Designation: D 4270 – 95 (Reapproved 2001)

Standard Guide for Using Existing Practices in Developing and Writing Test Methods[1]

This standard is issued under the fixed designation D 4270; 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 guide is intended to assist task groups in the preparation of a test method. It can help the task group use existing statistically related ASTM practices more effectively during the development and writing of the test method.

1.2 Some of the essential activities that should occur during the development of a new test method are not in existing or proposed practices under the jurisdiction of ASTM Subcommittee D13.93 on Statistics. This guide includes a brief explanation of how such activities should be carried out.

1.3 This guide is applicable to properties that are evaluated by both parametric and nonparametric methods of estimation. The instructions on properties that are best evaluated by nonparametric methods are less complete than those for properties that are evaluated by parametric methods.

2. Referenced Documents

2.1 *ASTM Standards:*

D 123 Terminology Relating to Textiles[2]

D 2904 Practice for Interlaboratory Testing of a Textile Test Method that Produces Normally Distributed Data[2]

D 2905 Practice for Statements on Number of Specimens for Textiles[2]

D 2906 Practice for Statements on Precision and Bias for Textiles[2]

D 3777 Practice for Writing Specifications for Textiles[3]

D 4271 Practice for Writing Statements on Sampling in Test Methods for Textiles[3]

D 4356 Practice for Establishing Consistent Test Method Tolerances[4]

D 4467 Practice for Interlaboratory Testing of a Textile Test Method that Produces Non-Normally Distributed Data[3]

D 4853 Guide for Reducing Test Variability[3]

D 4854 Guide for Estimating the Magnitude of Variability from Expected Sources in Sampling Plans[3]

D 4855 Practice for Comparing Test Methods[3]

E 456 Terminology Relating to Quality and Statistics[4]

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method[4]

2.2 ASTM Adjuncts:[5]

TEX-PAC

NOTE 1—TEX-PAC is a group of PC programs on floppy disk.

3. Terminology

3.1 *Definitions:*

3.1.1 *moving range, MR, n*—the difference without regard to sign between two successive observations.

3.1.2 *nonparametric, adj—in statistics*, a term referring to a technique that is not based on assumptions about the nature of the underlying frequency distribution. (Compare to *parametric*.)

3.1.3 *parametric, adj—in statistics*, a term referring to a technique that assumes the nature of the underlying distribution is known. (Compare to *nonparametric*.)

3.1.4 *practice, n*—a definitive procedure for performing one or more specific operations or functions that does not produce a test result.

3.1.4.1 *Discussion*—A practice is not a down-graded test method. Examples of practices include procedures for conducting interlaboratory testing programs or other statistical procedures; for writing statements on sampling or precision and accuracy; and for selection, preparation, application, inspection, necessary precautions for use or disposal, installation, maintenance, and operation of testing equipment.

3.1.5 *test method, n*—a definitive procedure for the identification, measurement, or evaluation of one or more qualities, characteristics, or properties of a material, product, system, or service that produces a test result.

3.1.6 For the definitions of other terms that appear in this standard, refer to Terminology D 123 and Terminology E 456.

4. Summary of Guide

4.1 The guide is summarized in Fig. 1, which shows the steps in test method development, the sections of this guide which apply, and other references that may be used as aids in a specific step in the development of the test method. As Fig. 1 points out, the references should show to which of the previous steps the development should revert when the results

[1] This guide is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.93 on Statistics.

Current edition approved May 15, 1995. Published July 1995. Originally published as D 4270 – 83. Last previous edition D 4270 – 90.

[2] *Annual Book of ASTM Standards*, Vol 07.01.

[3] *Annual Book of ASTM Standards*, Vol 07.02.

[4] *Annual Book of ASTM Standards*, Vol 14.02.

[5] PC programs on floppy disk are available through ASTM. For a 3½ in. disk request PCN: 12-429040; for a 5¼ in. disk request PCN: 12-429041-18.

Copyright © ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, United States.