

ca 1322002

CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC30
LENS TYPE : 15/4 UAG-S
LENS NO. : 13220

Calibration date: 04.06.2002

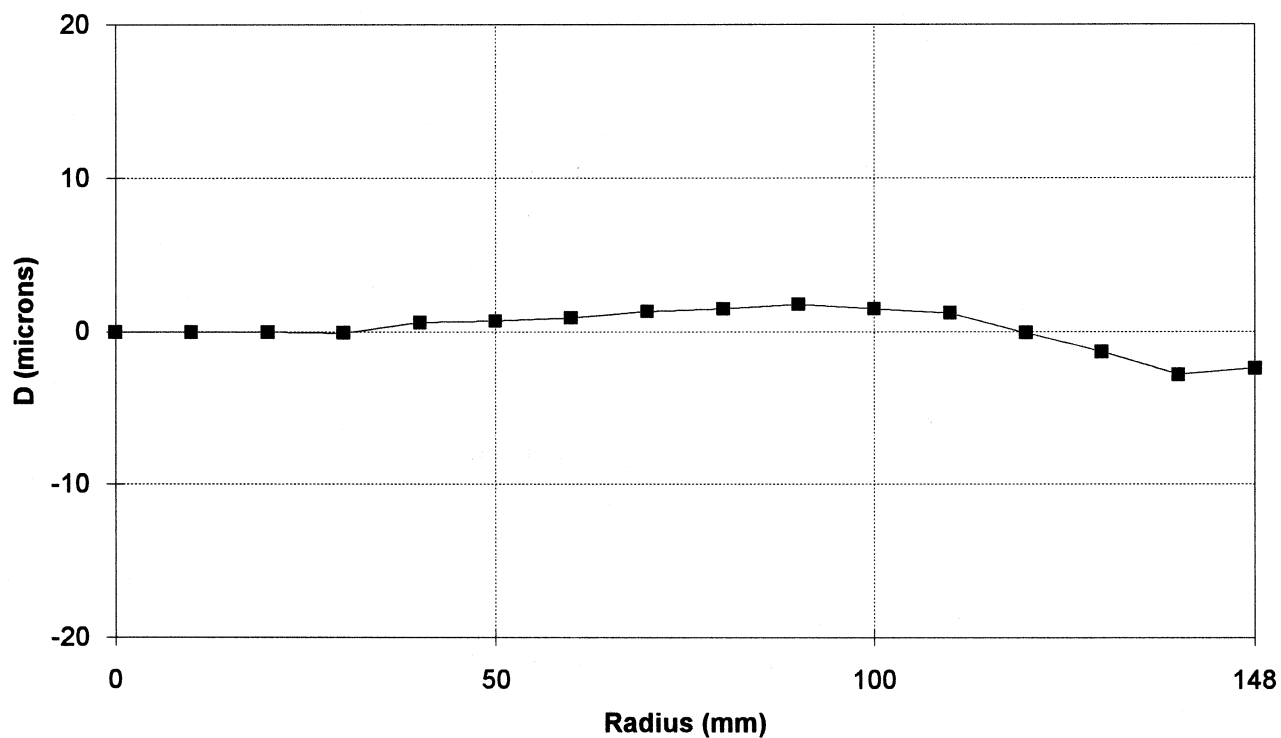
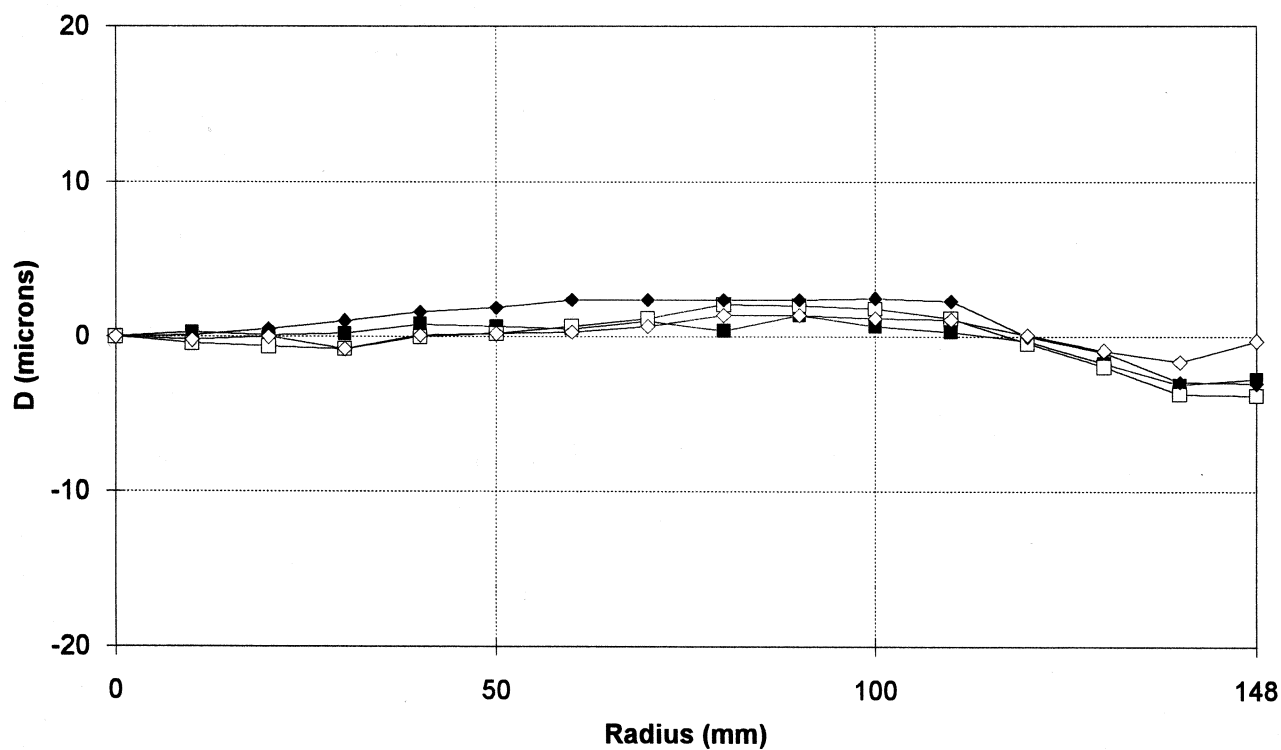
LEICA AG, HEERBRUGG

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



9.7.02 a. g.

Aperture: 4.0
Filter on goniometer: VIS (400-700 NM)
Filter on camera: --
C.F.L. : 152.51 mm

Mean radial distortion**Radial distortion for semi-diagonals referred to PPS**

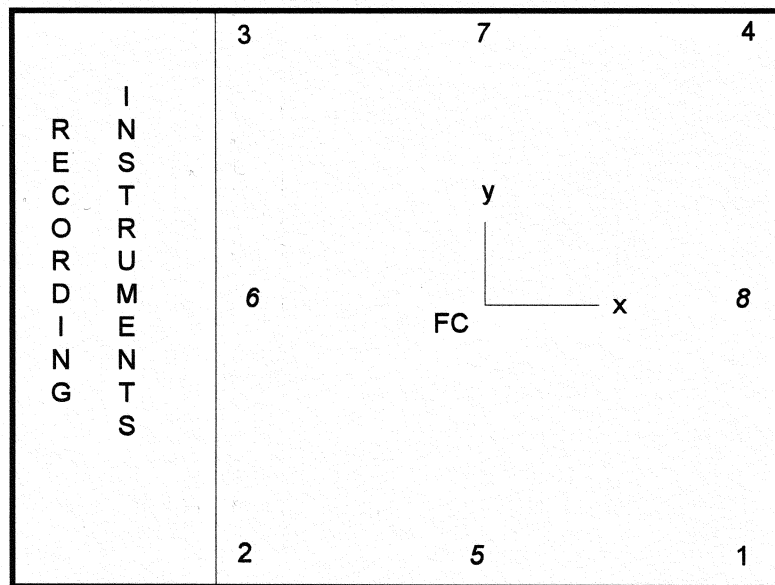
—■— 1 —□— 3 —◆— 2 —◇— 4

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

	x (mm)	y (mm)
PPA	0.006	-0.002
PPS	-0.005	0.003

Fiducial marks, referred to central cross (FC)

	x (mm)	y (mm)		x (mm)	y (mm)
1	105.999	-106.000	5	-0.003	-111.999
2	-106.000	-106.003	6	-111.999	0.003
3	-106.002	106.003	7	0.000	112.006
4	106.003	106.006	8	112.002	0.003



as seen on focal plane frame

Die
FU 066

Aperture: 4.0
 Filter on goniometer: VIS (400-700 NM)
 Filter on camera: --
 C.F.L. : 152.51 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	-0.4	0.1	-0.2	0.0
20	0.1	-0.6	0.5	0.0	0.0
30	0.2	-0.8	1.0	-0.8	-0.1
40	0.8	0.0	1.6	0.1	0.6
50	0.7	0.2	1.9	0.2	0.7
60	0.5	0.7	2.4	0.3	0.9
70	1.0	1.2	2.4	0.7	1.3
80	0.4	2.1	2.4	1.4	1.5
90	1.4	2.0	2.4	1.4	1.8
100	0.7	1.8	2.5	1.2	1.5
110	0.3	1.2	2.3	1.1	1.2
120	-0.3	-0.4	0.0	0.1	-0.1
130	-1.7	-1.9	-1.0	-0.9	-1.3
140	-3.1	-3.7	-2.9	-1.6	-2.8
148	-2.7	-3.8	-3.0	-0.3	-2.4

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	117	103	101	98	95	114	108	101	83
Tangential:	117	104	90	87	103	96	88	88	87	66

AWAR (Area weighted average resolution) in lp/mm: 97

