



Camera Calibration Certificate

(Cover sheet)

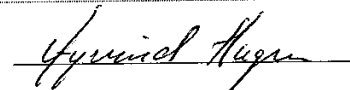
Object

Camera Type	Lens Type	Lens-No (Serial-No)	Remarks
RC 10 <input type="checkbox"/>			
RC 10A <input type="checkbox"/>			
RC 20 / RC 30 (RC 20) <input type="checkbox"/>			
RC 30 <input checked="" type="checkbox"/>	15/4 UAG-S	13355	

Acceptance

Characteristics	Acceptance	Remarks
Radial distortion	yes	
Photographic resolution	yes	
Principal point of autocollimation [PPA]	yes	
Principal point of symmetry [PPS]	yes	
Fiducial marks	yes	
Mean radial distortion	yes	
Radial distortion for semi-diagonals referred to PPS	yes	

Inspection

		Signature / Remarks
Calibration Date	22.11.2002	Signature: 
Inspector Name:	Oeyvind Hagen	
Inspector Position:	Supervisor	
Inspector Inspection stamp-No:	FO 017	
Inspection plan	487872 14.04.1989	(Identification-No) (Version)
Lens cone calibration process specification	870105 19.01.2000	(Identification-No) (Version)

Maintenance

		Remarks
The last date, when service/ overhaul of this lens cone was performed.	03.11.1999	Complete overhaul of a lens cone
Recommendation:	To avoid any malfunctions / damages, it is recommended to perform a complete service / overhaul as soon as possible. See „Lens calibration process specification“ or „Technical Reference Manual“	

CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC30
LENS TYPE : 15/4 UAG-S
LENS NO. : 13355

Calibration date: 22.11.2002

LEICA AG, HEERBRUGG

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

FO 017
Alro

RC30

15/4 UAG-S

No. 13355

22.11.2002

Aperture: 4.0
 Filter on goniometer: 450 NM
 Filter on camera: --
 C.F.L. : 153.59 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	-0.8	1.3	-0.3	1.3	0.3
20	-0.3	0.7	0.8	1.4	0.6
30	-0.5	-0.1	1.2	1.1	0.4
40	0.2	0.2	1.7	1.4	0.8
50	1.4	-0.2	0.3	-0.1	0.3
60	1.4	-0.4	-0.1	-0.4	0.1
70	-1.2	-0.7	-0.6	-1.3	-0.9
80	-0.3	-0.7	1.1	-1.5	-0.3
90	1.0	-0.5	-0.7	0.0	0.0
100	0.6	-1.1	-0.6	-1.7	-0.7
110	0.5	0.4	-1.5	-1.0	-0.4
120	0.7	0.2	-2.3	-1.9	-0.8
130	1.1	1.9	0.2	-0.2	0.7
140	0.6	2.4	0.2	1.6	1.2
148	1.0	1.3	0.5	0.5	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 PANATOMIC X 2412
 Developer: KODAK HC110

Angle (deg)	0	5	10	15	20	25	30	35	40	45
Radial:	147	147	145	142	139	134	128	121	113	83
Tangential:	147	130	143	138	130	121	111	99	87	66

AWAR (Area weighted average resolution) in lp/mm: 119

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RC30

15/4 UAG-S

No. 13355

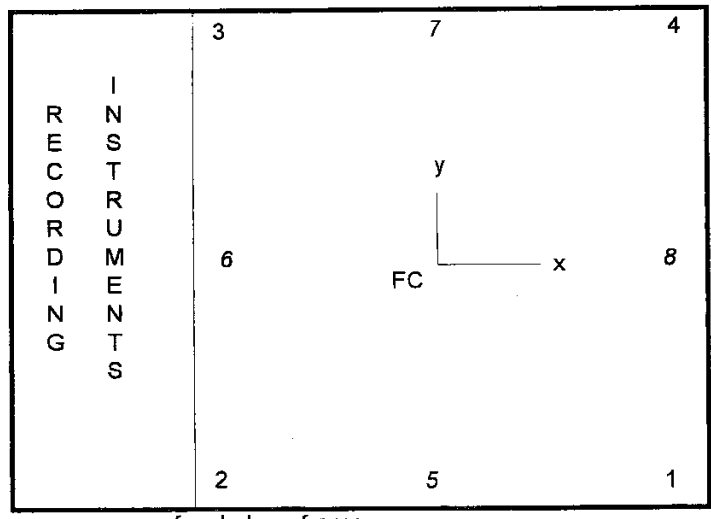
22.11.2002

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	0.016
PPS	-0.013	0.004

Fiducial marks, referred to central cross (FC)

	x (mm)	y (mm)		x (mm)	y (mm)
1	106.007	-106.006	5	0.004	-112.001
2	-105.994	-105.996	6	-111.997	0.005
3	-106.006	106.005	7	-0.004	112.002
4	106.003	106.004	8	111.995	-0.006



as seen on focal plane frame

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RC30

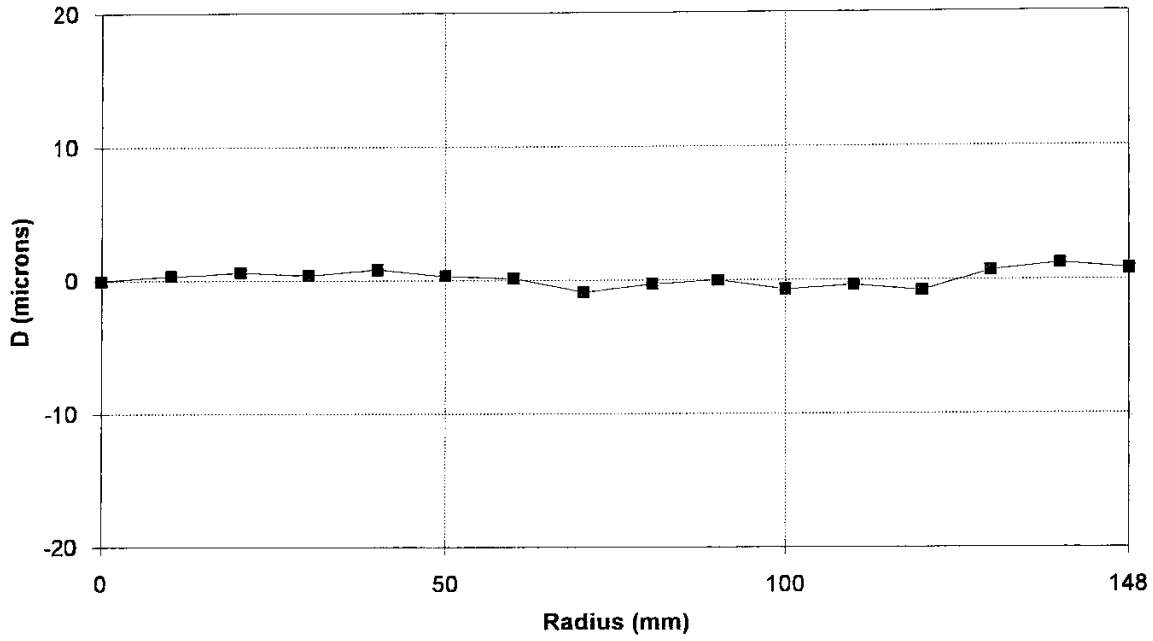
15/4 UAG-S

No. 13355

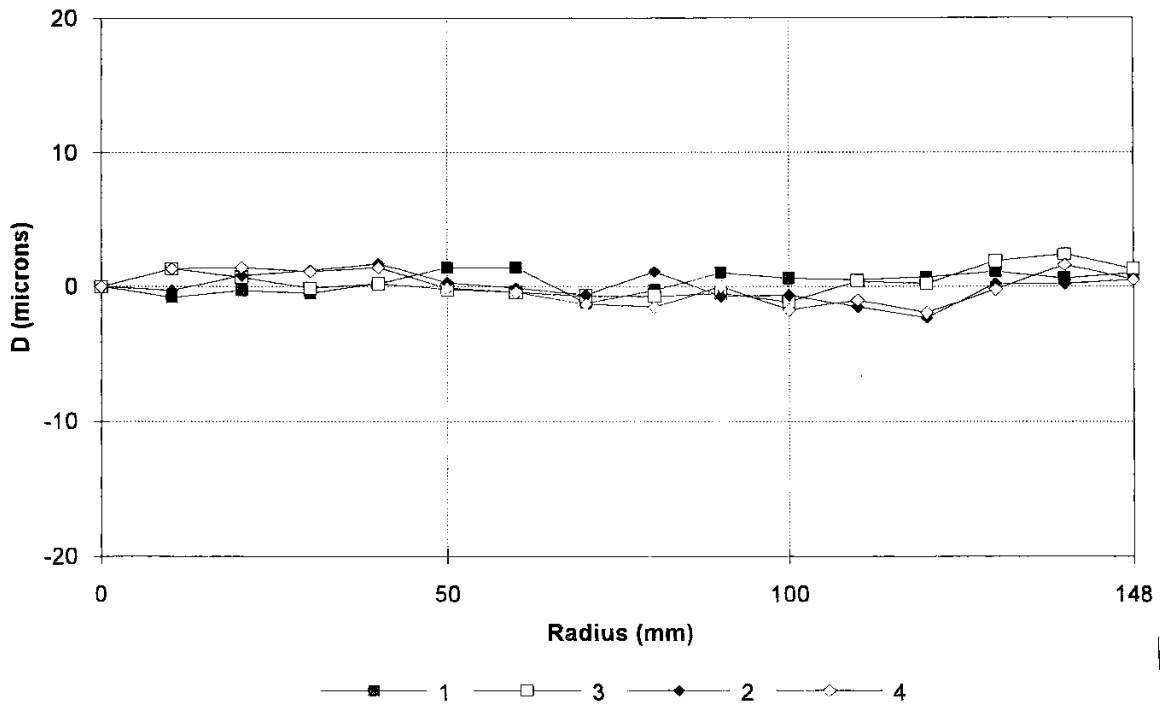
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Aperture: 4.0
 Filter on goniometer: 450 NM
 Filter on camera: --
 C.F.L.: 153.59 mm

Mean radial distortion



Radial distortion for semi-diagonals referred to PPS



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