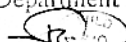



CAMERA CALIBRATION CERTIFICATE

CAMERA TYPE : RC20
LENS TYPE : 30/4 NATA-F
LENS NO. : 17024

CALIBRATION DATE : 25.07.90

WILD LEITZ LTD
Wild Leitz Ltd
CH-9435 Heerbrugg

Calibration Department
Supervisor: 

 WILD LEITZ

CAMERA CALIBRATION

CAMERA: RC20 LENS: 30/4 NATA-F NO.: 17024 CALIBRATION DATE: 25.07.90

APERTURE : F / 4.0
 FILTER ON GONIOMETER : VIS (400 - 700 NM)
 FILTER ON CAMERA : --
 PRINCIPAL DISTANCE FOR FOCUSING DISTANCE 850 M : 303.75 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	0.0	0.7	0.1	-0.2	0.1
20	0.7	0.2	0.5	0.1	0.3
30	-0.2	0.6	0.4	-0.2	0.1
40	0.2	-0.2	1.1	-0.1	0.2
50	-0.1	-0.3	1.0	-0.7	0.0
60	-0.7	-0.8	0.0	-1.4	-0.7
70	-1.1	-0.4	-0.4	-1.5	-0.8
80	-1.6	-0.8	-1.2	-1.4	-1.2
90	-1.4	-0.6	-1.3	-0.8	-1.0
100	-1.3	-0.3	0.1	0.3	-0.3
110	-0.8	0.2	0.8	1.0	0.3
120	-0.4	1.0	2.1	1.9	1.1
130	0.8	0.5	1.6	2.4	1.3
140	-0.2	-0.6	1.1	1.6	0.4
148	-0.8	-3.1	0.4	-0.1	-0.9

PHOTOGRAPHIC RESOLUTION (LINE PAIRS PER MILLIMETER)

 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:	0	5	10	15	20	25
(DEGREES)						
RAD.	67	75	59	46	56	48
TANG.	67	74	51	44	53	55

AWAR (AREA WEIGHTED AVERAGE RESOLUTION) IN LP/MM : 53



CAMERA CALIBRATION

CAMERA: RC20 LENS: 30/4 NATA-F NO.: 17024 CALIBRATION DATE: 25.07.90

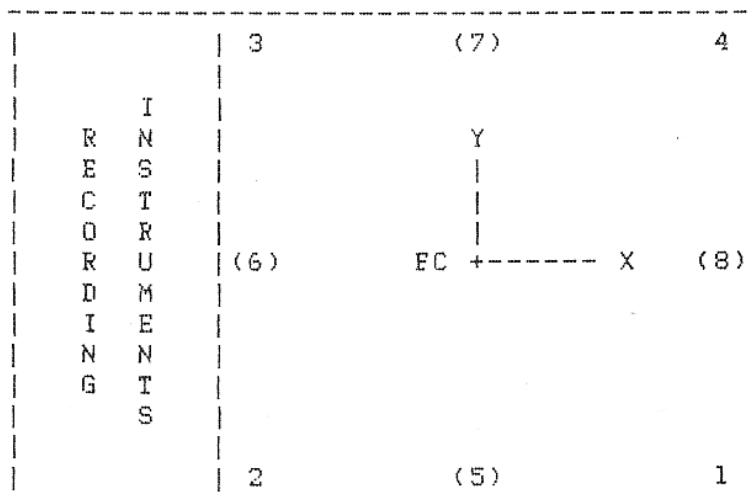
PRINCIPAL POINT OF AUTOCOLLIMATION (PPA) AND
PRINCIPAL POINT OF SYMMETRY (PPS)

REFERRED TO FC, SEE DIAGRAM

	X (MM)	Y (MM)
PPA	0.005	0.006
S	0.006	-0.013

FIDUCIAL MARKS, REFERRED TO FC

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

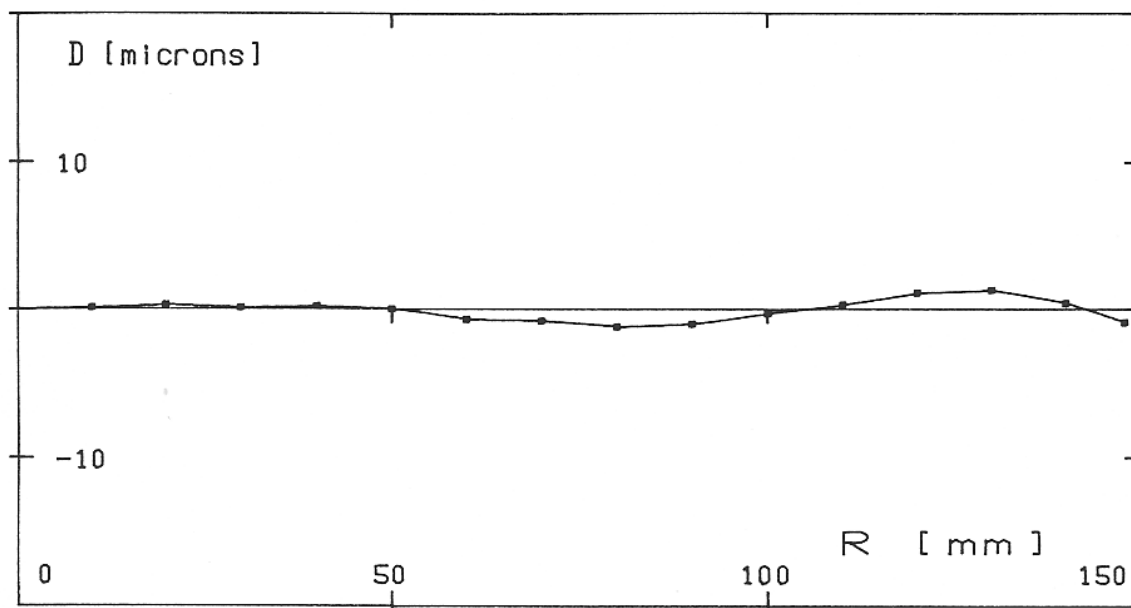


AS SEEN ON FOCAL PLANE FRAME

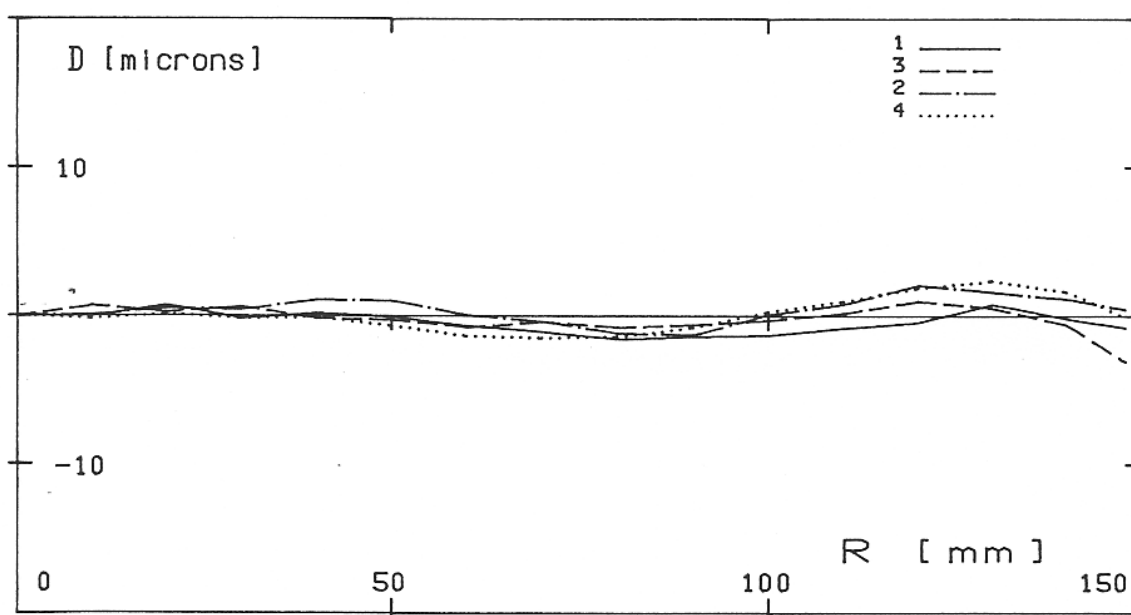
310

RC20 30/4 NATA-F NO. 17024 25.07.90

APERTURE : F / 4.0
FILTER ON GONIOMETER : VIS (400 - 700 NM)
FILTER ON CAMERA : --
P.D. (850 m) : 303.75 MM



MEAN RADIAL DISTORTION CURVE



RADIAL DISTORTION FOR SEMI-DIAGONALS REFERRED TO PPS