

CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC20  
LENS TYPE : 15/4 UAGA-F  
LENS NO. : 13129

CALIBRATION DATE : 18.07.88

WILD HEERBRUGG LTD



CAMERA CALIBRATION

CAMERA: RC20 LENS: 15/4 UAGA-F NO.: 13129 CALIBRATION DATE: 18.07.88

APERTURE : F / 4.0  
 FILTER ON GONIOMETER : VIS (400 - 700 NM)  
 FILTER ON CAMERA : --  
 CALIBRATED FOCAL LENGTH : 152.85 MM

RADIAL DISTORTION (MICROMETERS)

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

| RADIUS<br>MM | SEMI - DIAGONALS |      |      |      | MEAN |
|--------------|------------------|------|------|------|------|
|              | 1                | 3    | 2    | 4    |      |
| 10           | 0.7              | 0.1  | 0.3  | 0.5  | 0.4  |
| 20           | 1.2              | 0.5  | 0.9  | 1.0  | 0.9  |
| 30           | 0.5              | 1.1  | 0.8  | 1.0  | 0.8  |
| 40           | 0.5              | 1.5  | 0.7  | 1.3  | 1.0  |
| 50           | 0.6              | 0.9  | 0.6  | 0.7  | 0.7  |
| 60           | -0.1             | 1.2  | 1.3  | 0.7  | 0.7  |
| 70           | 0.1              | 1.0  | 0.3  | 0.9  | 0.5  |
| 80           | 0.1              | 0.9  | 0.7  | 0.6  | 0.5  |
| 90           | 1.2              | 1.4  | 0.2  | 0.9  | 0.9  |
| 100          | 0.4              | 0.2  | 0.8  | 0.6  | 0.5  |
| 110          | 0.5              | -0.3 | 0.5  | 0.6  | 0.3  |
| 120          | 0.2              | -0.2 | -0.9 | -0.3 | -0.3 |
| 130          | -1.0             | -1.1 | -1.2 | -1.2 | -1.1 |
| 140          | -1.4             | -1.0 | -1.4 | -1.1 | -1.2 |
| 148          | -0.3             | -1.0 | -0.6 | -1.7 | -0.9 |

PHOTOGRAPHIC RESOLUTION (LINE PAIRS PER MILLIMETER)

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 INTERNATIONAL 3-LINE TEST-CHART, CONTRAST (LOG) : 2.0

APERTURE : 4.0  
 FILTER : 450 NM  
 FILM : AGFAPAN 25 PROFESSIONAL (ASA SPEED: 25)  
 DEVELOPER : KODAK HC110 PREPARATION 2 SOLUTION C

| ANGLE:<br>(DEGREES) | 0  | 5  | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 |
|---------------------|----|----|----|----|----|----|----|----|----|----|
| RAD.                | 95 | 84 | 93 | 81 | 79 | 68 | 73 | 77 | 65 | 42 |
| TANG.               | 95 | 84 | 82 | 79 | 66 | 78 | 63 | 63 | 49 | 42 |

AWAR (AREA WEIGHTED AVERAGE RESOLUTION) IN LP/MM : 69

*M.*

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

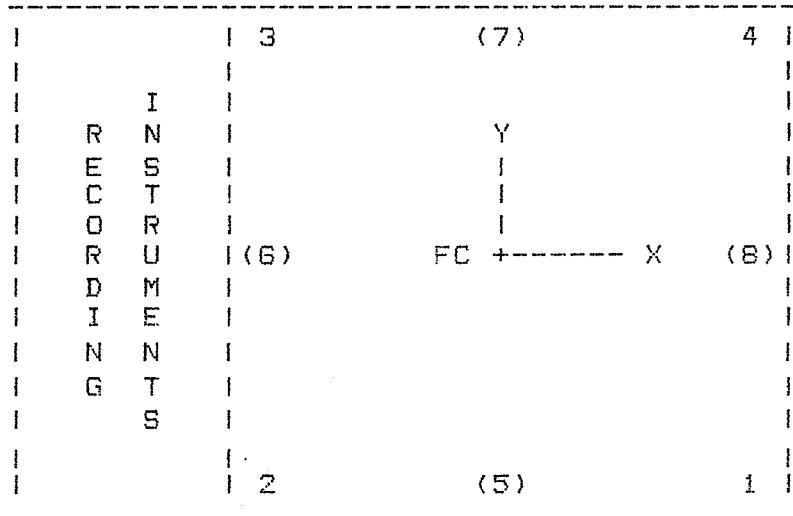
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REFERRED TO FC, SEE DIAGRAM

|     | X (MM) | Y (MM) |
|-----|--------|--------|
| PPA | 0.003  | 0.005  |
| S   | -0.003 | -0.002 |

FIDUCIAL MARKS, REFERRED TO FC

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|   | X (MM)   | Y (MM)   |
|---|----------|----------|
| 1 | 106.001  | -106.003 |
| 2 | -105.998 | -106.001 |
| 3 | -106.000 | 106.003  |
| 4 | 105.999  | 106.002  |

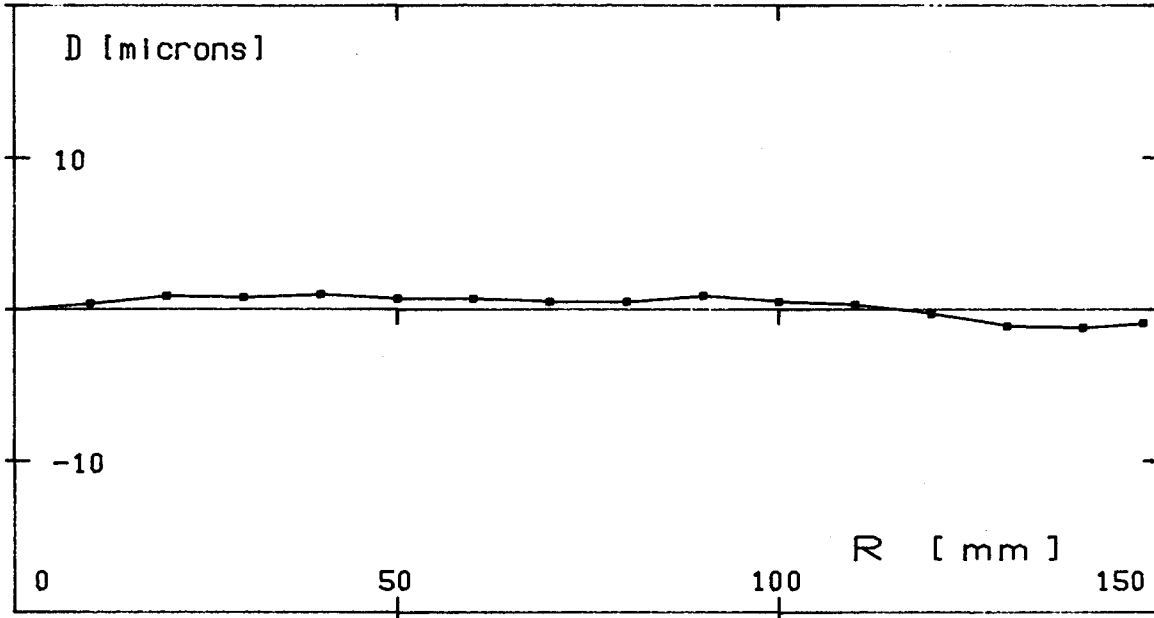


AS SEEN ON FOCAL PLANE FRAME

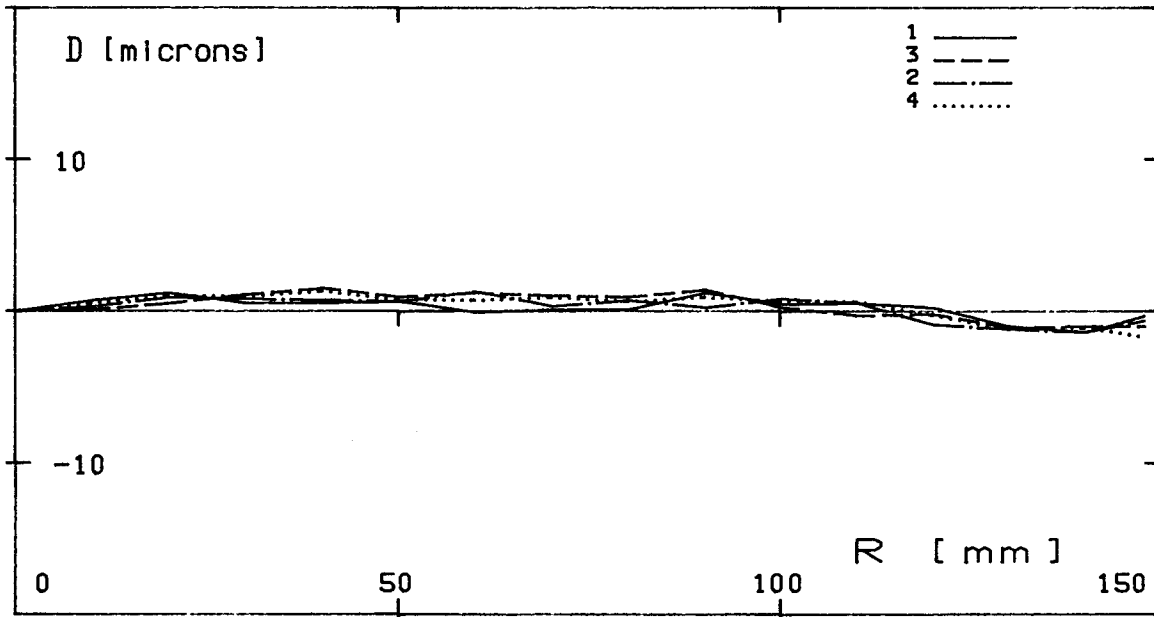
*M.*

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FILTER ON CAMERA : --  
C.F.L. : 152.85 MM



MEAN RADIAL DISTORTION CURVE



RADIAL DISTORTION FOR SEMI-DIAGONALS REFERRED TO PPS

*M.*