

Camera Calibration Certificate

Object

Aerial Survey Camera Type	Lens Cone Type	Lens Serial-No	Remarks
RC20	21/4 NAGA-F	7171	

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
Date of calibration	13.03.2009	Lens cone operating hours
Inspector	Name Dietsche Paul	
	Position Supervisor	Signature: <i>P. Dietsche</i>
	Inspection-No SO112	
Inspection plan	Identification-No 487872	
	Version 14.04.1989	
Lens cone calibration	No 870105	
Process specification	Version 24.07.2006	

Maintenance

The last date, when service/ overhaul of this lens cone was performed.	12.12.2005	Lens cone operating hours ---
Overhaul urgently required:	no	

This Camera Calibration Certificate contains five pages. It may not be reproduced other than in full. Camera Calibration Certificates without signature and seal are not valid.

RC20

21/4 NAGA-F

No.7171

13.03.2009

Calibrated Focal Length (CFL)

Aperture	4.0
Filter on goniometer	VIS (400 - 700 nm)
Filter on camera	--
Principal distance for focussing distance 900 m : 213.55 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	0.4	0.1	0.3	0.2	0.2
20	0.6	0.3	0.6	0.6	0.5
30	0.7	0.4	1.0	0.3	0.6
40	1.2	0.9	1.4	1.0	1.1
50	0.7	0.3	0.8	0.7	0.6
60	-0.9	-0.7	-0.3	-0.5	-0.6
70	-2.3	-2.5	-2.5	-2.1	-2.3
80	-3.5	-3.3	-3.3	-3.0	-3.2
90	-2.6	-3.4	-3.4	-3.8	-3.3
100	-2.7	-3.3	-2.8	-3.3	-3.0
110	-1.1	-1.7	-1.0	-1.0	-1.2
120	1.0	0.7	0.3	1.3	0.8
130	2.5	2.7	2.2	3.2	2.6
140	2.3	3.3	2.8	2.7	2.7
148	2.3	2.4	2.4	1.3	2.1

Photographic resolution [line pairs per millimeter]

Internal 3-line test-chart contrast log 2.0

Apertur:	4,0
Filter:	VIS(400-700nm)
Film:	KODAK PANATOMIC X 2412
Developer:	KODAK HC110

Angle: [deg]	0	5	10	15	20	25	30	35
Radial:	84	106	104	91	50	34	33	61
Tangential:	94	83	92	70	59	69	50	45

AWAR (Area Weighted Average Resolution) in lp/mm

59



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Principal point of autocollimation (PPA)

Principal point of symmetry (PPS)

Referred to central cross (FC), see diagram

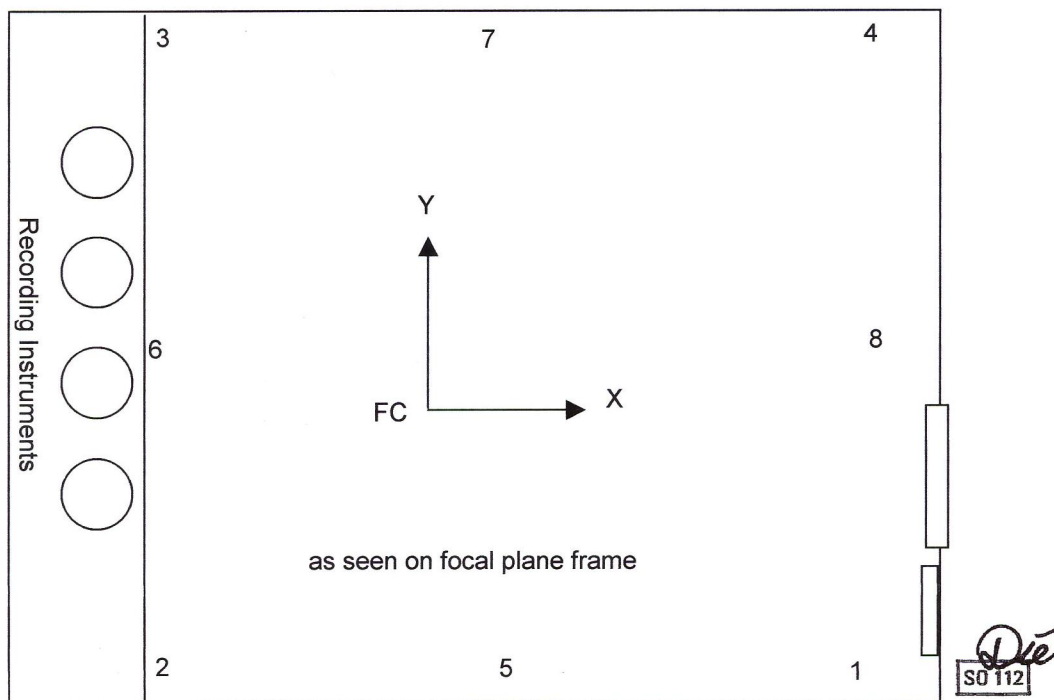
	x[mm]	y[mm]
PPA	-0.006	0.008
PPS	-0.009	0.010

Fiducial marks

Referred to central cross (FC)

	x[mm]	y[mm]
1	106.001	-106.003
2	-105.999	-106.004
3	-106.000	106.002
4	105.994	105.999

	x[mm]	y[mm]
5	0.001	-110.000
6	-109.995	0.001
7	0.004	110.001
8	110.004	0.001



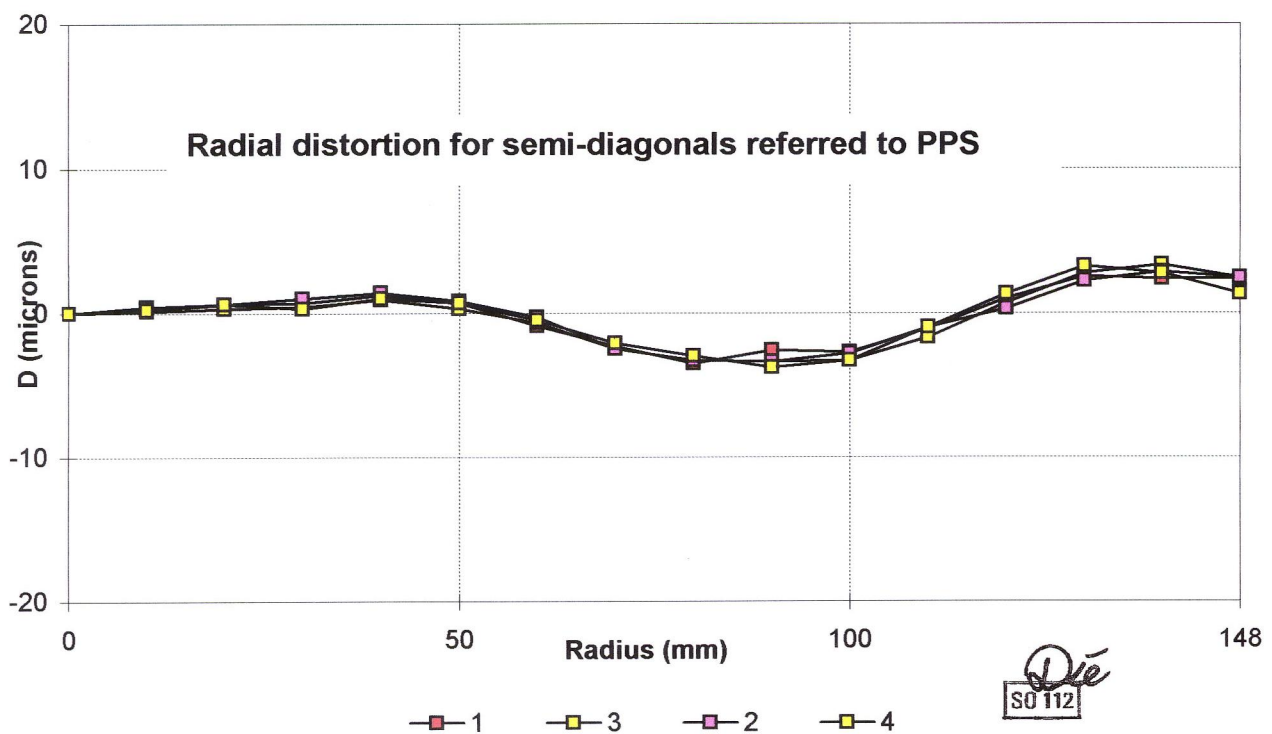
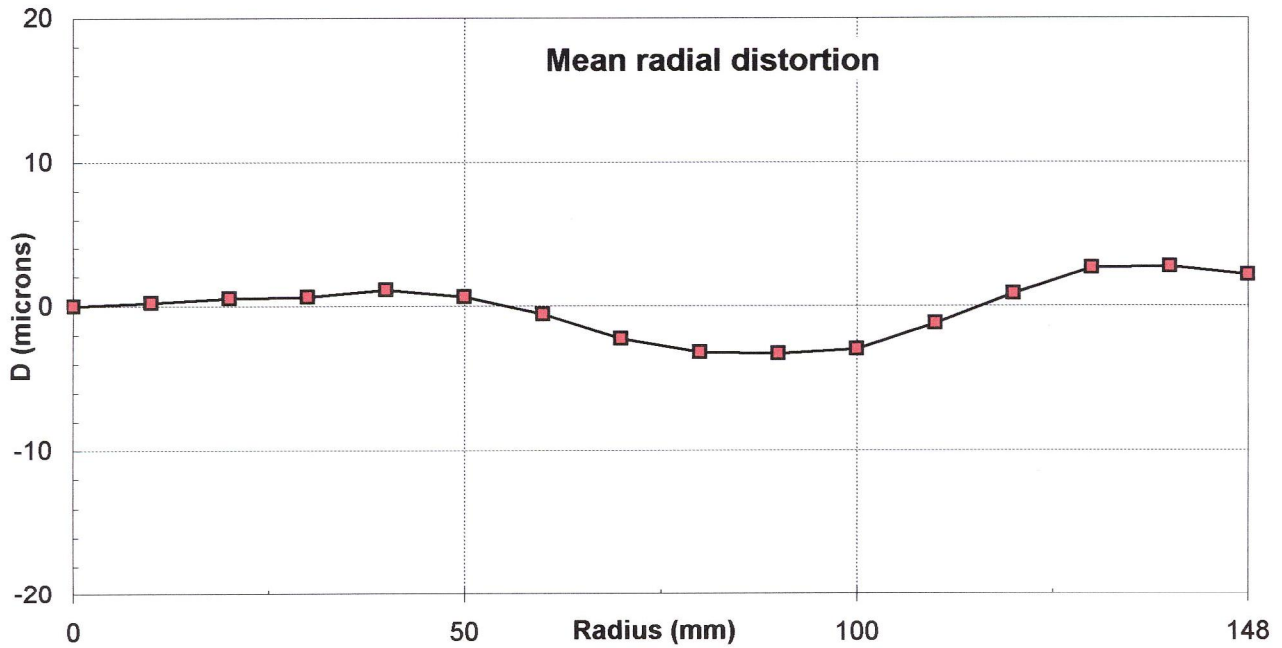
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