

CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC30
LENS TYPE : 15/4 UAG-S
LENS NO. : 13242

Calibration date: 29.05.1997

LEICA AG, HEERBRUGG

Leica

*Leica Heerbrugg Ltd
CH-9435 Heerbrugg*

*Calibration Department
Supervisor*



Aperture: 4.0
 Filter on goniometer: VIS (400 - 700 NM)
 Filter on camera: --
 C.F.L. : 152.820 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	0.2	-0.6	-0.3	-0.5	-0.3
20	0.1	-0.9	-0.3	-0.8	-0.4
30	0.0	-1.2	0.0	-1.3	-0.6
40	0.2	-0.9	-0.3	-1.2	-0.5
50	0.9	-1.2	-0.2	-1.1	-0.4
60	0.7	-0.8	0.4	-1.1	-0.2
70	1.3	-0.6	0.8	-0.7	0.2
80	0.7	0.0	0.9	0.1	0.4
90	1.4	0.5	0.8	0.5	0.8
100	1.1	0.9	1.5	0.9	1.1
110	0.8	1.0	1.8	1.5	1.2
120	0.5	0.9	1.1	1.5	1.0
130	-0.6	0.7	1.2	1.4	0.6
140	-2.3	-0.7	-0.8	-0.3	-1.0
148	-3.3	-4.1	-2.9	-1.7	-3.0

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	30	35	40	45
Radial:	117	104	115	90	87	119	128	96	80	83
Tangential:	117	116	114	87	92	96	111	99	87	47

AWAR (Area weighted average resolution) in lp/mm: 100

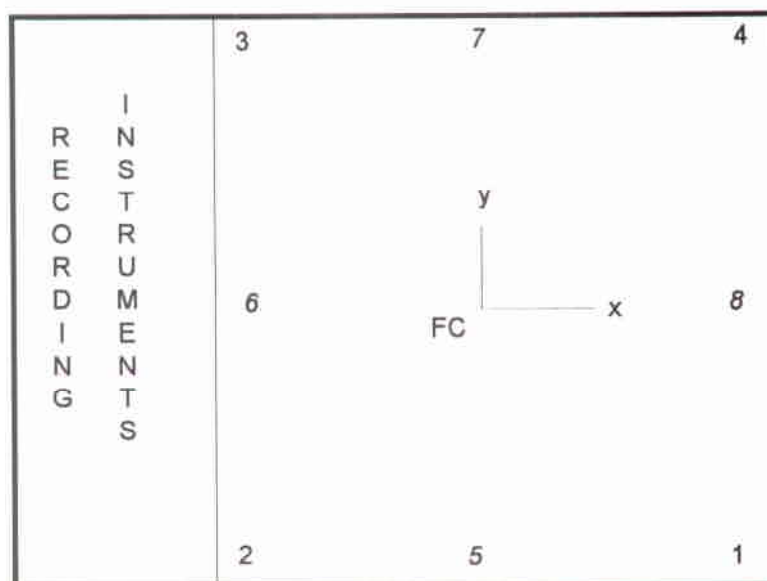


**Principal point of autocollimation (PPA) and
principal point of symmetry (PPS)**
referred to central cross (FC), see diagram

	x (mm)	y (mm)
PPA	-0.005	-0.017
PPS	-0.003	-0.009

Fiducial marks, referred to central cross (FC)

	x (mm)	y (mm)		x (mm)	y (mm)
1	106.003	-105.999	5	-0.004	-111.997
2	-106.005	-106.004	6	-112.004	0.001
3	-106.004	106.001	7	0.001	111.996
4	106.004	106.003	8	112.004	0.002

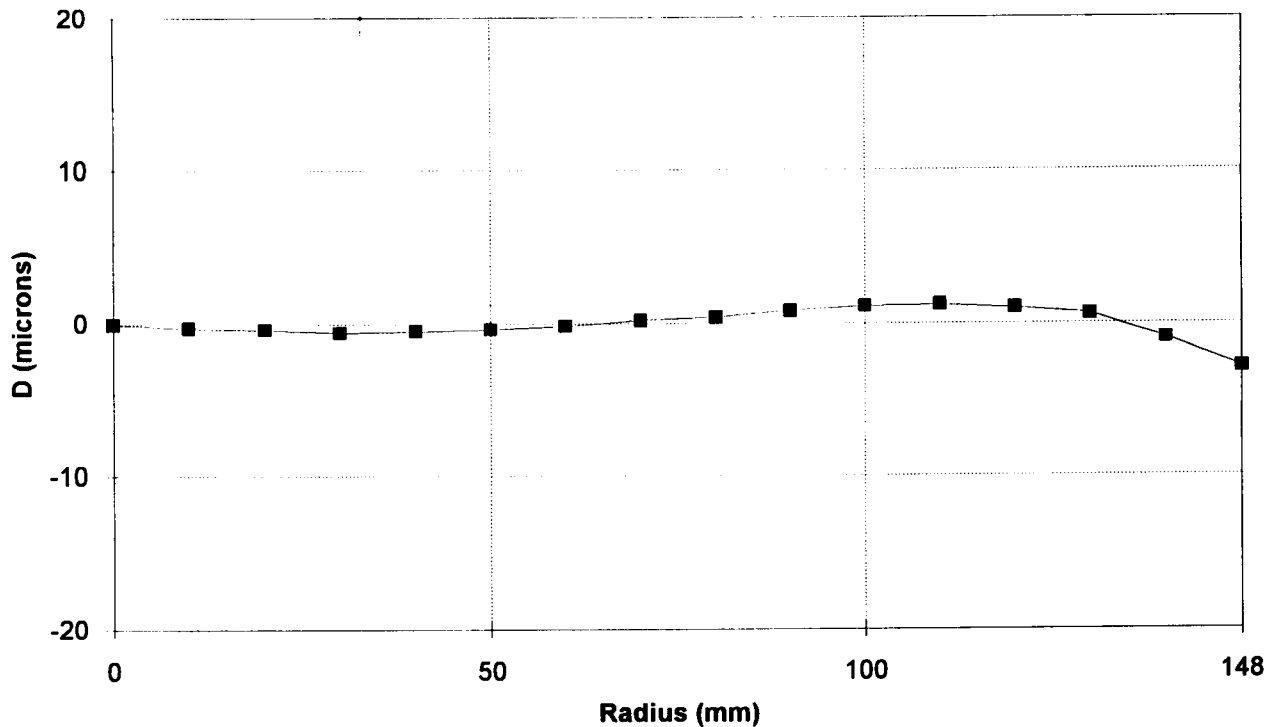


as seen on focal plane frame

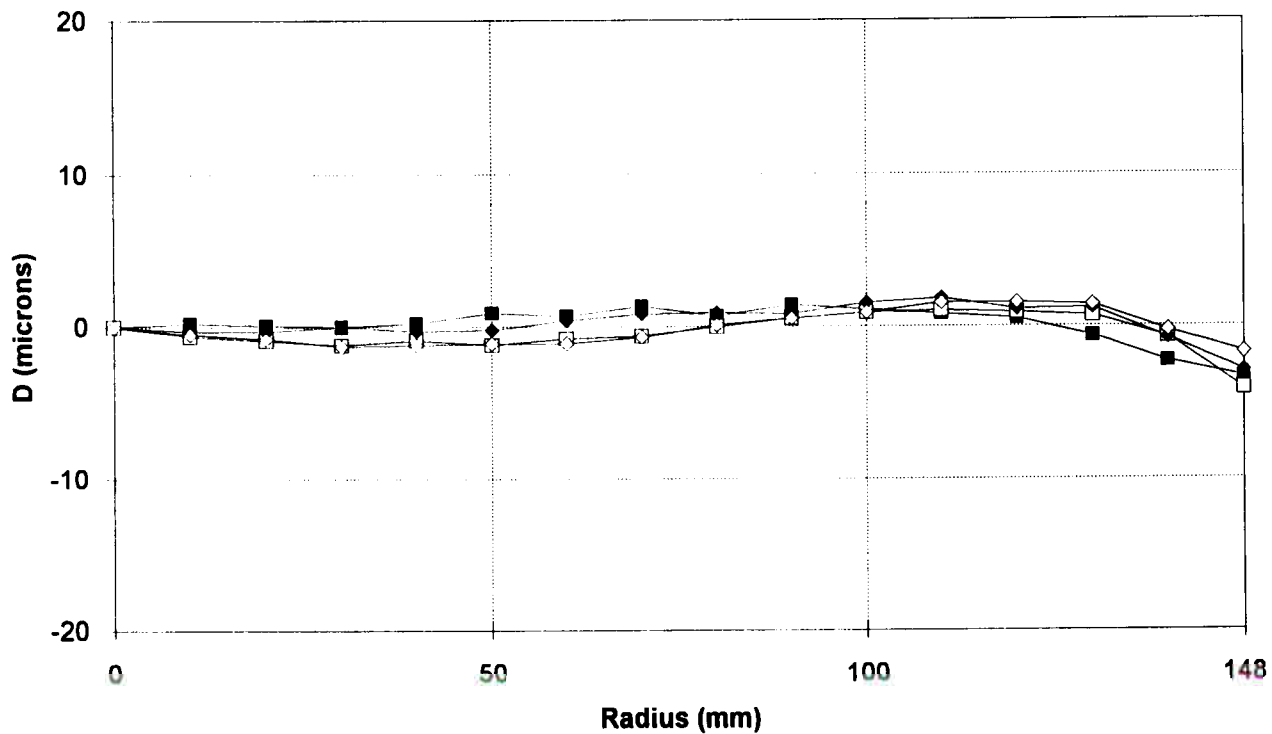


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Mean radial distortion



Radial distortion for semi-diagonals referred to PPS



—■— 1 —□— 3 —◆— 2 —◇— 4

