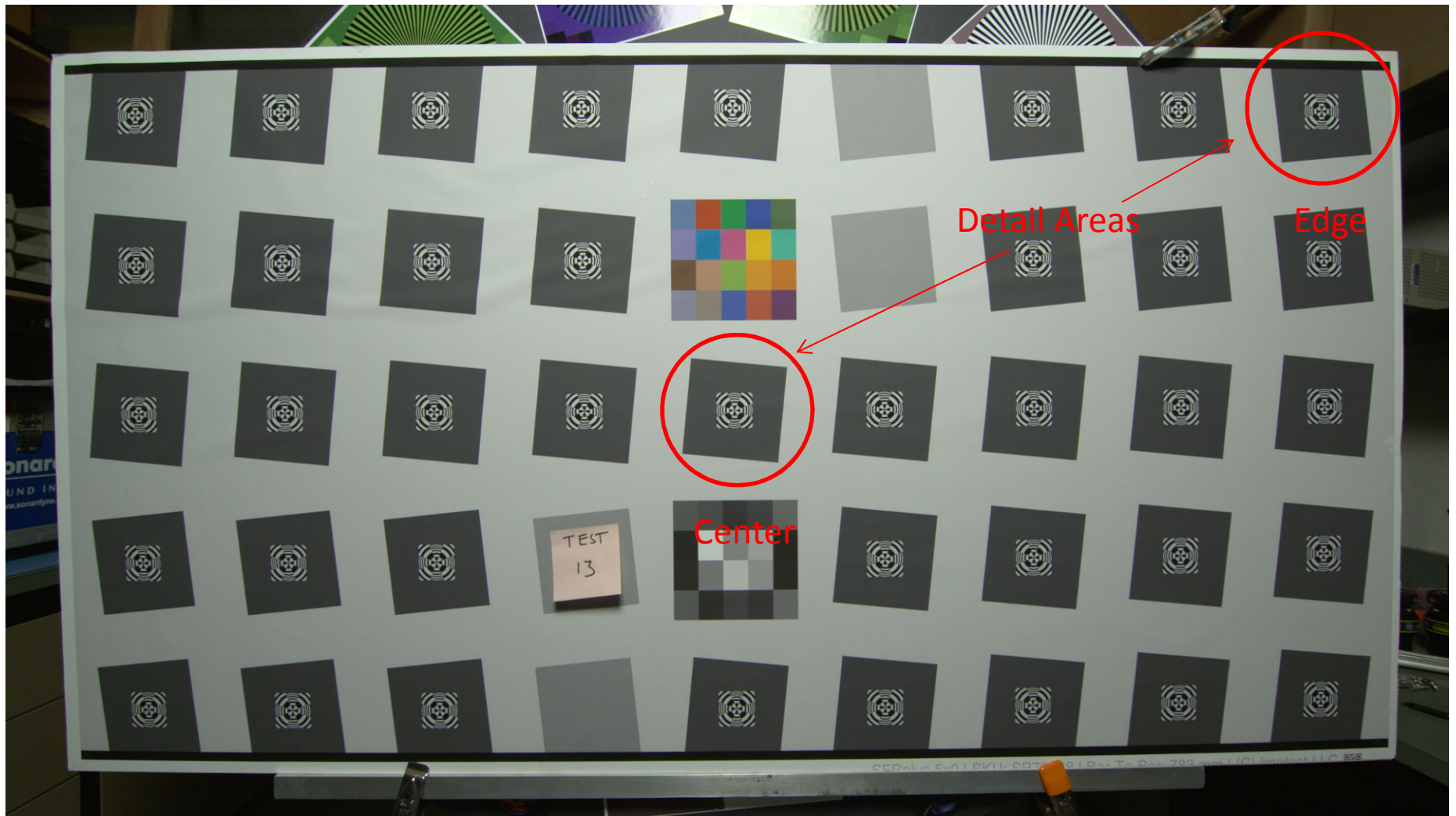


PL Mount Lens Testing Results

- The Arri/Zeiss Distagon 12mm T2.1 Standard Prime Lens and Sony SCL-P11X15 wide angle zoom Lens performed equally well in resolution and chromatic aberration.
- The Zeiss is \$9k used and the Sony is \$6-7k available now. The Sony has a hot shoe for reading lens meta data and storing in the camera (not a requirement, but potentially useful).
- The Zeiss is much faster T2.1 Vs. T3.0, however we are required to stop down to F5.6 for DOF anyway.
- We would use the Sony lens in the 11mm focal position only.

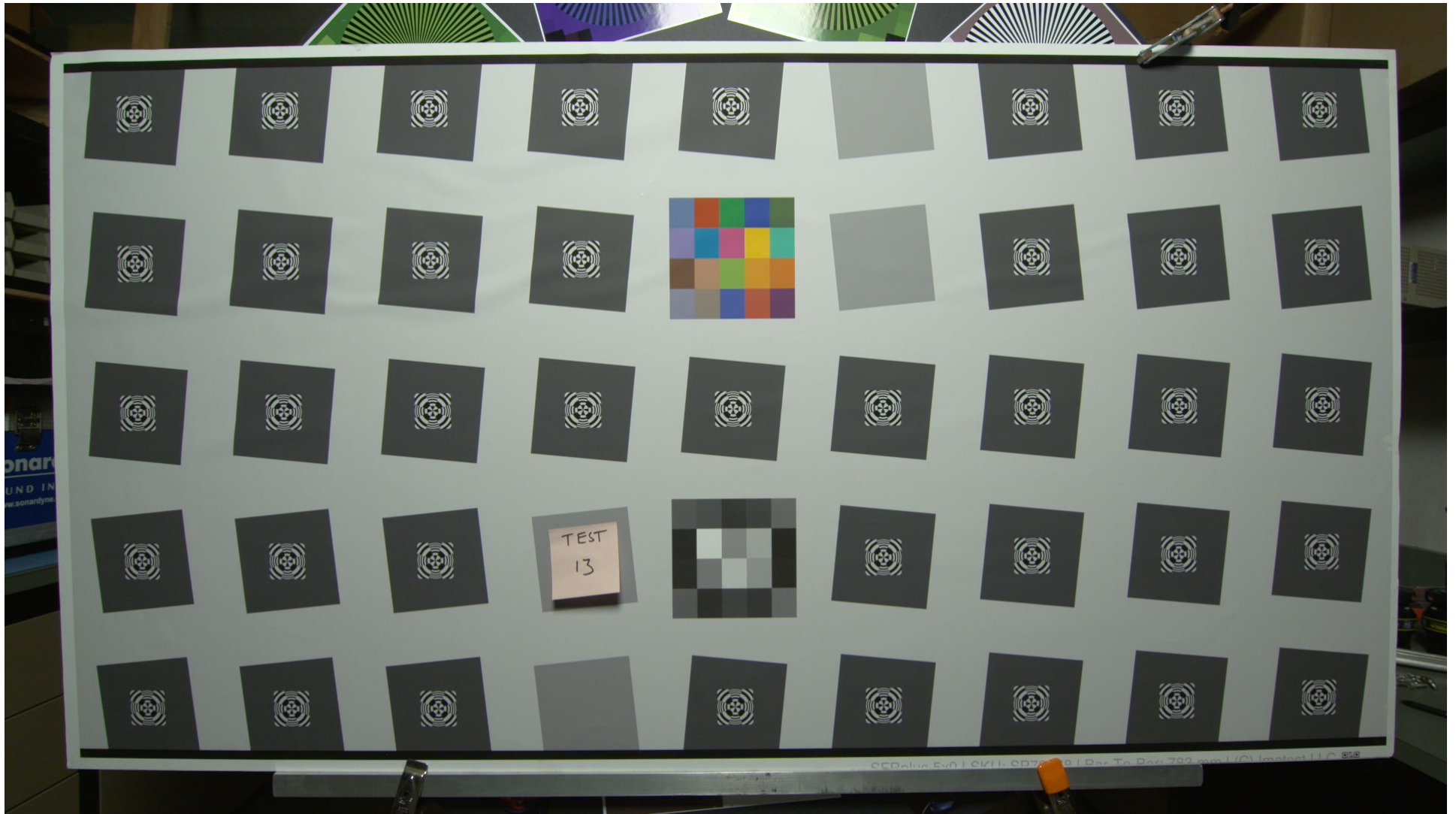
Camera Detail Resolution Comparison Locations

Target Distance at "Sweet Spot" ~ 0.5 Meters From Dome



Sony F-5, SCL-P11X15 Lens, 400 lux, 70 IRE, Target 36 inches

Sony F-5 and Sony SCL-P11X15 Lens



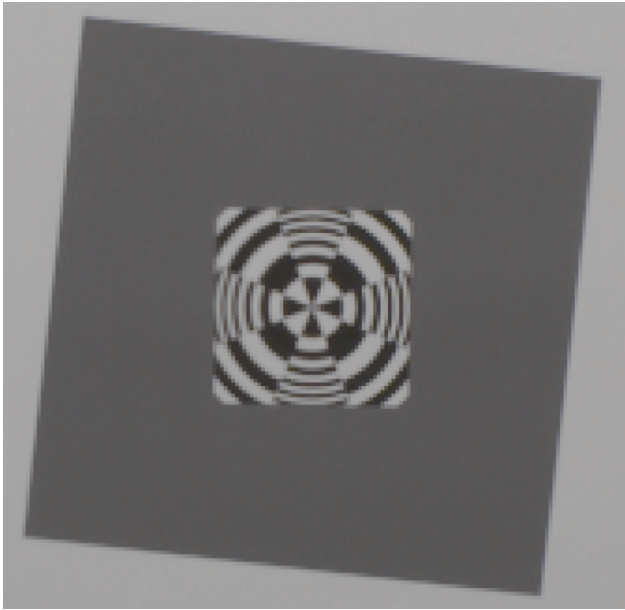
Sony F-5, SCL-P11X15 Lens, F 5.6 400 lux, ISO 800, 70 IRE, Target 36 inches File: Test_13X.tiff

Sony F-5 and Arri/Zeiss Distagon 12mm T2.1 Standard Prime Lens

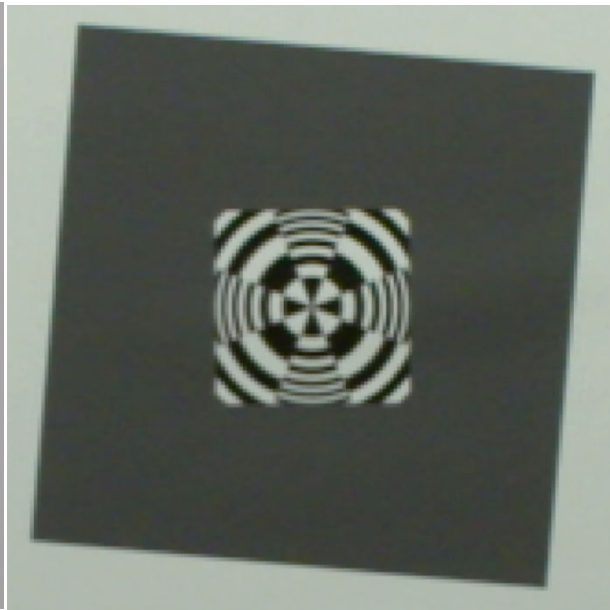


Sony F-5, Zeiss 12mm Lens, F 5.6, 520 lux, ISO 800, 70 IRE, Target 36 inches File: Test_12A.tiff

PL Mount Lens Comparison - Center



Sony F-5, SCL-P11X15 Lens,
400 lux, 70 IRE, Target 36
inches File: Test_13X.tiff

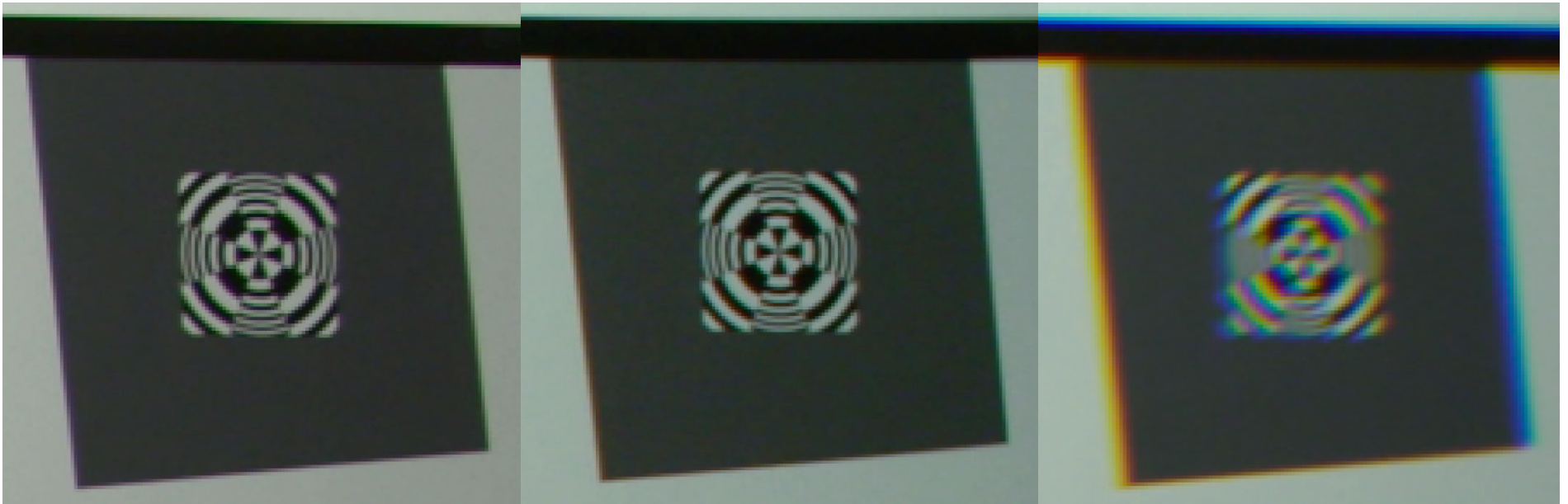


Sony F-5, Zeiss 12mm
Lens, 520 lux, 70 IRE,
Target 36 inches
File: Test_12A.tiff
(lightened 20%)



Sony F-5, Optex 12mm Lens,
400 lux, 80 IRE, Target 34
inches
File: Test_8.tiff

PL Mount Lens Comparison - Edge



Sony F-5, SCL-P11X15 Lens,
400 lux, 70 IRE, Target 36
inches File: Test_13X.tiff
(\$6000)

Sony F-5, Zeiss 12mm Lens,
520 lux, 70 IRE, Target 36
inches
File: Test_12A.tiff (lightened
20%) (\$6-23,000)

Sony F-5, Optex 10.5mm
Lens, 400 lux, 80 IRE, Target
34 inches
File: Test_8.tiff (\$6500)

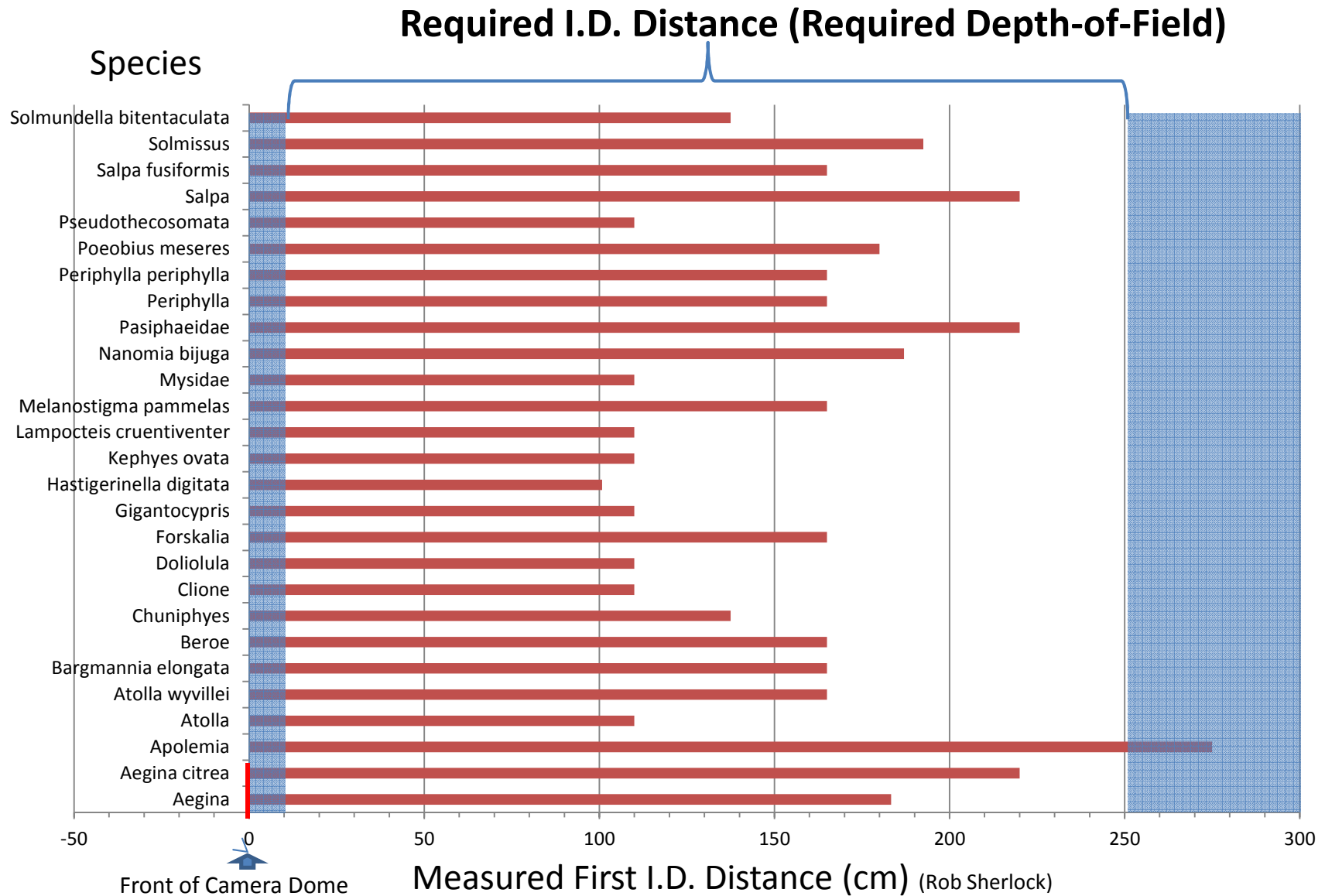
Camera Comparison

Sony F-5 vs. Ikegami HDL50/HS

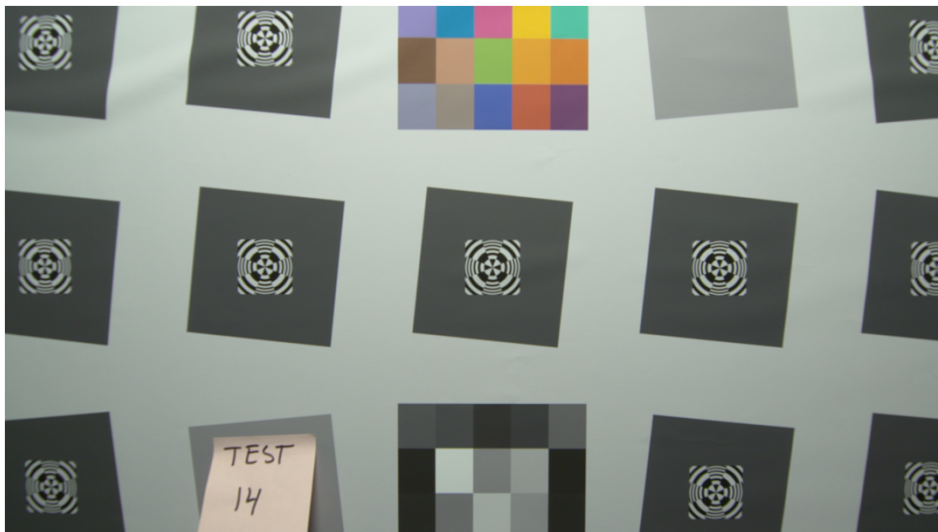


The PL and B4 mount Lens Winners Were Used for The Camera Test
Sony SCL-P11X15 Lens and Zeiss Digi Prime T1,9/5mm

Distance (DOF) Requirements for the Identification of Representative Organisms in the Camera Field-of View



Test Showing the Sony F-5 and the Sony SCL-P11X15 Lens Meets the i2MAP Depth of Field Requirements (at F 5.6)



Sony F-5, Sony SCL-P11X15 lens set to 11mm, 560 lux, 75 IRE, Target 18 inches (10cm from dome equiv.), F 5.6, focus distance 31.5 inches

File: Test_14.tiff



Sony F-5, Sony SCL-P11X15 lens set to 11mm, 560 lux, 75 IRE, Target 113 inches (2.5m from dome equiv.), F 5.6, focus distance 31.5 inches

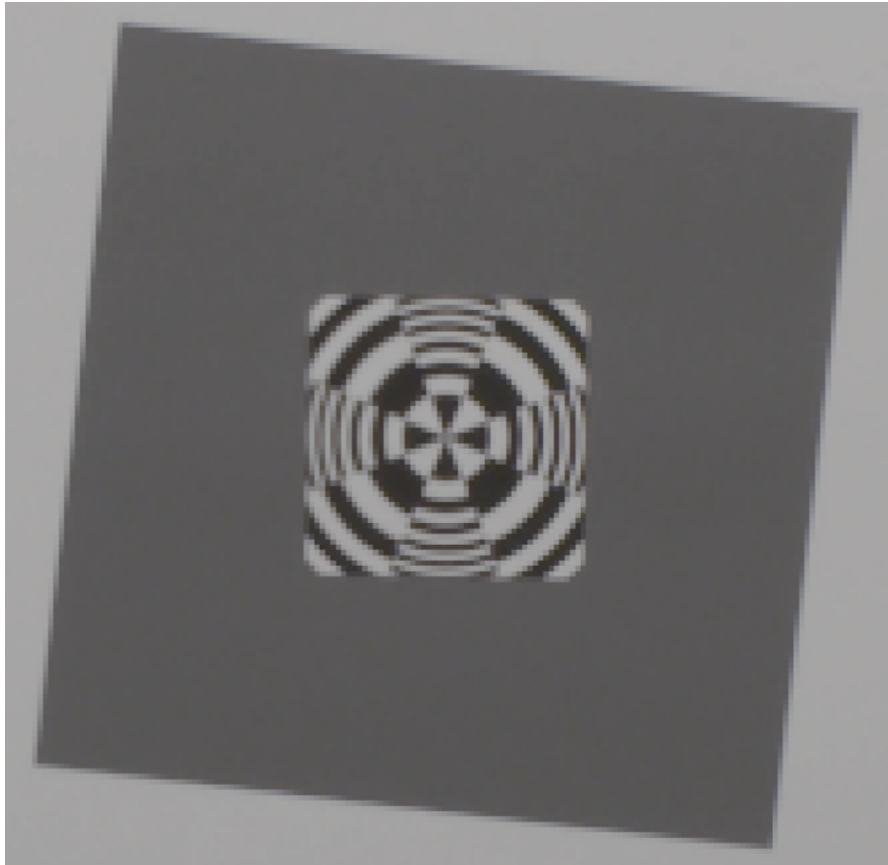
File: Test_45.tiff

Example of 4k Resolution

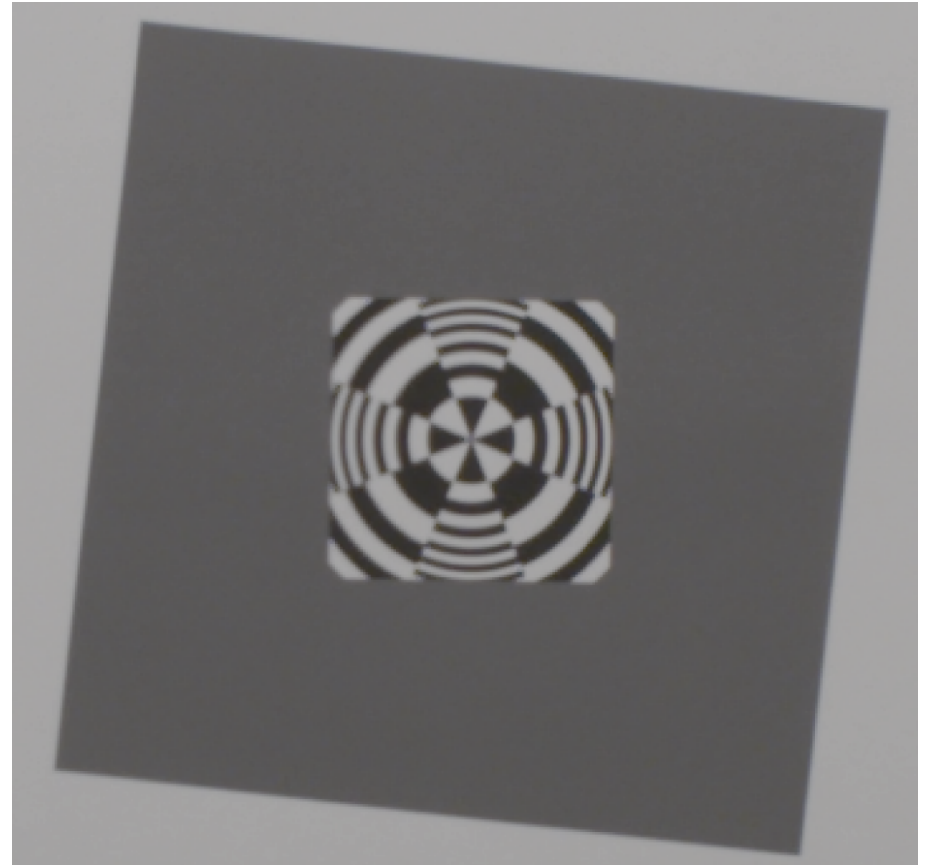
- The next two slides illustrate the increased resolution visible with full 4k image capture.
- Note that the lens used was the Zeiss 12mm Lens. 4K testing with the Sony 11mm lens is pending.
- By selecting the F-5 (or F-55) we hope to migrate to 4k image capture as soon as recording capability is available (2015?).
- Lens and optical adapter system must support 4k imaging resolution.

Sony F-5 1920 X 1080 vs. Sony F-5 4096 X 2160 (4K)

Center Resolution



Sony F-5, Zeiss 12mm Lens, 400 lux,
IE 800, Target 36 inches, 1920x 1080 P60
(no color correction)
File: Test_54_1920_4444.tiff



Sony F-5, Zeiss 12mm Lens, 800 lux,
IE 2000, Target 34 inches, 4K P60
(no color correction)
File: Test_54_4K4444.tiff

Sony F-5 1920 X 1080 vs. Sony F-5 4096 X 2160 (4K)

Edge Resolution



Sony F-5, Zeiss 12mm Lens, 400 lux, ISO 800, Target 34 inches, 1920x 1080 P60
(no color correction)
File: Test_54_1920_4444.tiff



Sony F-5, Zeiss 12mm Lens, 800 lux, IE 2000, Target 34 inches, 4K P60
(no color correction)
File: Test_54_4K4444.tiff