

CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC20
LENS TYPE : 15/4 UAG-S
LENS NO. : 13211

CALIBRATION DATE : 20.08.92

LEICA HEERBRUGG LTD

Leica

*Leica Heerbrugg Ltd
CH-9435 Heerbrugg*

*Calibration Department
Supervisor*

HILD
311

CAMERA CALIBRATION

CAMERA: RC20 LENS: 15/4 UAG-S NO.: 13211 CALIBRATION DATE: 20.08.92

APERTURE : F / 4.0
 FILTER ON GONIOMETER : VIS (400 - 700 NM)
 FILTER ON CAMERA : --
 CALIBRATED FOCAL LENGTH : 153.13 MM

RADIAL DISTORTION (MICROMETERS)

 REFERRED TO PRINCIPAL POINT OF SYMMETRY (PPS)
 (POSITIVE VALUES DENOTE IMAGE DISPLACEMENT AWAY FROM CENTER)

RADIUS MM	SEMI - DIAGONALS				MEAN
	1	3	2	4	
10	0.5	-0.1	0.3	0.0	0.1
20	0.7	-0.1	0.4	0.0	0.2
30	-0.1	-0.5	-0.1	-0.7	-0.3
40	-0.3	-0.6	-0.7	-0.9	-0.6
50	-0.5	-1.3	-1.2	-1.6	-1.1
60	-1.4	-0.8	-1.1	-2.3	-1.4
70	-1.0	-0.6	-1.3	-2.4	-1.3
80	-0.9	0.4	-0.8	-1.9	-0.8
90	0.5	0.7	0.1	-0.9	0.1
100	0.8	0.9	0.7	-0.5	0.4
110	1.4	0.8	0.9	0.3	0.8
120	1.5	0.3	0.0	0.3	0.5
130	1.3	0.1	-0.3	0.5	0.4
140	0.3	0.8	-0.6	-0.1	0.1
148	0.4	1.6	-0.1	1.4	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 TECHNICAL PAN 2415
 DEVELOPER : KODAK HC110

ANGLE: (DEGREES)	0	5	10	15	20	25	30	35	40	45
RAD.	83	93	103	113	87	95	101	96	90	74
TANG.	83	92	90	87	92	86	78	88	87	59

AWAR (AREA WEIGHTED AVERAGE RESOLUTION) IN LP/MM : 91

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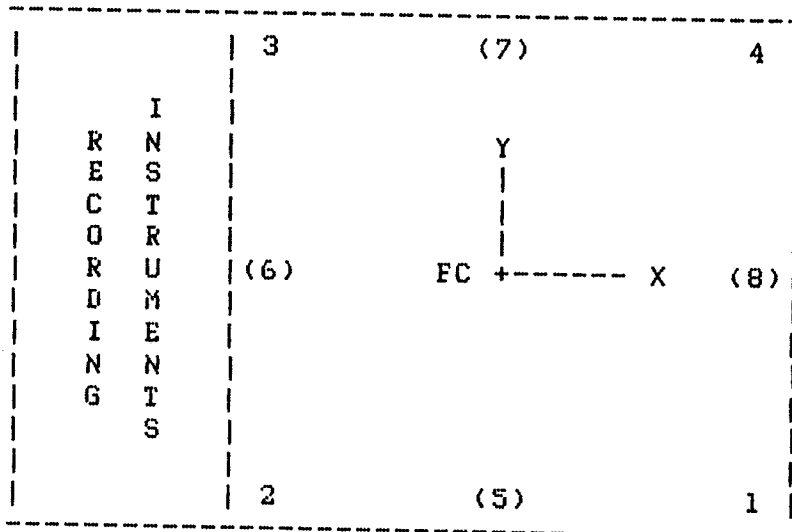
PRINCIPAL POINT OF AUTOCOLLIMATION (PPA) AND
PRINCIPAL POINT OF SYMMETRY (PPS)

REFERRED TO FC, SEE DIAGRAM

	X (MM)	Y (MM)
PPA	0.012	-0.001
S	0.010	-0.005

MIDUCIAL MARKS, REFERRED TO FC

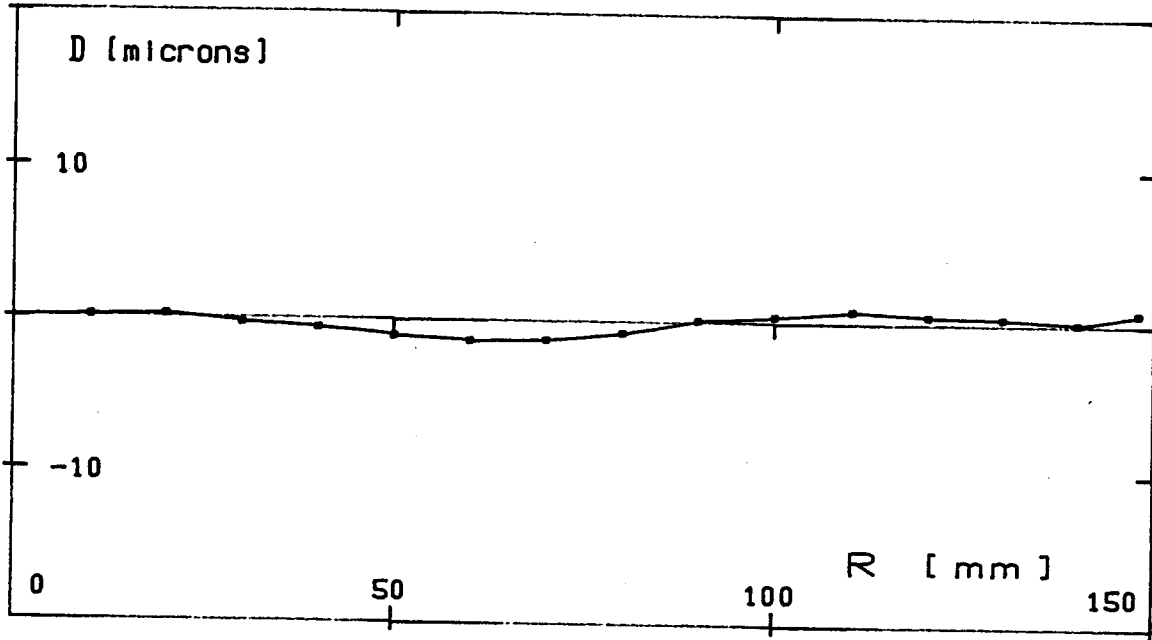
	X (MM)	Y (MM)		X (MM)	Y (MM)
1	106.003	-106.004	5	0.002	-110.000
2	-106.000	-105.999	6	-109.999	0.002
3	-106.000	106.001	7	0.000	110.003
4	106.007	106.006	8	110.000	0.003



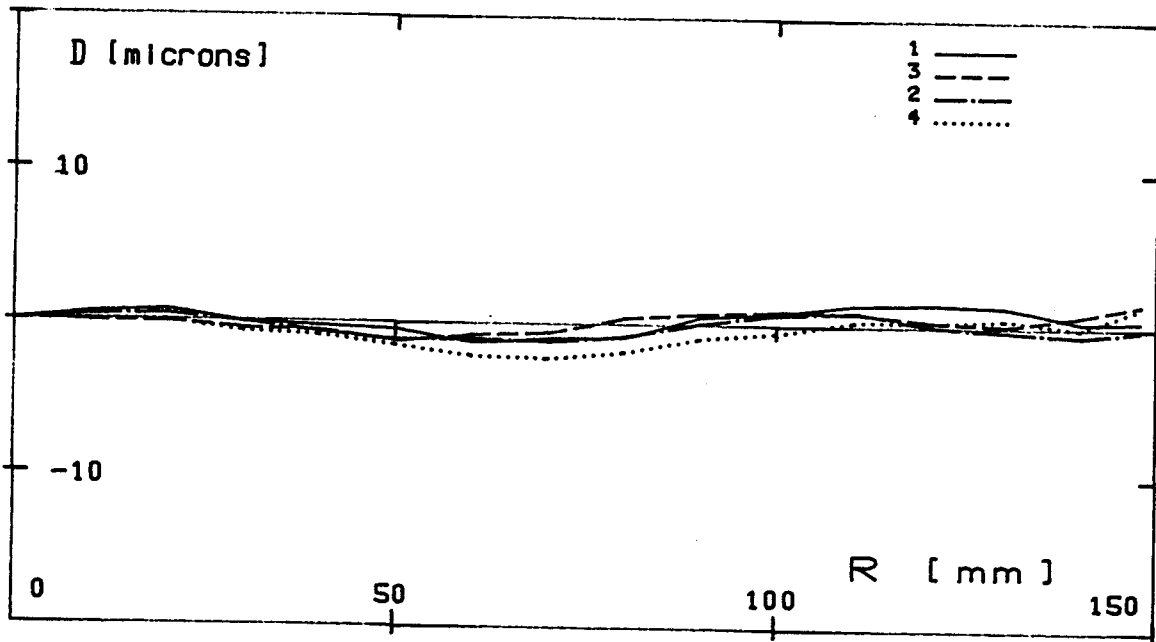
AS SEEN ON FOCAL PLANE FRAME

RC20 15/4 UAG-S NO. 13211 20.08.92

APERTURE : F / 4.0
FILTER ON GONIOMETER : UIS (400 - 700 NM)
FILTER ON CAMERA : --
C.F.L. : 153.13 MM



MEAN RADIAL DISTORTION CURVE



RADIAL DISTORTION FOR SEMI-DIAGONALS REFERRED TO PPS