

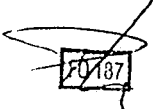
CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC20
LENS TYPE : 21/4 NAGA-F
LENS NO. : 7192

Calibration date: 07.02.2000

SwissOptic AG, Heerbrugg

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

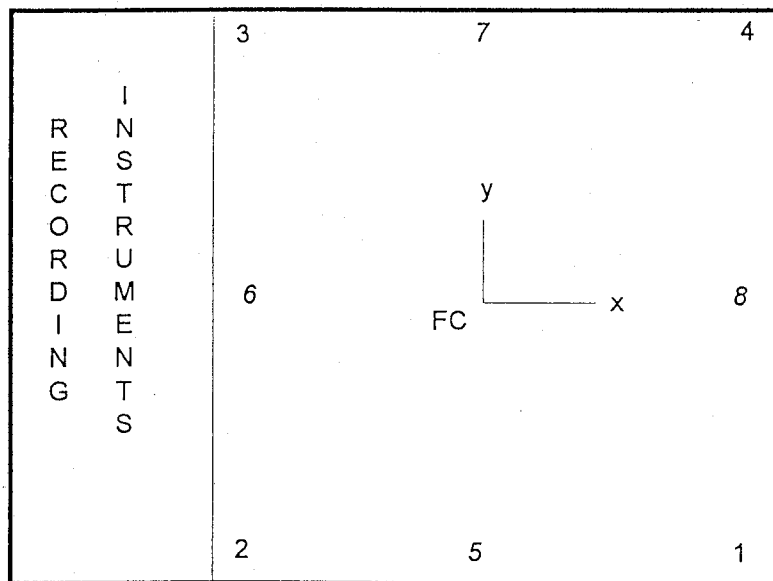

FO/187

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

	x (mm)	y (mm)
PPA	-0.010	-0.005
PPS	-0.003	-0.017

Fiducial marks, referred to central cross (FC)

	x (mm)	y (mm)		x (mm)	y (mm)
1	106.004	-106.002	5	0.001	-109.999
2	-106.002	-106.001	6	-110.001	0.004
3	-106.003	106.002	7	-0.004	110.002
4	106.003	106.001	8	110.004	0.000



as seen on focal plane frame



Aperture: 4.0
 Filter on goniometer: 450 NM
 Filter on camera: --
 Principal distance for focussing distance 900 m : 213.707 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	0.8	0.5	0.7	0.6	0.6
20	1.3	0.8	1.3	0.6	1.0
30	1.9	2.6	2.0	2.0	2.1
40	3.5	4.7	3.4	3.7	3.8
50	3.8	5.1	3.6	4.3	4.2
60	2.5	4.9	3.6	3.9	3.7
70	1.2	3.6	2.0	2.8	2.4
80	-0.4	2.5	0.7	1.9	1.1
90	-0.9	1.0	-0.8	0.7	0.0
100	-2.5	-0.6	-1.9	-0.3	-1.3
110	-2.9	-1.2	-3.0	-1.6	-2.1
120	-2.7	-3.2	-4.3	-2.7	-3.2
130	-1.6	-3.4	-2.6	-1.8	-2.3
140	-0.2	-2.1	-0.5	-2.5	-1.3
148	1.3	-0.7	1.9	-1.3	0.3

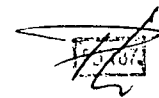
Photographic resolution (line pairs per millimeter)

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

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

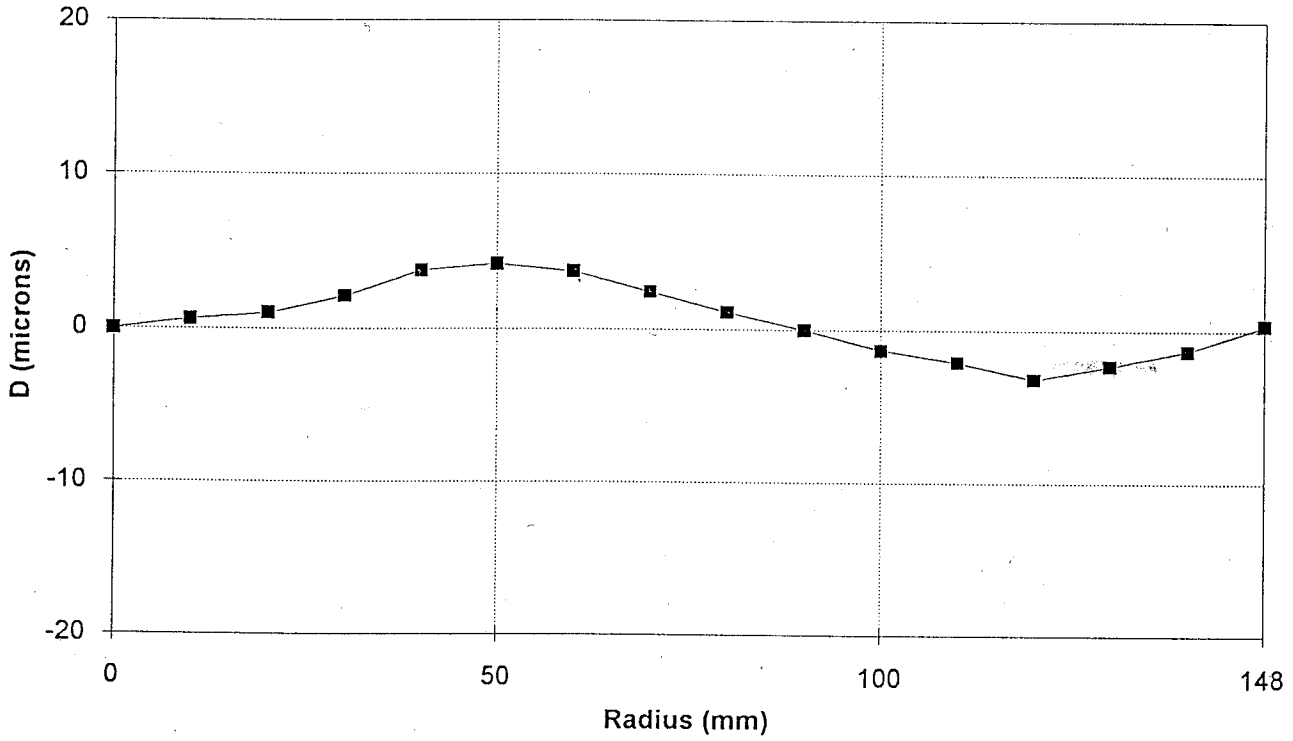
Angle (deg)	0	5	10	15	20	25	30	35
Radial:	94	106	93	81	56	38	41	55
Tangential:	94	105	82	88	74	55	56	45

AWAR (Area weighted average resolution) in lp/mm: 62

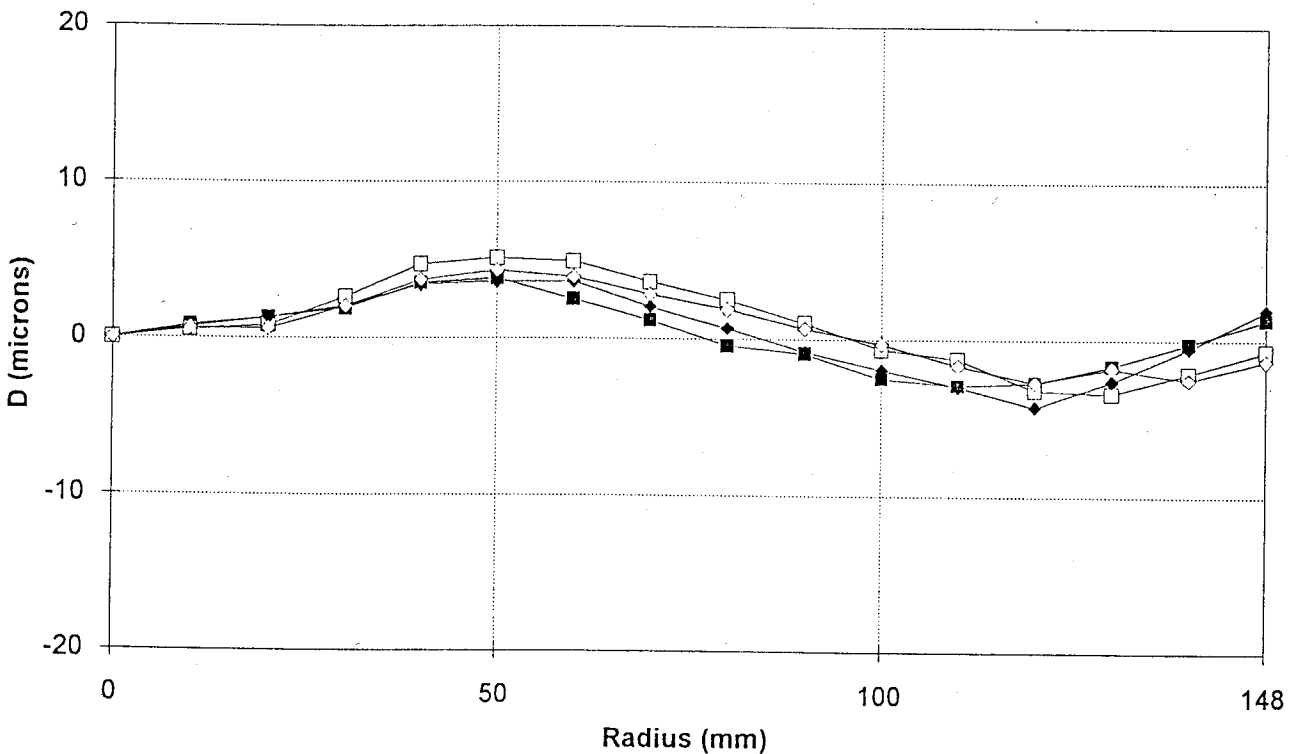


Aperture: 4.0
Filter on goniometer: 450 NM
Filter on camera: --
Principal distance for focussing distance 900 m : 213.707 mm

Mean radial distortion



Radial distortion for semi-diagonals referred to PPS



—■— 1 —□— 3 —◆— 2 —◇— 4

