

CAMERA CALIBRATION CERTIFICATE

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

Calibration date: 07.12.2005

LEICA AG, HEERBRUGG

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



RC30

15/4 UAG-S

No. 13220

07.12.2005

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	-0.3	0.1	-0.1	0.0
20	0.1	-0.4	0.2	0.0	0.0
30	0.2	-0.1	0.8	-0.1	0.2
40	0.6	0.6	0.9	0.6	0.6
50	1.1	1.0	1.5	1.2	1.2
60	0.9	1.5	2.4	1.4	1.5
70	1.8	2.0	2.5	1.9	2.0
80	1.3	2.4	2.7	2.3	2.1
90	2.2	2.8	2.6	2.1	2.4
100	1.2	2.5	2.7	2.0	2.1
110	0.6	1.3	2.3	1.7	1.4
120	-0.4	0.3	-0.2	0.4	0.0
130	-2.3	-1.7	-1.8	-0.8	-1.6
140	-4.3	-4.4	-4.0	-3.4	-4.0
148	-3.3	-6.4	-4.2	-4.4	-4.5

Photographic resolution (line pairs per millimeter)

International 3-line test-chart, contrast (log) : 2.0

Aperture: 4.0
 Filter: VIS (400-700 NM)
 Film: KODAK PANATOMIC X 2412
 Developer: KODAK HC110

Angle (deg)	0	5	10	15	20	25	30	35	40	45
Radial:	117	117	92	90	78	95	90	121	113	83
Tangential:	131	116	101	97	92	86	88	88	87	66

AWAR (Area weighted average resolution) in lp/mm: 95

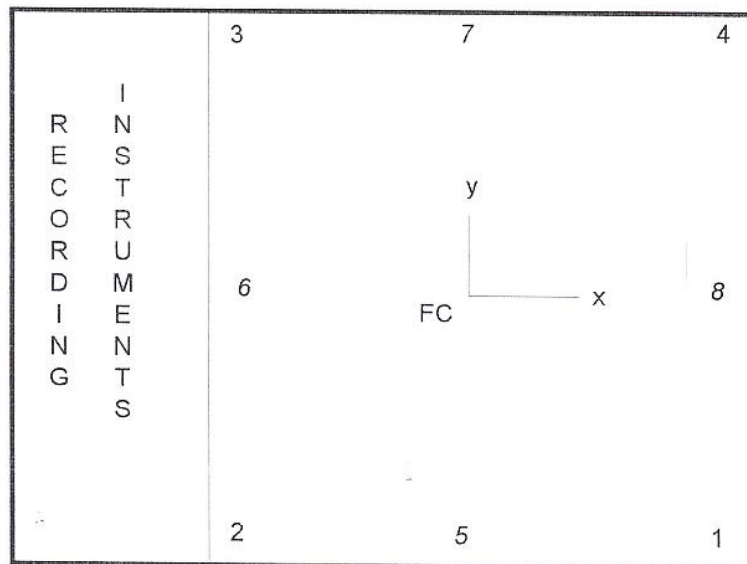


**Principal point of autocollimation (PPA) and
principal point of symmetry (PPS)**
referred to central cross (FC), see diagram

	x (mm)	y (mm)
PPA	0.005	0.003
PPS	-0.005	0.004

Fiducial marks, referred to central cross (FC).

	x (mm)	y (mm)		x (mm)	y (mm)
1	105.997	-106.001	5	-0.002	-112.009
2	-105.999	-106.004	6	-111.993	0.000
3	-105.998	106.002	7	0.001	112.006
4	106.000	106.004	8	111.994	0.001



as seen on focal plane frame

RC30

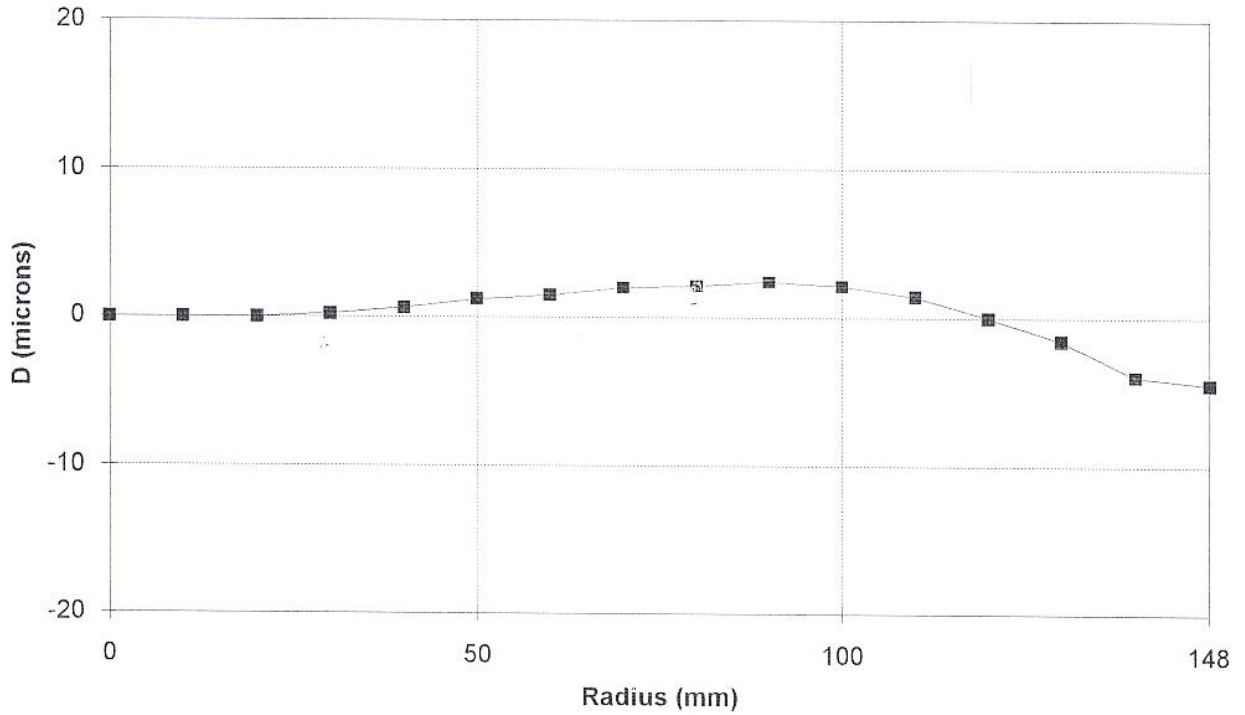
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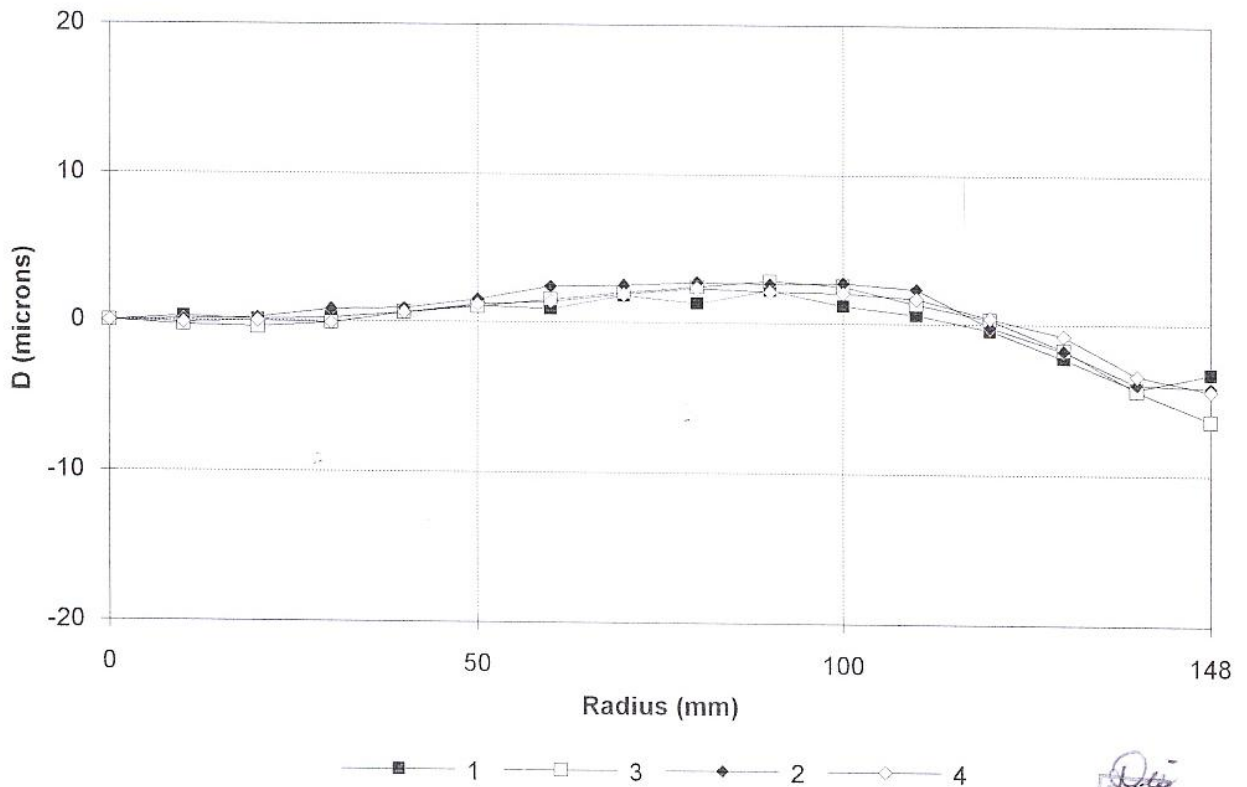
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C.F.L. : 152.51 mm

Mean radial distortion



Radial distortion for semi-diagonals referred to PPS



FC 107