

U.S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
WASHINGTON, D.C. 20234

NATIONAL BUREAU OF STANDARDS

REPORT OF TEST 2.2/180800

on

ONE PHOTOGRAPHIC OBJECTIVE

Submitted by

Airagon Engineering Company
2001 Military Hwy., N.W.
San Antonio 13, Texas

I. Focal Lengths

Back Focal Distance	Equivalent Focal Length	Calibrated Focal Length
mm	mm	mm
273.60	305.73	305.79

The values of the focal lengths have been selected to give best average definition across the entire negative and do not necessarily correspond to those values of focal lengths which give best definition on the axis. The probable errors of these determinations of focal length do not exceed ± 0.10 mm.

II. Distortion

1. Distortion Referred to the Equivalent Focal Length				
5°	10°	15°	20°	25°
0	0	5	35	306
2. Distortion Referred to the Calibrated Focal Length				
5°	10°	15°	20°	25°
-6	-11	-12	11	276

The values of the distortion are measured in microns and indicate the displacement of the image from its distortion-free position. A positive value indicates a displacement from the center of the plate. The probable error does not exceed ± 10 microns.

III. Resolving Power

	0°	5°	10°	15°	20°	25°
Tangential	46	53	46	32	23	6
Radial	46	53	53	27	23	32

The values of the resolving power are given at 5° intervals from the center of the field and are obtained by photographing suitable test charts comprised of patterns of parallel lines. The series of patterns of the test chart are imaged on the negative with the lines spaced in a geometric series of the fourth root of two lines to the millimeter. The row marked "tangential" gives the number of lines per millimeter in the image on the negative of the finest pattern of the test chart that is distinctly resolved into separate lines when the lines lie perpendicular to the radius drawn from the center of the field. The row marked "radial" gives similar values for the pattern of test lines lying parallel to the radius.

This report applies to the Eastman Kodak Aerostigmat lens No. EE1899, nominal focal length 12 inches, maximum aperture f/5. It was tested at aperture f/11 mounted in a Fairchild Type K-17 shutter case No. 43-1055. All measurements were made with collimated incident light using a K-3 filter, a tungsten source, and Eastman Kodak spectroscopic emulsion Type V-F on selected flat glass plates. Development was in D-19 at 68°F for three minutes with continuous agitation.

For the Director,

Francis E. Washer, Chief
Refractometry Section
Metrology Division

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