



CAMERA TYPE: RMK A 30/23 SERIAL NO. 124512  
 LENS TYPE: TOPAR A1 SERIAL NO. 124529  
 MAX. APERTURE: F/5.6 NOM. FOCAL LENGTH 305 MM

1) CALIBRATED FOCAL LENGTH = 305.105 MM

2) DISTORTION /0.001 MM, REFERRING TO P.P. OF SYMMETRY PPS

S/MM=	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
5	0	1	1	0	0	-3	-3	-4	-3	-3	-3	-3	0	3	6	6
6	0	0	1	0	0	0	-2	-2	-1	-3	-2	-3	-1	3	4	6
7	0	0	0	0	-1	-2	-3	-4	-2	-3	-3	-2	-2	2	2	5
8	0	-1	0	0	-2	-2	-3	-4	-2	-3	-4	-3	-1	2	4	4
AV.	0	0	0	0	-1	-1	-3	-3	-2	-3	-3	-3	-1	2	4	5

3) P.P. OF AUTOCOLLIMATION AND FIDUCIAL CENTRE, REFERRING TO PPS

P.P. OF AUTOCOLLIMATION PPA X= .000 Y= .025 MM  
 FIDUCIAL CENTRE FC X= .000 Y= .000 MM

4) FIDUCIAL MARKS, REFERRING TO PPS

X1= 112.999 X2=-112.997 X3= .000 X4= .000 MM  
 Y1= .000 Y2= .001 Y3= 113.003 Y4=-112.997 MM  
 DISTANCES 1-2= 225.997 3-4= 226.001 MM

5) PHOTOGRAPHIC RESOLVING POWER, IN CYCLES PER MM  
 (AS PER DEFINITION, R. P. IS NOT A CALIBRATED DATUM)  
 AREA WEIGHTED AVERAGE RESOLUTION 53

FIELD ANGLE /DEG = 0 7 14 24

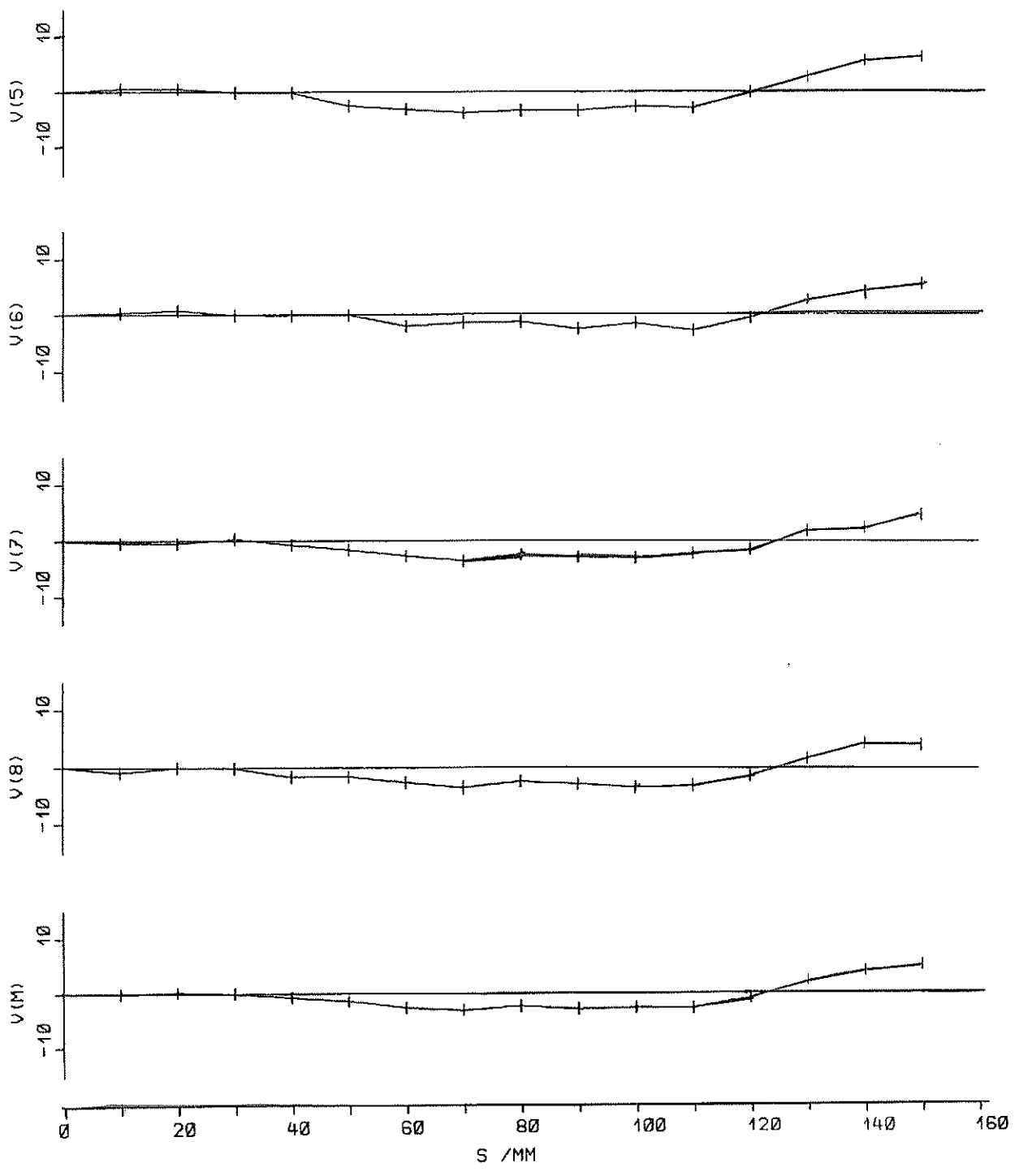
RADIAL LINES 73 51 28 47  
 TANGENTIAL LINES 73 72 61 86

FILM: KODAK PANATOMIC X 3412 SPEED 40 AFS  
 DEVELOPED IN AGFA G 74 C AVIPHOT

0653
DKD-K-05202
99-11

RMK A 30/23 NO. 124512  
TOPAR A1 5.6/305 NO. 124529  
CFL=305.105 MM

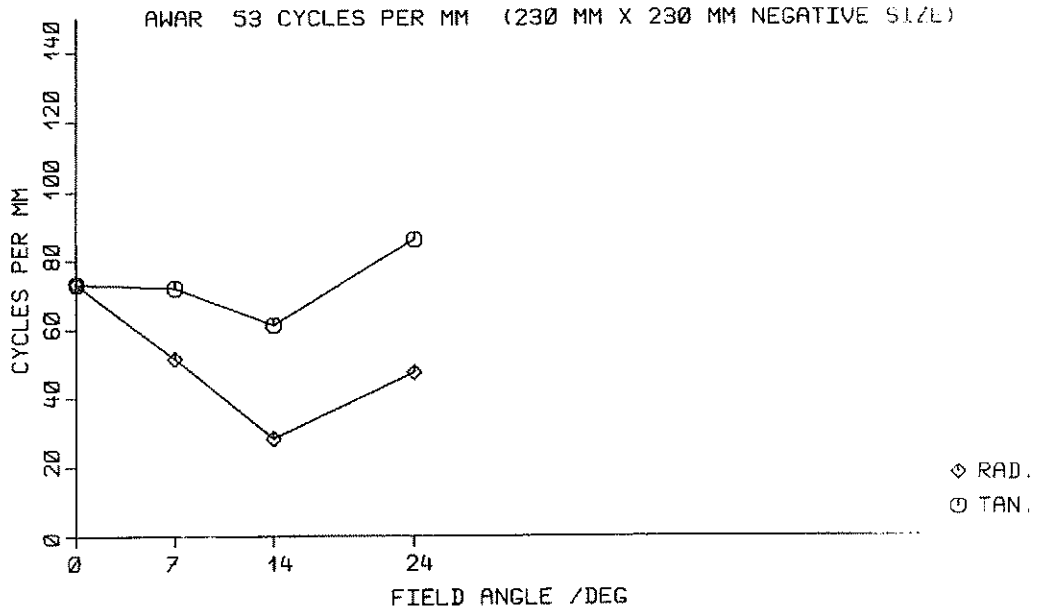
DISTORTION /0.001 MM, REFERRING TO PPS



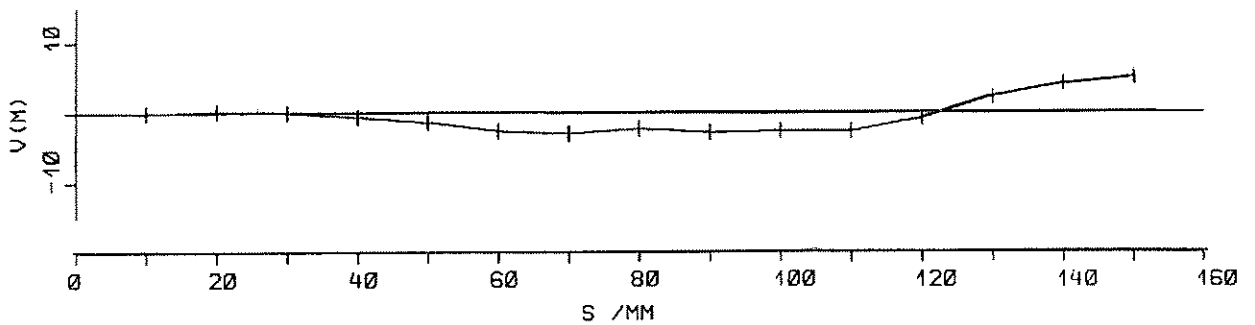
RMK A 30/23

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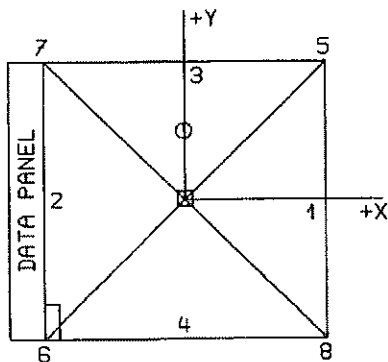
PHOTOGRAPHIC RESOLVING POWER



DEPARTURE OF AVERAGE DISTORTION FROM ZERO REFERENCE



PRINCIPAL POINT (PPA, PPS) AND FIDUCIAL CENTRE (FC)



COORDINATES, REFERRING TO PPS

	X / MM	Y / MM
○ PPA	-0.000	0.025
□ FC	-0.000	0.000

┆ 0.01 MM, X-AXIS AS DEFINED BY FIDUCIAL MARK COORDINATES

$\alpha(6) = 0.0^\circ$        $\alpha(8) = \alpha(6) + 90^\circ$

This camera has been tested in accordance with the existing regulations. The methods used are based on the Recommended Procedures for Calibrating Photogrammetric Cameras and for Related Optical Tests (International Society of Photogrammetry, 1960, reaffirmed 1964). The optical performance and the external construction are in accordance with our terms of delivery.

### **1. Calibrated Focal Length**

The calibrated focal length is chosen so as to minimize the square sum of the radial measured distortion.

### **2. Distortion**

The values of radial distortion refer to the calibrated focal length and to the principal point of symmetry (Section 3). Regarding the origin for distortion values it must be realized that in the photogrammetric process, the asymmetry due to a displacement of that point is eliminated together with the asymmetry introduced by camera tilt. The principal point of symmetry is chosen as origin for distortion, because only this residual asymmetry cannot be eliminated by simple compensation.

The radial distortion is measured for points of the focal plane separated by 10 mm from the axis for each of the four radii 5, 6, 7 and 8. AV is the average radial measured distortion at a given radial distance. A positive value indicates that the image is further from the centre than its distortionfree position. Measurements are made at maximum aperture on the goniometer by attaching the filter D (cut-off wavelength 535 nm at transmittance 50 %). The standard deviation of the distortion values given can be assumed to be less than 0.002 mm.

The maximum tangential distortion, i.e. the displacement of the central image from a straight line connecting corresponding image points at equal but opposite angular separations from the axis, does not exceed 0.005 mm.

### **3. Principal Point and Fiducial Centre**

The positions of the principal point of autocollimation and of the fiducial centre (Section 4) are given in a rectangular coordinate system as indicated in the plot, with the principal point of symmetry as origin.

#### **4. Fiducial Marks**

For coordinate measurements the fiducial marks are recorded on photographic glass plates. Coordinates of the fiducial marks are given in a rectangular system as shown in the plot, with the principal point of symmetry as origin. Fiducial marks 1 and 2 lie in the line of flight. The location of the fiducial marks can be assumed to be accurate within 0.005 mm.

In the course of camera assembly and maintenance the fiducial marks are adjusted to meet the following specifications:

- The lines joining opposite pairs of fiducial marks intersect at an angle within 30 seconds of 90°.
- The point of intersection (fiducial centre) is within 0.02 mm of the principal point of autocollimation.

#### **5. Photographic Resolving Power**

The resolving power is obtained by photographing a series of three line high contrast test figures. The photographs are taken under the recommended standard illumination by using the filter B (cut-off wavelength 490 nm at transmittance 50 %). The camera is used at full aperture. The resulting image is examined with a low power stereoscopic microscope to find the spatial frequency of the finest pattern resolved. The values of resolving power are reduced to the image plane and refer to the focus setting as used for determining the calibrated focal length.

#### **6. Filters**

The two surfaces of the filters listed in the certificate are within 5 seconds of being parallel.

#### **7. Magazine Platen**

The platen mounted in the film magazine, serial no. as indicated in the certificate, does not depart from a true plane by more than 0.010 mm.