



Designation: D7298 – 06 (Reapproved 2017)

Standard Test Method for Measurement of Comparative Legibility by Means of Polarizing Filter Instrumentation¹

This standard is issued under the fixed designation D7298; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method provides an objective means to comparatively measure the ease of reading printed matter for use in package labeling.

1.2 This test method is not intended to quantify the legibility of a printed item against a standard but to compare its legibility against other items.

1.3 This test method uses human subjects to view printed matter mounted in a specialized instrument.

1.4 The user of this test method must be aware that results may differ from one age group of subjects to another.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D996 [Terminology of Packaging and Distribution Environments](#)

3. Terminology

3.1 *Definitions*—Terms and definitions used in this test method may be found in Terminology D996.

¹ This test method is under the jurisdiction of ASTM Committee F02 on Primary Barrier Packaging and is the direct responsibility of Subcommittee F02.50 on Package Design and Development.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *age group*—subjects are grouped by ages in a specified range.

3.2.2 *analyzer*—a moveable polarizing filter; the subject operates a hand wheel to rotate the analyzer (see Fig. 1 and Fig. 2).

3.2.3 *degrees of rotation*—the angle of rotation of the analyzer where 0 is equivalent to no light transmission and 90 is equivalent to full light transmission.

3.2.3.1 *Discussion*—At 0° rotation, the analyzer and polarizer optical axes are perpendicular to one another.

3.2.4 *easel*—located on top of the moveable stage; it is a platform where printed matter is placed to be read (see Fig. 1 and Fig. 2).

3.2.5 *hand crank*—a crank located at the front of the instrument that adjusts the distance of printed matter by moving the stage and easel. When it is rotated clockwise, it moves the moveable stage closer to the subject, and when it is rotated counterclockwise it moves the stage away from the subject (see Fig. 1 and Fig. 2).

3.2.6 *hand wheel*—a wheel subjects turn to rotate the analyzer. Counterclockwise rotation increases the light transmitted and raises the legibility index. Clockwise rotation decreases the light transmitted (see Fig. 1 and Fig. 2) and lowers the legibility index.

3.2.7 *legibility*—the ease of deciphering or reading printed matter, as measured by the legibility index in this test method.

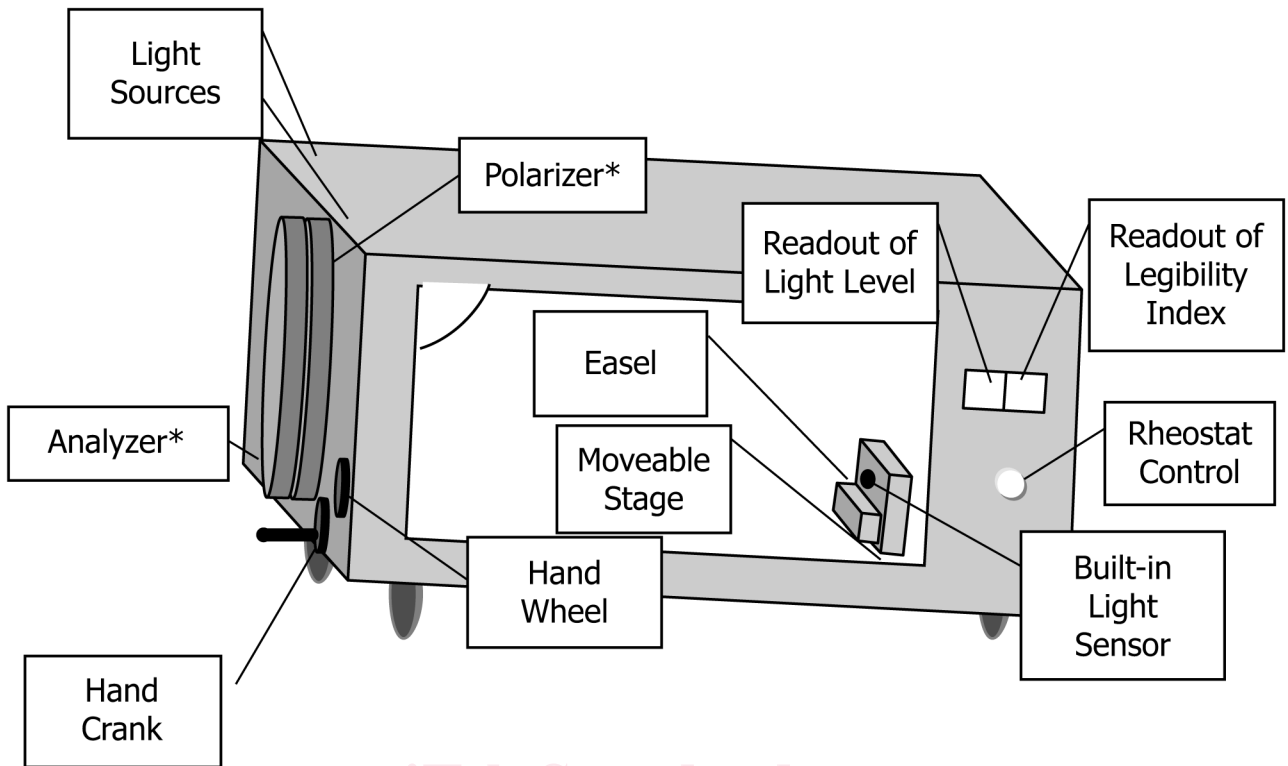
3.2.8 *legibility index*—the name given to the degrees of rotation of the analyzer, the reporting unit for the measurement of legibility. The first point where the printed matter becomes easy for the subject to read.

3.2.9 *moveable stage*—a device topped with an easel that is mounted on a track within the legibility instrument that adjusts the distance between the subject and the easel.

3.2.10 *polarizer*—a fixed polarizing filter, mounted in the instrument (see Fig. 1 and Fig. 2).

3.2.11 *subject*—the person viewing the printed matter in the instrument and controlling the rotation of the analyzer.

3.2.12 *tester*—the person conducting the experiment.



NOTE 1—*Analyzer and polarizer are actually just inside the front wall of the instrument; subject looks through them using a shielded eyepiece (See photo in Fig. 2). They are shown in the schematic to give researchers a clear idea of the instrument's construction.

FIG. 1 Schematic of the Legibility Instrument

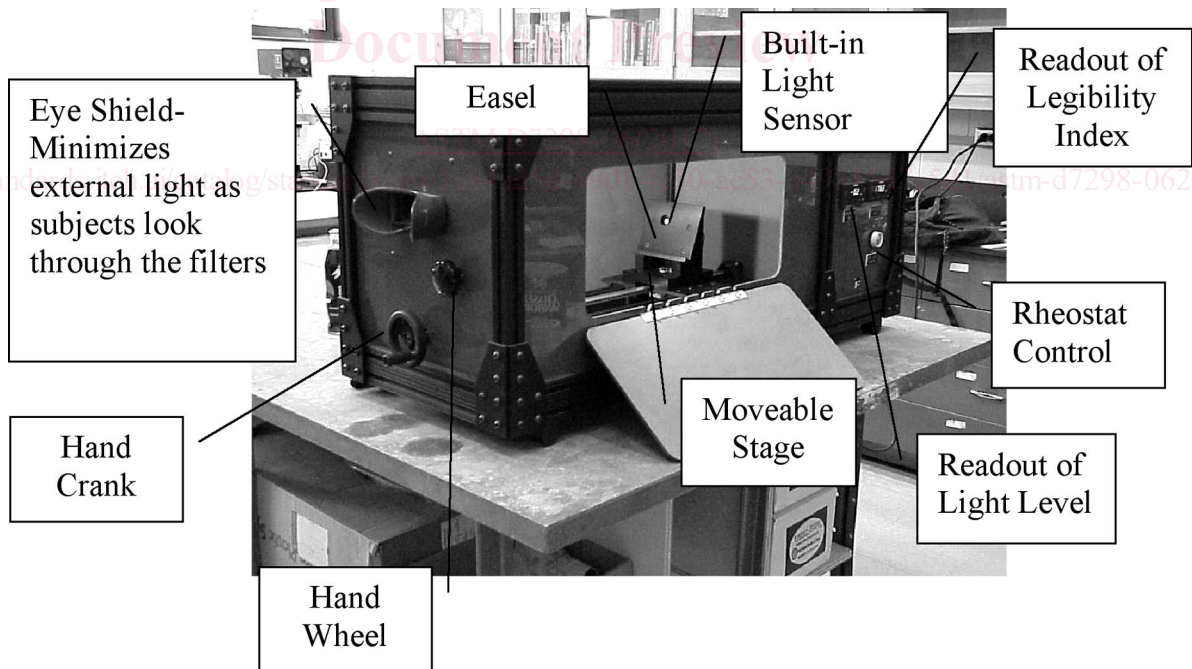


FIG. 2 Photo of Legibility Instrument

3.2.13 *training reference*—A standard message created in an 8 point font. Subjects view the training reference before data

collection begins so that they become accustomed to the instrument without affecting test results.