

CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC 30
LENS TYPE : 30/4 NAT-S
LENS NO. : 17111

Calibration date: 06.10.2003

LEICA AG, HEERBRUGG

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



Aperture: 4.0
 Filter on goniometer: 450 NM
 Filter on camera: --
 Principal distance for focussing distance 850 M m : 302.98 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	0.0	-0.1	0.3	0.3	0.1
20	-0.4	0.1	0.1	0.6	0.1
30	0.0	0.5	1.2	0.5	0.5
40	-0.2	1.0	0.8	1.5	0.7
50	0.0	1.0	1.5	1.9	1.1
60	0.7	1.6	2.6	2.1	1.7
70	1.2	1.8	2.5	2.4	1.9
80	0.6	2.0	2.7	2.7	2.0
90	1.2	1.1	2.0	2.3	1.6
100	0.5	0.2	2.0	1.6	1.0
110	-1.0	-0.9	0.8	1.4	0.0
120	-3.2	-2.1	-1.7	0.0	-1.7
130	-4.1	-3.5	-2.6	-1.1	-2.8
140	-4.2	-3.5	-3.1	-1.7	-3.1
148	2.4	-0.4	3.0	-0.8	1.0

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
Radial:	106	131	104	114	100	96
Tangential:	106	131	91	123	94	87

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

106

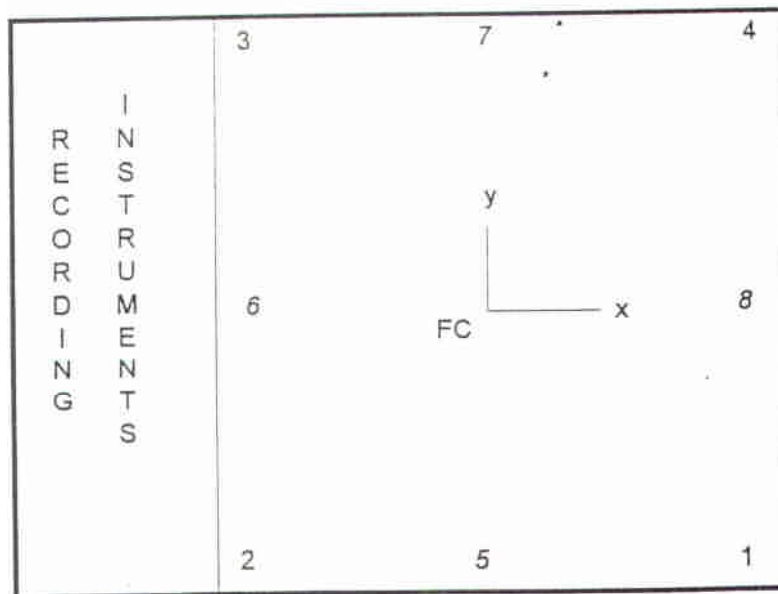


Principal point of autocollimation (PPA) and principal point of symmetry (PPS) referred to central cross (FC), see diagram

	x (mm)	y (mm)
PPA	-0.004	0.031
PPS	-0.003	0.002

Fiducial marks, referred to central cross (FC)

	x (mm)	y (mm)		x (mm)	y (mm)
1	105.999	-105.998	5	-0.006	-112.001
2	-106.007	-106.005	6	-112.004	-0.003
3	-106.000	105.998	7	0.001	111.992
4	106.004	106.003	8	112.004	0.004

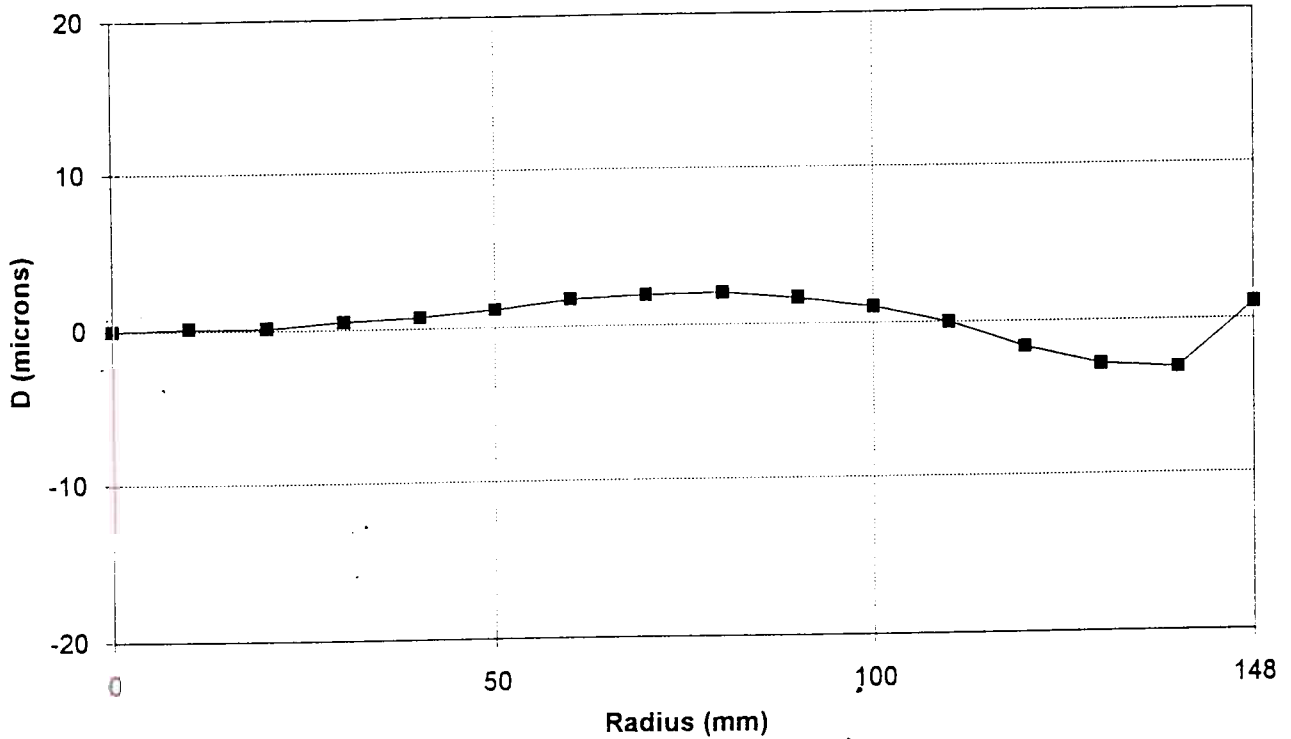


as seen on focal plane frame

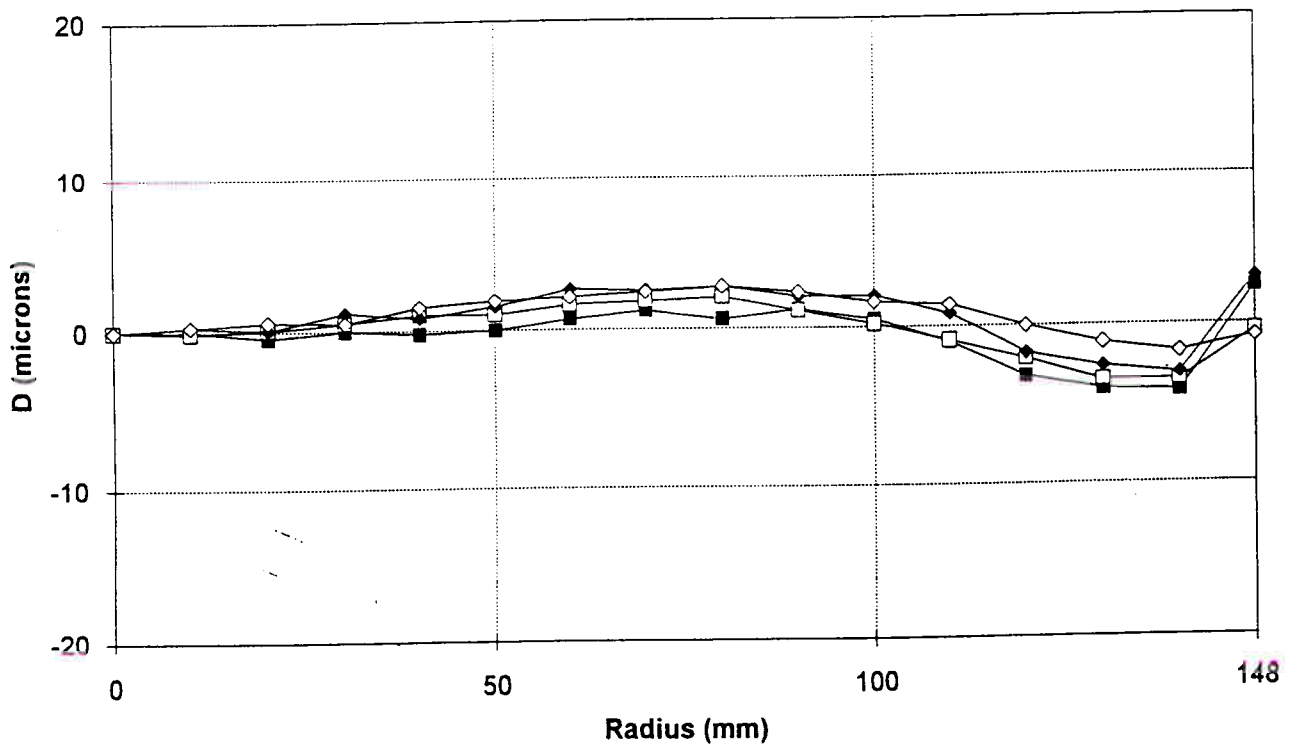


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Mean radial distortion



Radial distortion for semi-diagonals referred to PPS



—■— 1 —□— 3 —◆— 2 —◇— 4