

CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC30
LENS TYPE : 15/4 UAG-S
LENS NO. : 13311

Calibration date: 18.01.1996

LEICA AG, HEERBRUGG

Leica

Leica Heerbrugg Ltd
CH-9435 Heerbrugg

Calibration Department
Supervisor

WLD
310

Aperture: 4.0
 Filter on goniometer: VIS (400 - 700 NM)
 Filter on camera: --
 C.F.L. : 153.34 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	-0.3	-0.7	-0.4	-0.2	-0.4
20	-0.8	-1.2	-0.8	-0.6	-0.8
30	-1.2	-1.7	-0.7	-1.2	-1.2
40	-1.7	-1.7	-1.2	-1.2	-1.4
50	-1.7	-2.1	-1.5	-1.2	-1.6
60	-2.4	-2.1	-1.1	-1.4	-1.7
70	-2.2	-2.0	-1.6	-1.0	-1.7
80	-2.5	-1.3	-1.4	-0.5	-1.4
90	-0.7	-0.5	-1.0	0.3	-0.4
100	-0.4	0.2	0.6	1.5	0.4
110	0.6	0.5	2.2	2.1	1.3
120	1.0	1.5	2.4	2.6	1.8
130	0.4	0.9	2.7	2.8	1.7
140	-0.1	-0.6	2.0	1.6	0.7
148	-0.7	-2.0	1.7	0.2	-0.2

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:	131	131	115	113	139	150	143	136	113	83
Tangential:	131	146	127	123	116	121	111	111	87	66

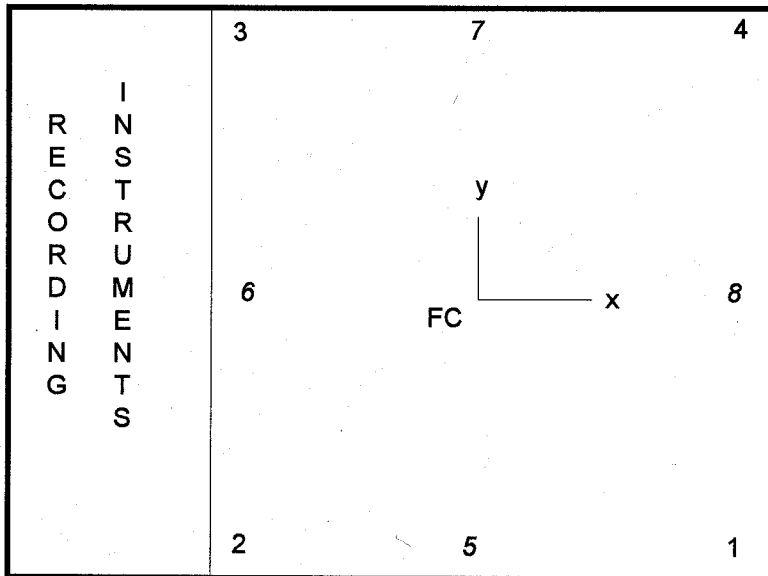
AWAR (Area weighted average resolution) in lp/mm: 121

**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	0.010
PPS	0.008	0.006

Fiducial marks, referred to central cross (FC)

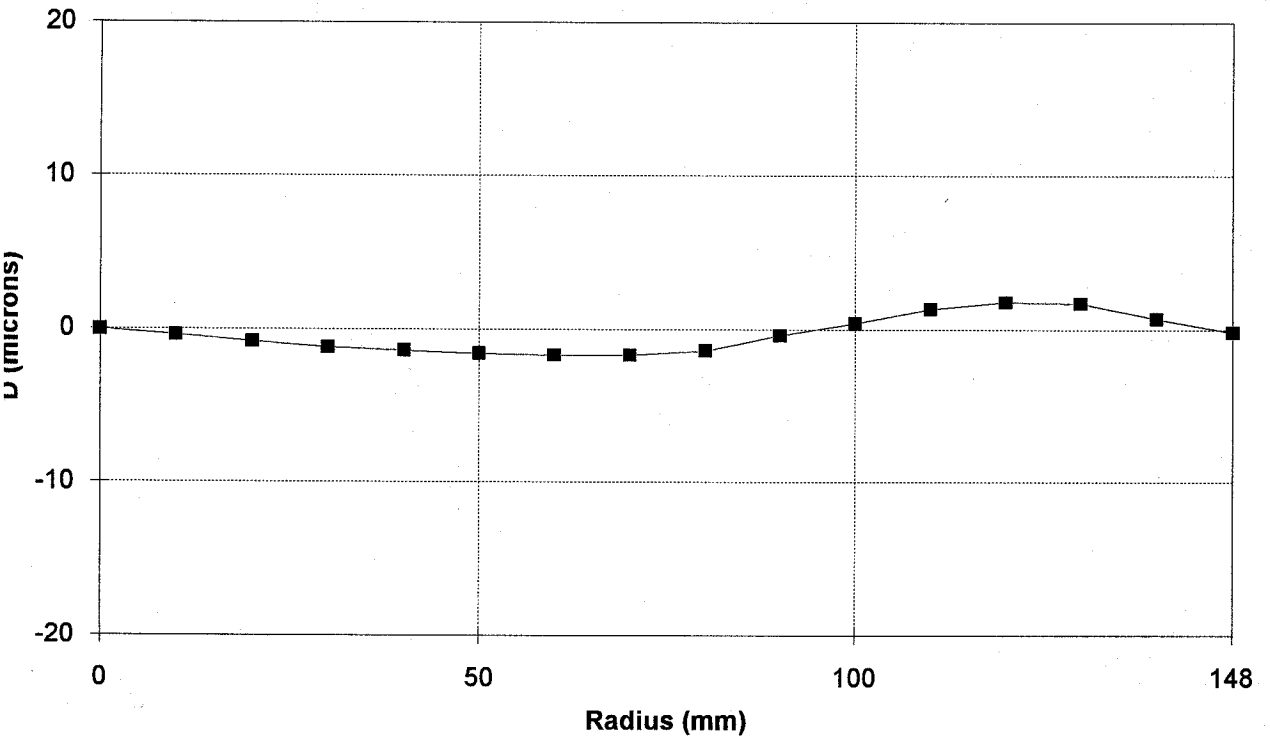
	x (mm)	y (mm)		x (mm)	y (mm)
1	106.003	-106.004	5	0.002	-111.999
2	-105.999	-105.998	6	-112.000	0.005
3	-106.006	106.006	7	-0.004	111.999
4	105.999	105.998	8	112.001	0.002



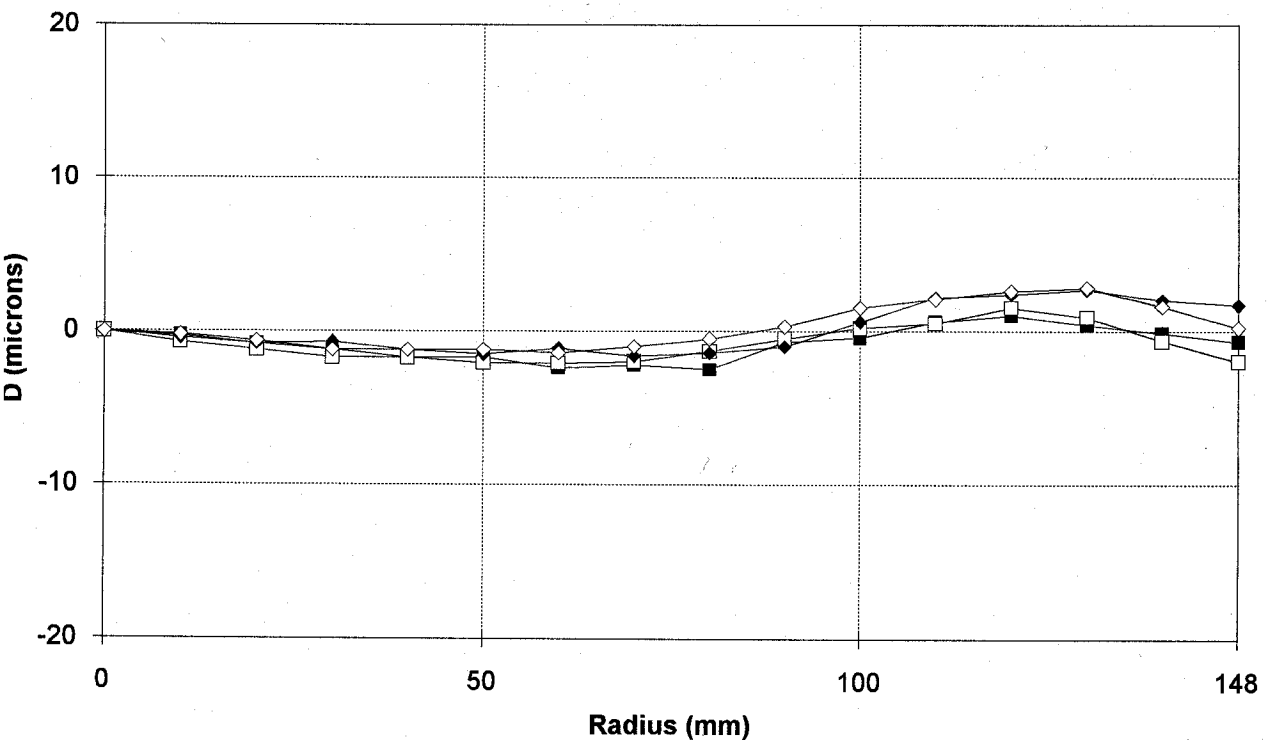
as seen on focal plane frame

Aperture: 4.0
Filter on goniometer: VIS (400 - 700 NM)
Filter on camera: --
C.F.L. : 153.34 mm

Mean radial distortion



Radial distortion for semi-diagonals referred to PPS



—■— 1 —□— 3 —◆— 2 —◇— 4

