

CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC20
LENS TYPE : 15/4 UAGA-F
LENS NO. : 13129

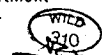
Calibration date: 06.12.1993

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. : 152.85 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	0.6	0.0	0.4	0.3	0.3
20	0.7	0.2	0.4	0.4	0.4
30	0.2	0.1	0.3	-0.1	0.1
40	-0.3	0.2	-0.3	-0.1	-0.1
50	-0.6	-0.3	-0.7	-0.3	-0.4
60	-1.3	-0.3	-0.6	-0.7	-0.7
70	-0.9	-0.4	-1.2	-0.6	-0.7
80	-1.1	0.2	-1.0	-0.5	-0.6
90	-0.2	0.3	-1.5	-0.5	-0.4
100	0.0	0.1	-0.8	-0.4	-0.2
110	0.1	2.7	-0.9	2.3	1.0
120	2.7	1.9	0.7	1.2	1.6
130	1.7	1.0	0.6	0.3	0.9
140	0.6	-0.2	-0.3	-1.5	-0.3
148	0.1	-1.0	-0.2	-2.4	-0.8

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	40	45
Radial:	95	84	93	81	79	68	73	77	65	42
Tangential:	95	84	82	79	66	78	63	63	49	42

AWAR (Area weighted average resolution) in lp/mm: 69

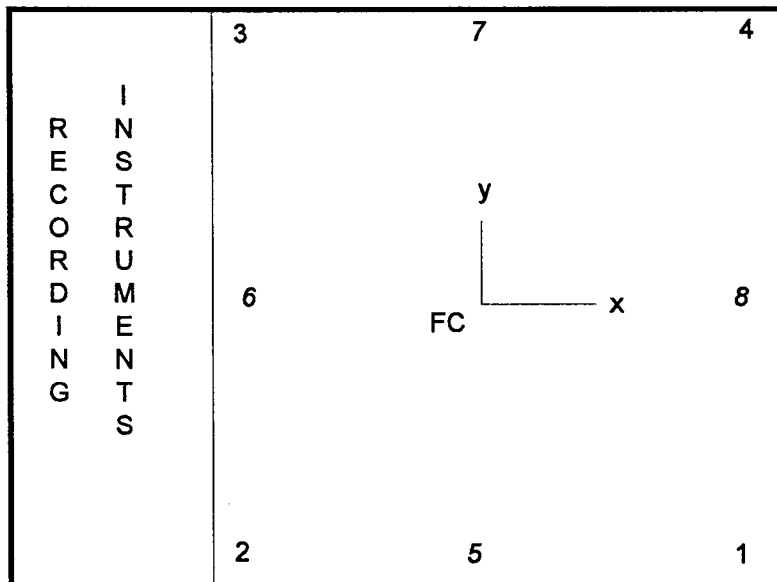


Principal point of autocollimation (PPA) and principal point of symmetry (PPS) referred to central cross (FC), see diagram

	x (mm)	y (mm)
PPA	0.002	0.002
PPS	-0.003	0.001

Fiducial marks, referred to central cross (FC)

	x (mm)	y (mm)		x (mm)	y (mm)
1	106.000	-106.002	5	-0.001	-110.014
2	-105.997	-106.001	6	-109.998	0.003
3	-106.000	106.003	7	0.002	110.006
4	105.998	106.003	8	110.002	0.002

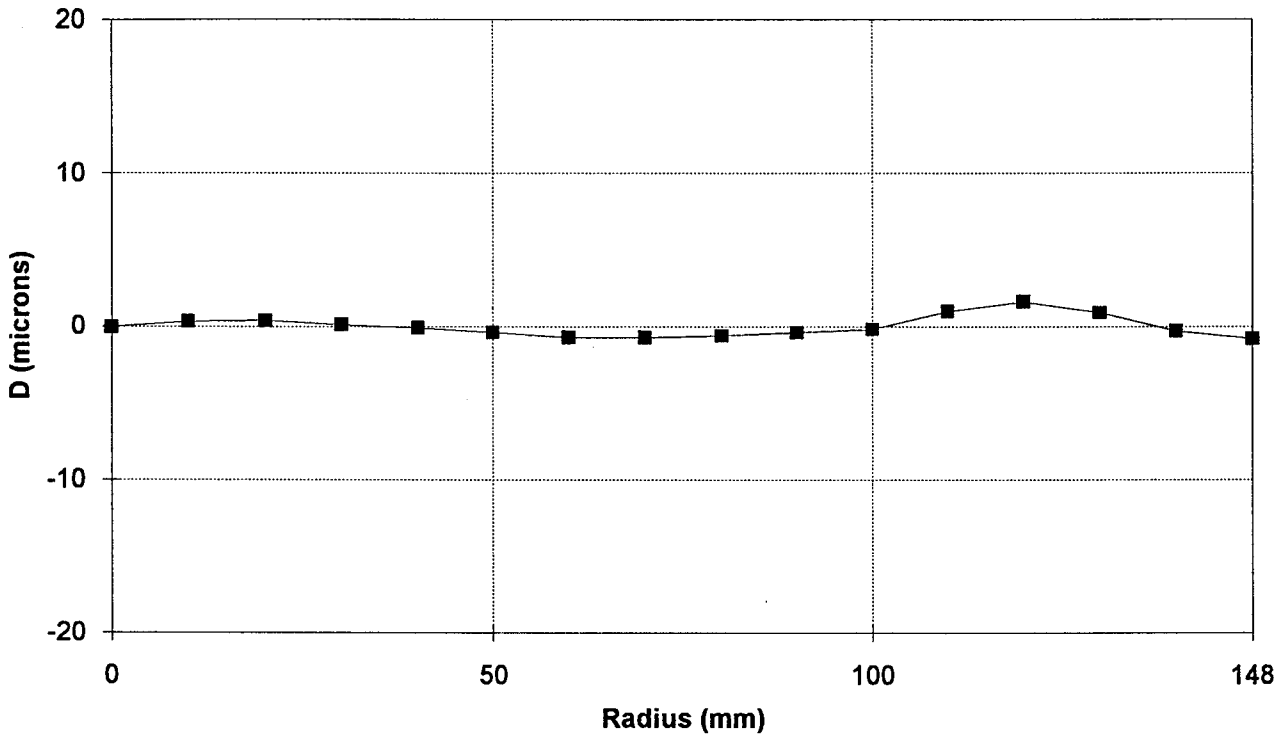


as seen on focal plane frame

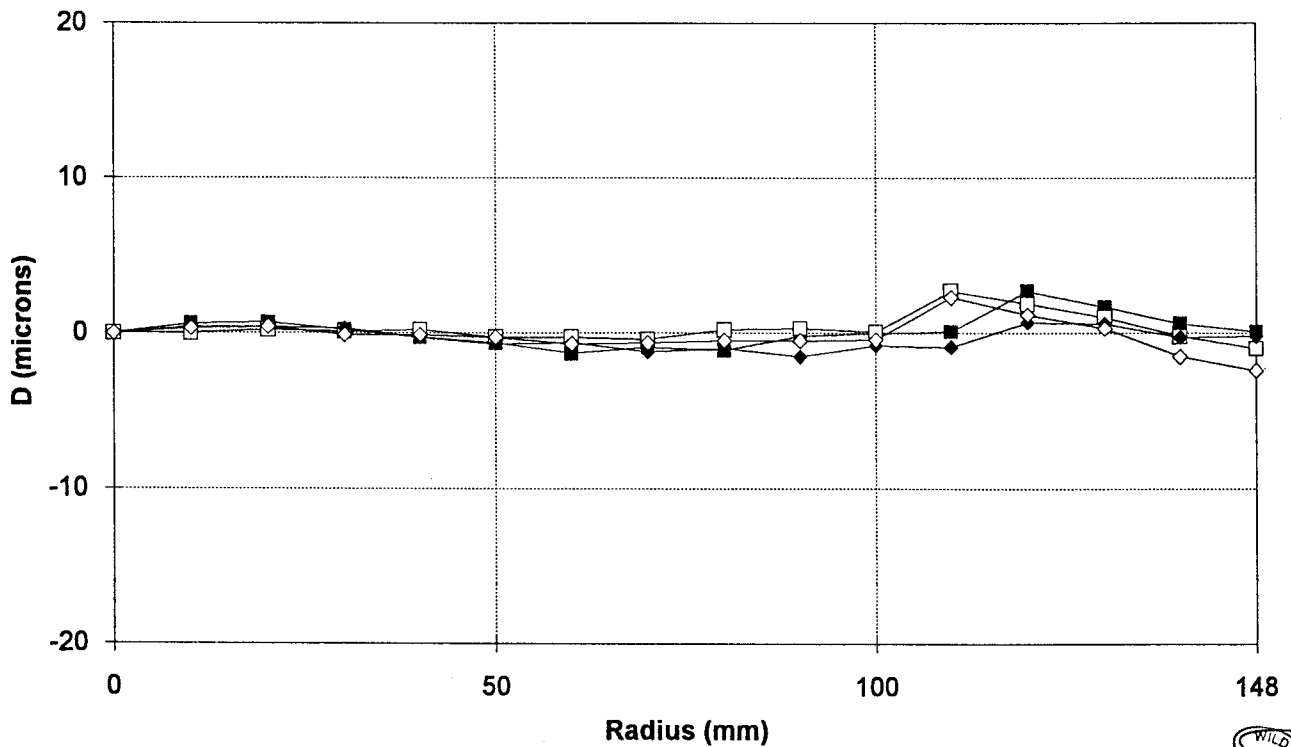
WILD
310

Aperture: 4.0
Filter on goniometer: VIS (400 - 700 NM)
Filter on camera: --
C.F.L. : 152.85 mm

Mean radial distortion



Radial distortion for semi-diagonals referred to PPS



—■— 1 —□— 3 —◆— 2 —◇— 4

