CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC20

LENS TYPE : 15/4 UAGA-F

LENS NO. : 13096

CALIBRATION DATE : 12.02.93

LEICA HEERBRUGG LTD

Leica

Leica Heerbrugg Ltd
CH-9435 Heerbrugg

Calibration Department
Supervisor

CAMERA CALIBRATION

CAMERA: RC20 LENS: 15/4 UAGA-F NO.: 13096 CALIBRATION DATE: 12.02.93

APERTURE : F / 4.0
FILTER ON GONIOMETER : VIS (400 - 700 NM)
FILTER ON CAMERA : --
CALIBRATED FOCAL LENGTH : 152.98 MM

RADIAL DISTORTION (MICROMETERS)

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

RADIUS	SEMI - DIAGONALS				MEAN
MM	1	3	2	4	
10	0.3	-0.2	0.1	-0.3	0.0
20	-0.2	-0.5	-0.2	-0.4	-0.3
30	-1.0	-1.1	-0.5	-1.1	-0.9
40	-1.4	-1.0	-0.8	-0.5	-0.9
50	-1.8	-0.7	-0.8	-0.4	-0.9
60	-2.7	-0.3	-0.4	-0.5	-0.9
70	-0.7	-0.1	-0.6	0.0	-0.3
80	-0.6	0.9	0.1	0.8	0.3
90	0.8	1.4	0.5	1.3	1.0
100	0.8	1.3	1.5	1.4	1.2
110	1.2	0.6	1.9	1.7	1.3
120	0.9	0.0	0.7	0.9	0.6
130	-0.1	-1.2	0.2	0.2	-0.2
140	-1.5	-1.5	0.2	-0.4	-0.8
148	-1.5	-1.7	-0.1	-0.2	-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.	84	84	93	91	70	61	73	69	65	47
TANG.	84	84	73	79	74	69	63	57	49	38

AWAR (AREA WEIGHTED AVERAGE RESOLUTION) IN LP/MM : 67

CAMERA CALIBRATION

CAMERA: RC20 LENS: 15/4 UAGA-F NO.: 13096 CALIBRATION DATE: 12.02.93

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

REFERRED TO FC, SEE DIAGRAM

	X (MM)	Y (MM)
PPA	0.004	0.000
S	0.005	-0.002

FIDUCIAL MARKS, REFERRED TO FC

	X (MM)	Y (MM)
1	106.004	-106.001
2	-106.002	-105.999
3	-106.006	106.003
4	106.001	105.999

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-----------------------------------------
|            | 3          (7)          4 |
|            |                          |
|        I   |                          |
|   R    N   |              Y           |
|   E    S   |              |           |
|   C    T   |              |           |
|   O    R   |              |           |
|   R    U   |(6)        FC +------- X  (8)|
|   D    M   |                          |
|   I    E   |                          |
|   N    N   |                          |
|   G    T   |                          |
|        S   |                          |
|            |                          |
|            | 2          (5)          1 |
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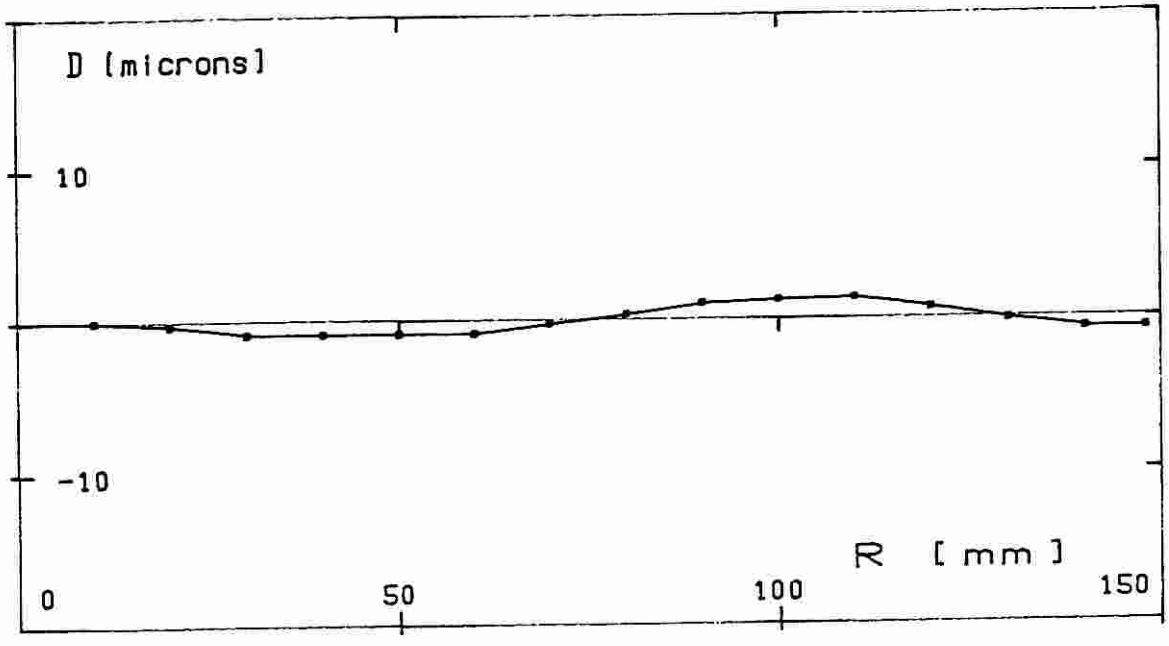
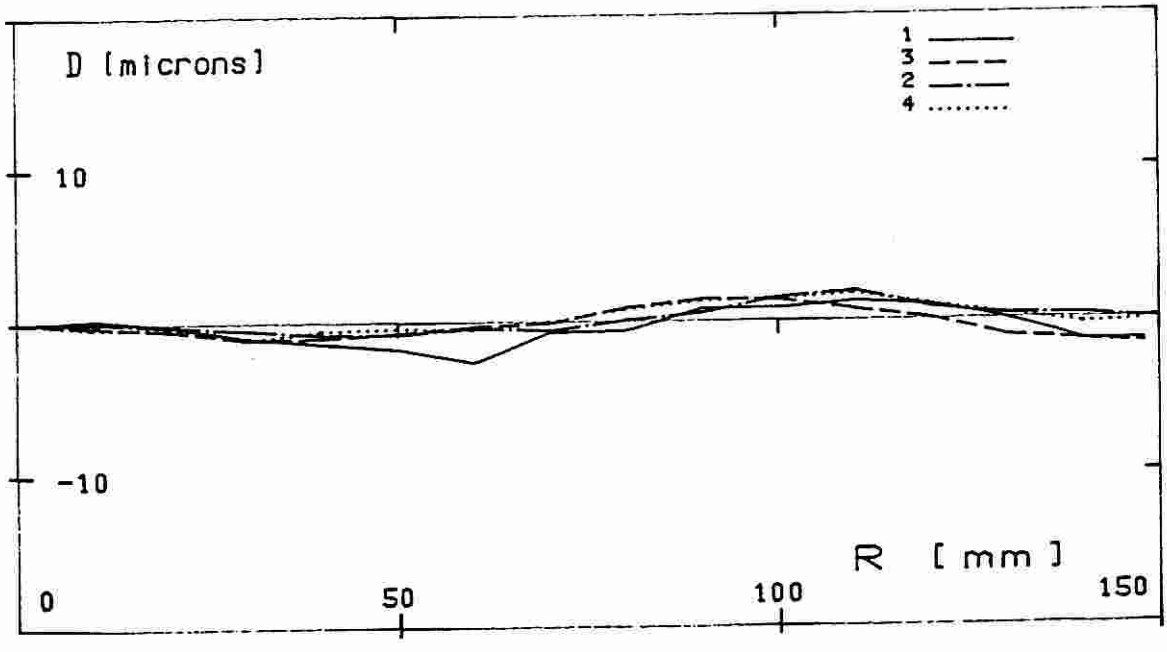
AS SEEN ON FOCAL PLANE FRAME

RC20 15/4 UAGA-F NO. 13096 12.02.93

APERTURE : F / 4.0
FILTER ON GONIOMETER : VIS (400 - 700 NM)
FILTER ON CAMERA : --
C.F.L. : 152.98 MM



MEAN RADIAL DISTORTION CURVE



RADIAL DISTORTION FOR SEMI-DIAGONALS
REFERRED TO PPS