

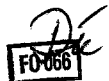
CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC30
LENS TYPE : 15/4 UAG-S
LENS NO. : 13220

Calibration date: 11.12.2001

SwissOptic AG, Heerbrugg

 **swissoptic**
SwissOptic AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
Schweiz



Aperture: 4.0
 Filter on goniometer: VIS (400-700 NM)
 Filter on camera: --
 C.F.L. : 152.517 mm

Radial distortion (micrometers) referred to principal point of symmetry (PPS)
 (Positive values denote image displacement away from center)

Radius mm	Half - Sides				Mean
	1	3	2	4	
10	0.3	-0.5	-0.1	-0.2	-0.1
20	-0.1	-0.5	-0.2	-0.3	-0.2
30	0.2	-0.7	0.4	-0.6	-0.1
40	0.5	0.0	0.4	0.0	0.2
50	0.8	0.1	0.5	0.2	0.4
60	0.5	0.6	1.4	0.2	0.6
70	1.4	0.8	1.2	0.6	1.0
80	1.0	1.4	1.4	0.8	1.1
90	1.6	1.4	1.4	0.8	1.3
100	1.0	1.2	1.7	0.8	1.1
110	0.7	0.9	1.6	0.7	0.9
120	0.1	-0.1	-0.4	0.0	-0.1
130	-1.1	-1.3	-1.1	-0.6	-1.0
140	-2.1	-2.0	-2.4	-1.5	-2.0
148	-2.0	-1.5	-2.4	-1.7	-1.9

Photographic resolution (line pairs per millimeter)

International 3-line test-chart, contrast (log) : 2.0

Aperture: 4.0
 Filter: 450 NM
 Film: KODAK PANATOMIC X 2412
 Developer: KODAK HC110

Angle (deg)	0	5	10	15	20	25	30	35	40	45
Radial:	93	93	103	101	78	95	101	108	113	93
Tangential:	93	92	101	109	92	96	88	88	87	66

AWAR (Area weighted average resolution) in lp/mm: 96

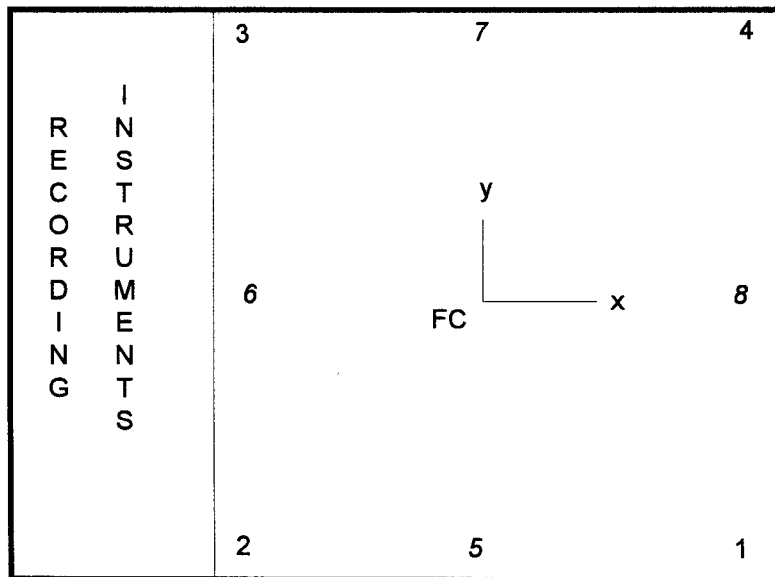


Principal point of autocollimation (PPA) and principal point of symmetry (PPS) referred to central cross (FC), see diagram

	x (mm)	y (mm)
PPA	0.011	0.002
PPS	0.011	0.003

Fiducial marks, referred to central cross (FC)

	x (mm)	y (mm)		x (mm)	y (mm)
1	105.999	-106.000	5	-0.003	-111.999
2	-106.000	-106.003	6	-111.999	0.003
3	-106.002	106.003	7	0.000	112.006
4	106.003	106.006	8	112.002	0.003

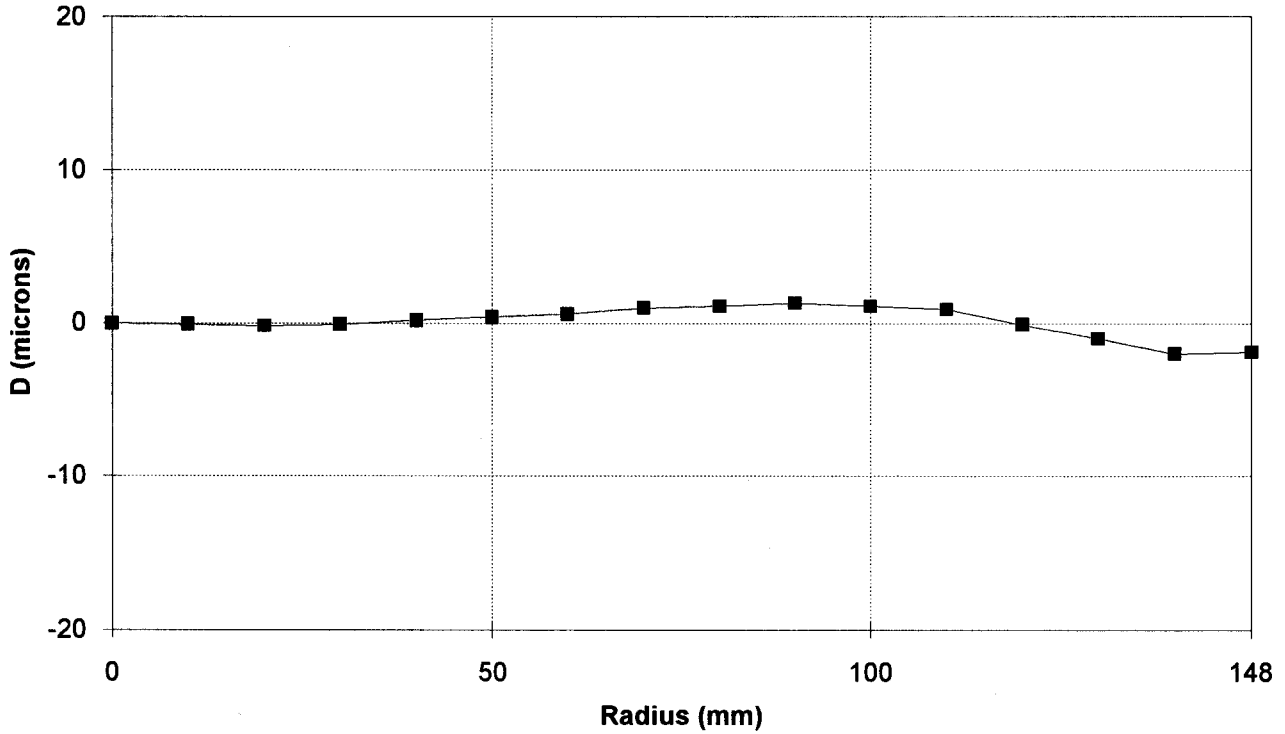


as seen on focal plane frame

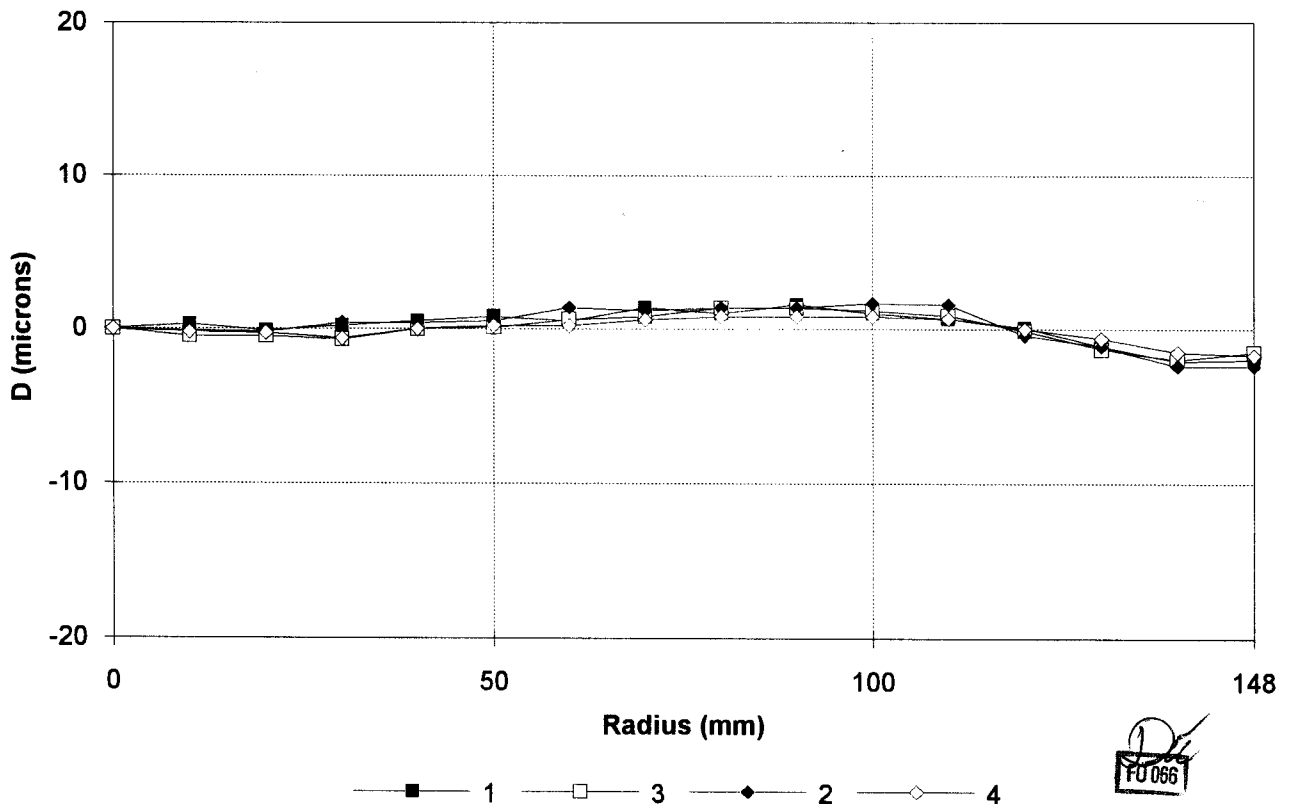
Die
FD 066

Aperture: 4.0
Filter on goniometer: VIS (400-700 NM)
Filter on camera: --
C.F.L. : 152.517 mm

Mean radial distortion



Radial distortion for semi-diagonals referred to PPS



Lens Cone Calibration Process Specification



This document contains general information about the *Camera Calibration Certificate* issued by *SwissOptic AG*, a LEICA GEOSYSTEMS company. Described are the used standards, methods, accuracy and validity relating to the enclosed Calibration Certificate.

Document: Calibr Process Specs.doc

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