

CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC20
LENS TYPE : 21/4 NAGA-F
LENS NO. : 7176

Calibration date: 12.11.1997

SwissOptic AG, Heerbrugg

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


EG 187

Aperture: 4.0
 Filter on goniometer: 450 NM
 Filter on camera: --
 Principal distance for focussing distance 900 m : 214.744 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	0.9	0.9	1.0	1.0	0.9
20	1.4	1.0	1.8	1.3	1.3
30	2.8	2.1	3.0	2.4	2.5
40	3.5	3.6	3.8	3.8	3.6
50	3.8	4.2	3.9	4.6	4.1
60	2.4	3.6	3.5	3.5	3.2
70	2.0	2.6	1.8	2.7	2.2
80	0.1	1.6	1.0	1.6	1.0
90	-0.4	-0.2	-0.6	-0.1	-0.3
100	-1.6	-1.6	-0.8	-1.6	-1.4
110	-2.5	-3.4	-1.5	-2.5	-2.4
120	-2.6	-4.3	-2.9	-3.3	-3.2
130	-3.3	-3.2	-2.5	-1.7	-2.6
140	-2.0	-1.2	-0.5	-0.1	-0.9
148	0.8	0.6	2.0	1.6	1.2

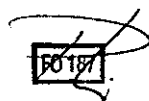
Photographic resolution (line pairs per millimeter)

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

Aperture: 4.0
 Filter: 450 NM
 Film: KODAK TECHNICAL PAN 2415
 Developer: KODAK HC110

Angle (deg)	0	5	10	15	20	25	30	35
Radial:	75	84	74	82	56	48	46	49
Tangential:	75	75	65	63	53	55	50	45

AWAR (Area weighted average resolution) in lp/mm: 57

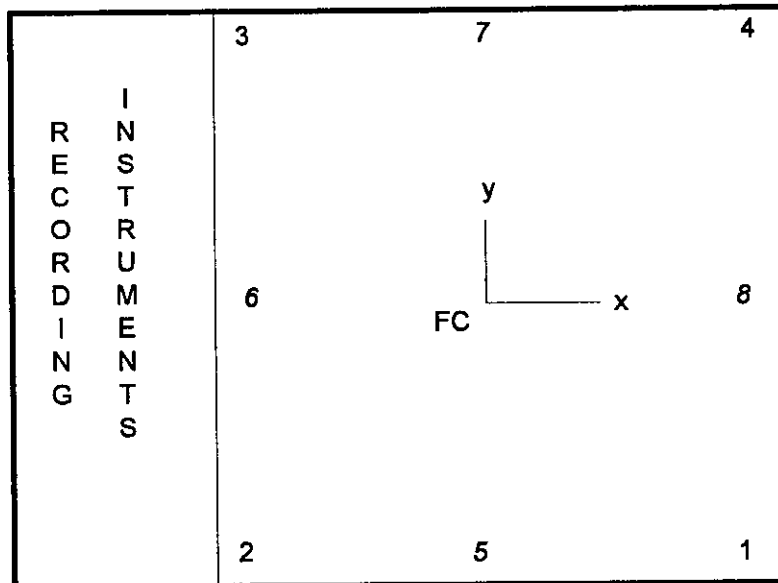


Principal point of autocollimation (PPA) and principal point of symmetry (PPS) referred to central cross (FC), see diagram

	x (mm)	y (mm)
PPA	-0.013	-0.003
PPS	-0.017	-0.021

Fiducial marks, referred to central cross (FC)

	x (mm)	y (mm)		x (mm)	y (mm)
1	106.003	-106.005	5	-0.003	-110.006
2	-106.003	-106.003	6	-110.004	-0.003
3	-105.999	106.001	7	0.000	110.003
4	106.002	106.003	8	110.003	0.002

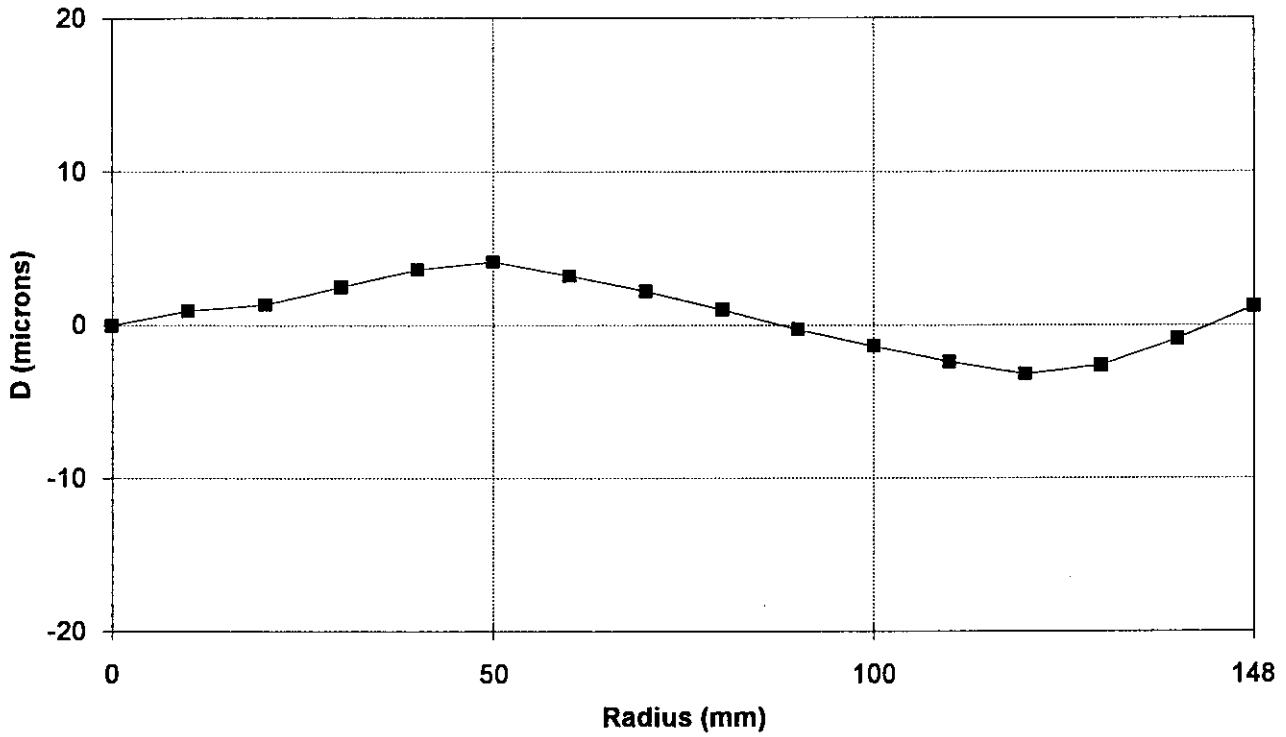


as seen on focal plane frame

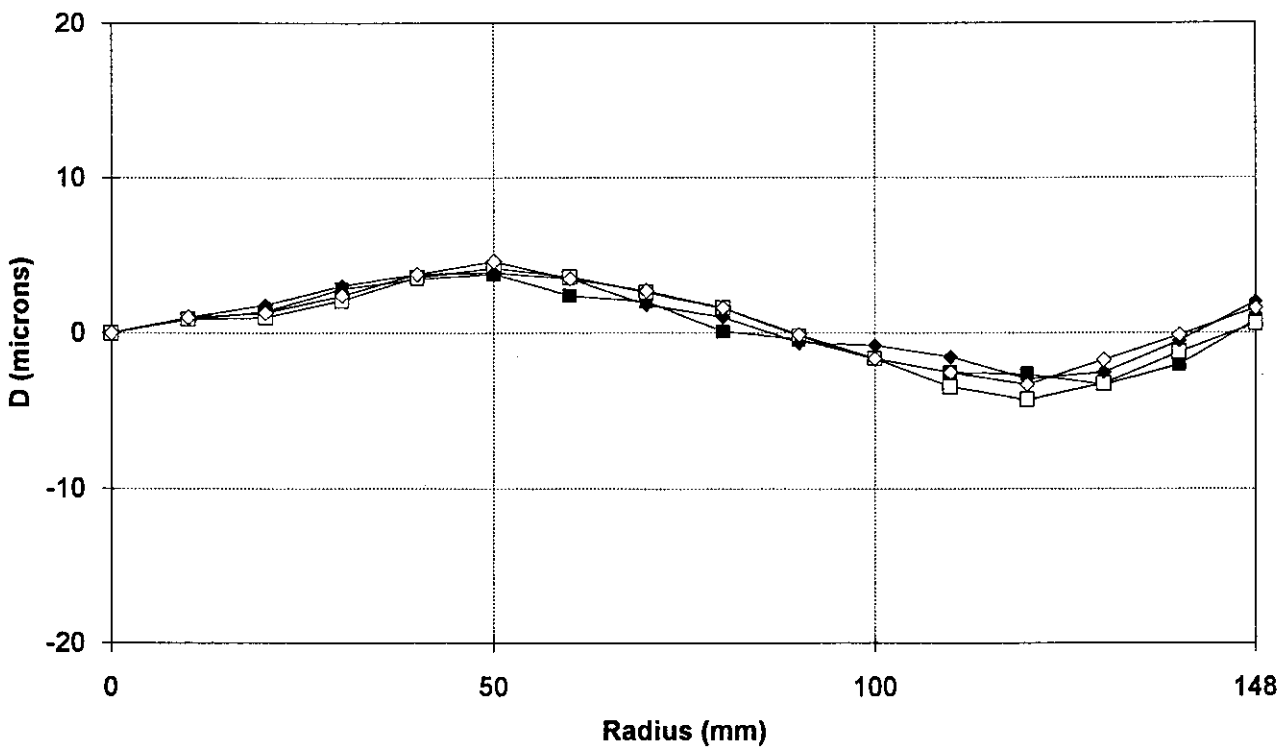


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Mean radial distortion



Radial distortion for semi-diagonals referred to PPS



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