

# Laser Scanner Plans for the New LCLS Housings

Catherine LeCocq

07/31/08

# Z+F Imager 5006

<b>IMAGER 5006 Laser Measurement System Specifications</b>	
Ambiguity Interval	79 m
Minimum Range	1.0 m
Resolution Range	0.1 mm
Method	Phase Shift
<b>Range Noise @ 10 m</b>	
Reflectivity (Surface Color)	
10% (black)	1.2 mm rms
20 % (dark grey)	0.7 mm rms
100 & (white)	0.4 mm rms
<b>Range Noise @ 25 m</b>	
Reflectivity (Surface Color)	
10% (black)	3.0 mm rms
20 % (dark grey)	2.0 mm rms
100 & (white)	1.0 mm rms
<b>Range Noise @ 50 m</b>	
Reflectivity (Surface Color)	
10% (black)	7.5 mm rms
20 % (dark grey)	4.0 mm rms
100 & (white)	2.5 mm rms

<b>IMAGER 5006 Optical Transceiver</b>	
Laser	Visible
Beam Divergence	0.22 mrad
Beam Diameter at 1 meter	3 mm
Laser Safety	3R

<b>IMAGER 5006 Deflection Unit</b>	
Field of View Vertical	310°
Field of View Horizontal	360°
Resolution (Vt & Hz)	0.0018°
Accuracy (Vt & Hz)	±0.007° rms

# Scanning Choices

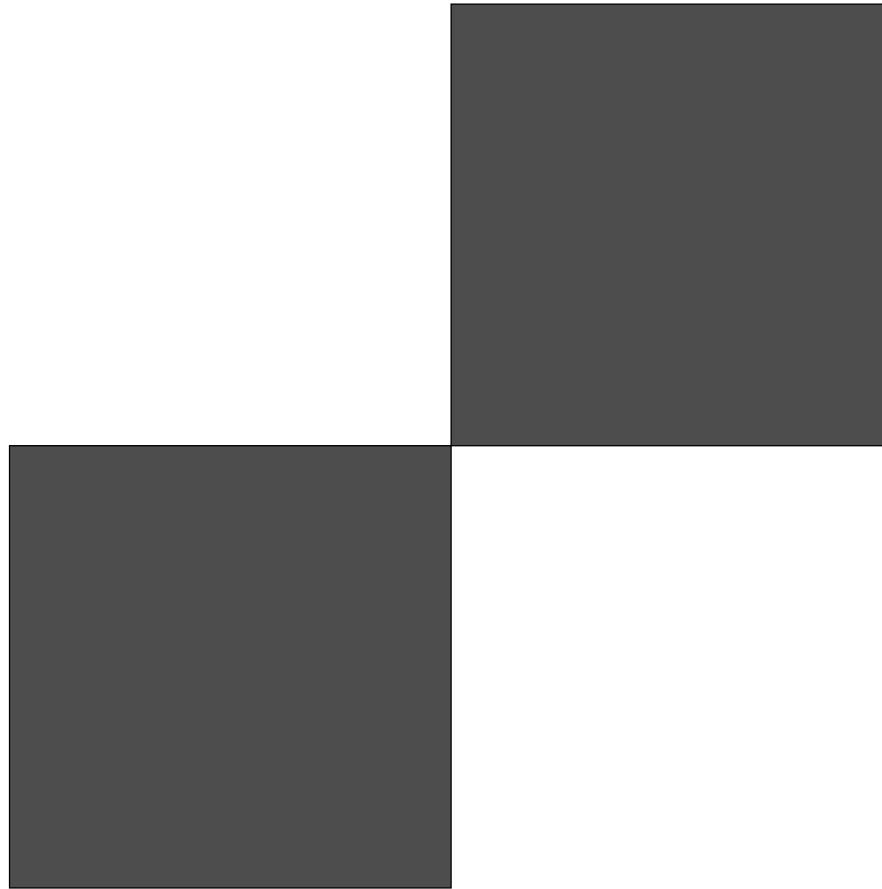
IMAGER 5006 Resolution			
Resolution	Increments	Scanning Time (without low noise reduction)	Approximate Data File Size (ZFS format)
Preview	0.288°	25 sec	3 MByte
Middle *	0.072°	1 min 40 sec	45 MByte
High *	0.036°	3 min 22 sec	180 MByte
Super High *	0.018°	6 min 44 sec	720 MByte
Ultra High	0.009°	26 min 40 sec	2880 MByte

*\* The option low noise is available for the Middle, High and Super High resolutions. It reduces the noise by a factor of 1.4 but double the measurement time.*

# Target Options

- 1.5" painted spheres
- Z+F paper targets
- Cyra registration targets
- Seco spherical targets

# Z+F Paper Target



Meßpunkt bitte nicht entfernen

# Software

- Previous Solution: Z+F laser Control for most of the laser scanner operation and Cyclone for all analysis and modeling
- Next Step: Switch to Z+F LFM Server and Modeler