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Appendix A

ANSI/ASQC Z1.4-1993

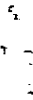
AMERICAN NATIONAL STANDARD

SAMPLING PROCEDURES AND TABLES FOR INSPECTION BY ATTRIBUTES



AMERICAN SOCIETY FOR QUALITY CONTROL

611 East Wisconsin Avenue Milwaukee, WI 53202



AMERICAN NATIONAL STANDARD

Sampling Procedures and Tables for Inspection by Attributes

Prepared by
American Society for Quality Control Standards Committee
For
AMERICAN NATIONAL STANDARDS COMMITTEE
Z-1 ON QUALITY ASSURANCE

Sponsor and Secretariat
AMERICAN SOCIETY FOR QUALITY CONTROL

Abstract

Sampling Procedures and Tables for Inspection by Attributes is an acceptance sampling system to be used with switching rules on a continuing stream of lots for AQL specified. It provides tightened, normal, and reduced plans to be applied for attributes inspection for percent nonconforming or nonconformities per 100 units.

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Published by

**AMERICAN SOCIETY FOR QUALITY CONTROL
611 EAST WISCONSIN AVENUE
MILWAUKEE, WISCONSIN 53202**

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Printed in the United States of America

Foreword

(This foreword is not a part of American National Standard—*Sampling Procedures and Tables for Inspection by Attributes*, Z1.4-1993)

This standard is a revision of ANSI Z1.4-1971, "Sampling Procedures and Tables for Inspection by Attributes," which corresponds directly to MIL-STD-105E. The present revision ANSI/ASQC Z1.4-1993 was undertaken to modernize terminology and to emphasize the system aspect of the procedure through incorporation of the operating characteristic curves and other measures computed for scheme performance reflecting the basic strategy including the switching rules.

All tables, table numbers, and procedures used in MIL-STD-105E were retained. The tables are unchanged to make the tabular content completely compatible with MIL-STD-105E. Modifications from the MIL-STD-105E format beyond editorial refinements include:

- 1) Substitution of the word "nonconformity" for "defect" throughout, in conformance with ANSI/ASQC A2-1978. Substitution of the word "nonacceptance" for "rejection" when it refers to a result of following the procedure. Forms of the word "reject" are retained when they refer to actions the customer may take. The term "rejection number" is retained when it refers to the nomenclature on Tables II, III, IV and X to be consistent with tables of the same numbers in MIL-STD-105E.

- 2) Presentation of the switching rules to put them in conformance with ANSI Z1.9-1980, the ANSI version of MIL-STD-414. This includes an option for reduced inspection

without use of limit numbers (as in ANSI Z1.9-1980). Use without the limit numbers improves the performance of a scheme by accepting more lots at the AQL, with no change in discrimination below the indifference quality level.

- 3) Introduction of the following tables:

Table XI Average Outgoing Quality Limit Factors for ANSI Z1.4 Scheme Performance (Single Sampling)

Table XII Limiting Quality for ANSI Z1.4 Scheme Performance for which $P_a = 10$ Percent (Single Sampling)

Table XIII Limiting Quality for ANSI Z1.4 Scheme Performance for which $P_a = 5$ Percent (Single Sampling)

Table XIV Average Sample Size Tables for ANSI Z1.4 Scheme Performance (Single Sampling)

Table XV Scheme Performance with Switching Rules—for each Code Letter showing

- 1) Operating Characteristic Curves for ANSI Z1.4 Scheme Performance
- 2) Tabulated Values for Operating Characteristic Curves for ANSI Z1.4 Scheme Performance

- 4) The titles of Tables V-A and V-B have been changed to read, "Approximate values for average outgoing quality limits." These are different from the titles in MIL-STD-105E.

- 5) The tables contained in this Standard cover situations where the quality level is specified in percentages as low as 0.01%. It should be noted that 0.01% is equal to 100 parts per million (PPM). Sampling procedures for quality levels of fewer PPM are not included in this Standard.

- 6) Substitution of
Section 2 Definitions and Terminology
for

Section 2 Classification of Defects
and Defectives

Reference is made to classification of nonconformities in Section 6.3.

- 7) Reference to the use of operating properties of the scheme and the meaning of scheme performance is made in Section 11.

- 8) Addition of Section 11.6 spelling out proper use of individual plans when extracted from the ANSI Z1.4 system as a whole.

- 9) Addition of Figure 1 showing the switching procedure to enhance understanding of the switching aspect of the system.

- 10) Addition of replotted OC curves.

Note: A compatible and interchangeable standard for variables inspection is ANSI Z1.9-1993.

Suggestions for improvement of this standard will be welcome. They should be sent to the sponsor, ASQC, 611 East Wisconsin Avenue, Milwaukee, WI 53202.

Committee members serving as writers and editors of this standard were:

Joseph M. Califano, Chairperson
Michael Yargosz
August Mundel
Harrison Wadsworth
Edward G. Schilling

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SAMPLING PROCEDURES AND TABLES FOR INSPECTION BY ATTRIBUTES

1. SCOPE

1.1 PURPOSE. This publication establishes sampling plans and procedures for inspection by attributes. When specified by the responsible authority, this publication shall be referenced in the specification, contract, inspection instructions, or other documents and the provisions set forth herein shall govern. The "responsible authority" shall be designated in one of the above documents, as agreed to by the purchaser and seller or producer and user.

1.2 APPLICATION. Sampling plans designated in this publication are applicable, but not limited, to inspection of the following:

- a. End items.
- b. Components and raw materials.
- c. Operations
- d. Materials in process.
- e. Supplies in storage.
- f. Maintenance operations.
- g. Data or records.
- h. Administrative procedures.

These plans are intended primarily to be used for a continuing series of lots or batches. The plans may also be used for the inspection of isolated lots or batches, but, in this latter case, the user is cautioned to consult the operating characteristic curves to find a plan which will yield the desired protection (see 11.6).

1.3 INSPECTION. Inspection is the process of measuring, examining, testing, or otherwise comparing the unit of product (see 1.5) with the requirements.

1.4 INSPECTION BY ATTRIBUTES. Inspection by attributes is inspection whereby either the unit of product is classified simply as conforming or nonconforming, or the

number of nonconformities in the unit of products is counted, with respect to a given requirement or set of requirements.

1.5 UNIT OF PRODUCT. The unit of product is the unit inspected in order to determine its classification as conforming or nonconforming or to count the number of nonconformities. It may be a single article, a pair, a set, a length, an area, an operation, a volume, a component of an end product, or the end product itself. The unit of product may or may not be the same as the unit of purchase, supply, production, or shipment.

2. DEFINITIONS AND TERMINOLOGY

The definitions and terminology employed in this standard are in accord with ANSI/ASQC Standard A2-1987 (Terms, Symbols, and Definitions for Acceptance Sampling). The following two definitions are particularly important in applying the standard.

DEFECT: A departure of a quality characteristic from its intended level or state that occurs with a severity sufficient to cause an associated product or service not to satisfy intended normal, or foreseeable, usage requirements.

NONCONFORMITY: A departure of a quality characteristic from its intended level or state that occurs with severity sufficient to cause an associated product or service not to meet a specification requirement.

These acceptance sampling plans for attributes are given in terms of the percent or proportion of product in a lot or batch that depart from some requirement. The general terminology used within the document will be given in terms of percent of nonconforming units or number of nonconformities, since these terms are likely to constitute the most widely used criteria for acceptance sampling.

In the use of this standard it is helpful to distinguish between:

- a. an individual sampling plan—a specific plan that states the sample size or sizes to be used, and the associated acceptance criteria.

- b. a sampling scheme—a combination of sampling plans with switching rules and possibly a provision for discontinuance of inspection. In this standard the terms “sampling scheme” and “scheme performance” will be used in the restricted sense described in Sec. 11.1.
- c. a sampling system—a collection of sampling schemes. This standard is a sampling system indexed by lot-size ranges, inspection levels, and AQLs.

3. PERCENT NONCONFORMING AND NONCONFORMITIES PER HUNDRED UNITS

3.1 EXPRESSION OF NONCONFORMANCE. The extent of nonconformance of product shall be expressed either in terms of percent nonconforming or in terms of nonconformities per hundred units.

3.2 PERCENT NONCONFORMING. The percent nonconforming of any given quantity of units of product is one hundred times the number of nonconforming units divided by the total number of units of product, i.e.:

$$\text{Percent nonconforming} = \frac{\text{Number nonconforming}}{\text{Number of units inspected}} \times 100$$

3.3 NONCONFORMITIES PER HUNDRED UNITS. The number of nonconformities per hundred units of any given quantity of units of product is one hundred times the number of nonconformities contained therein (one or more nonconformities being possible in any unit of product) divided by the total number of units of product, i.e.:

$$\text{Nonconformities per hundred units} = \frac{\text{Number of nonconformities}}{\text{Number of units inspected}} \times 100$$

It is assumed that nonconformities occur randomly and with statistical independence within and between units.

4. ACCEPTABLE QUALITY LEVEL (AQL)

4.1 USE. The AQL together with the Sample Size Code Letter, is used for indexing the sampling plans provided herein.

4.2 DEFINITION. The AQL is the maximum percent nonconforming (or the maximum number of nonconformities per hundred units) that, for purposes of sampling inspection, can be considered satisfactory as a process average (see 11.2).

4.3 NOTE ON THE MEANING OF AQL. When a consumer designates some specific value of AQL for a certain nonconformity or group of nonconformities, it indicates to the supplier that the consumer's acceptance sampling plan will accept the great majority of the lots or batches that the supplier submits, provided the process average level of percent nonconforming (or nonconformities per hundred units) in these lots or batches be no greater than the designated value of AQL. Thus, the AQL is a designated value of percent nonconforming (or nonconformities per hundred units) that the consumer indicates will be accepted most of the time by the acceptance sampling procedure to be used. The sampling plans provided herein are so arranged that the probability of acceptance at the designated AQL value depends upon the sample size, being generally higher for large samples than for small ones, for a given AQL.

Note that AQL is a parameter of the sampling scheme and should not be confused with process average which describes the operating level of the manufacturing process. It is expected that the process average will be less than or equal to the AQL to avoid excessive rejections under this system.

It is necessary to refer to the operating characteristic curves of the scheme and its constituent plans, to determine what protection the consumer will have.

The AQL alone does not describe the protection to the consumer for individual lots or batches, but more directly relates to what might be expected from a series of lots or batches, provided the steps indicated in this publication are taken.

4.4 LIMITATION. The designation of an AQL shall not imply that the supplier has the right to knowingly supply any nonconforming unit of product.

4.5 SPECIFYING AQLs. The AQL to be used will be designated in the contract or by the responsible authority. Different AQLs may be designated for groups of nonconformities considered collectively, or for individual nonconformities. For example, Group A may include nonconformities of a type felt to be of the highest concern for the product or service and therefore be assigned a small AQL value; Group B may include nonconformities of the next highest degree of concern and therefore be assigned a larger AQL value than for Group A and smaller than that of Group C, etc. The classification into groups should be appropriate to the quality requirements of the specific situation. An AQL for a group of nonconformities may be designated in addition to AQLs for individual nonconformities.

or subgroups, within that group. AQL values of 10.0 or less may be expressed either in percent nonconforming or in nonconformities per hundred units; those over 10.0 shall be expressed in nonconformities per hundred units only.

4.6 PREFERRED AQLs. The values of AQLs given in these tables are known as preferred AQLs. If, for any product, an AQL be designated other than a preferred AQL, these tables are not applicable.

5. SUBMISSION OF PRODUCT

5.1 LOT OR BATCH. The term lot or batch shall mean "inspection lot" or "inspection batch," i.e., a collection of units of product from which a sample is to be drawn and inspected to determine conformance with the acceptability criteria, and may differ from a collection of units designated as a lot or batch for other purposes (e.g., production, shipment, etc).

5.2 FORMATION OF LOTS OR BATCHES. The product shall be assembled into identifiable lots, sublots, batches, or in such other manner as may be prescribed (see 5.4). Each lot or batch shall, as far as is practicable, consist of units of product of a single type, grade, class, size, and composition, manufactured under essentially the same conditions, and at essentially the same time.

5.3 LOT OR BATCH SIZE. The lot or batch size is the number of units of product in a lot or batch.

5.4 PRESENTATION OF LOTS OR BATCHES. The formation of the lots or batches, lot or batch size, and the manner in which each lot or batch is to be presented and identified by the supplier shall be designated or approved by the responsible authority. As necessary, the supplier shall provide adequate and suitable storage space for each lot or batch, equipment needed for proper identification and presentation, and personnel for all handling of product required for drawing of samples.

6. ACCEPTANCE AND NON-ACCEPTANCE

6.1 ACCEPTABILITY OF LOTS OR BATCHES. Acceptability of a lot or batch will be determined by the use of a sampling plan or plans associated with the designated AQL or AQLs.

In the use of this standard a statement that a lot is acceptable means simply that sample results satisfy the standard's acceptance criteria. The acceptance of a lot is not intended to provide information about lot quality. If a stream of lots

from a given process is inspected under an acceptance sampling scheme such as provided in this standard, some lots will be accepted and others will not. If all incoming lots are assumed to be at the same process average and if the nonconforming items that are discovered and replaced by conforming items during sample inspection are ignored, it will be found that both the set of accepted lots and the set of non-accepted lots will have the same long run average quality as the original set of lots submitted for inspection. Inspection of incoming lots whose quality levels vary around a fixed long run average quality level will divide the lots into a set of accepted lots and a set of non-accepted lots, but it will be found that the long run average quality of the accepted lots is only slightly better than the long run average quality of the non-accepted lots. Replacement of the nonconforming items that are discovered during sample inspection does not alter this finding because the samples are a small fraction of the lots.

The purpose of this standard is, through the economic and psychological pressure of lot non-acceptance, to induce a supplier to maintain a process average at least as good as the specified AQL while at the same time providing an upper limit on the consideration of the consumer's risk of accepting occasional poor lots. The standard is not intended as a procedure for estimating lot quality or for segregating lots.

In acceptance sampling, when sample data do not meet the acceptance criteria, it is often stated that the lot is to be "rejected". In this connection, the words "to reject" generally are used. Rejection in an acceptance sampling sense means to decide that a batch, lot or quantity of product, material or service has not been shown to satisfy the acceptance criteria based on the information obtained from the sample(s).

In acceptance sampling, the words "to reject" generally are used to mean "to not accept" without direct implication of product usability. Lots which are "rejected" may be scrapped, sorted (with or without nonconforming units being replaced), reworked, re-evaluated against more specific usability criteria, held for additional information, etc. Since the common language usage of "reject" often results in an inference of unsafe or unusable product, it is recommended that "not accept" be understood rather than "reject" in the use of this standard.

The word "non-acceptance" is used here for "rejection" when it refers to the result of following the procedure. Forms of the word "reject" are retained when they refer to actions the customer may take, as in "rejection number".

6.2 NONCONFORMING UNITS. The right is reserved to reject any unit of product found nonconforming during inspection whether that unit of product forms a part of a sample or not, and whether the lot or batch as a whole is accepted or rejected. Rejected units may be repaired or corrected and resubmitted for inspection with the approval of, *and in the manner specified by, the responsible authority.*

6.3 SPECIAL RESERVATION FOR DESIGNATED NONCONFORMITIES. Since most acceptance sampling involves evaluation of more than one quality characteristic, and since these may differ in importance in terms of quality and/or economic effects, it is often desirable to classify the types of nonconformity according to agreed upon groupings. Specific assignment of types of nonconformities to each class is a function of agreement on specific sampling applications. In general, the function of such classification is to permit the use of a set of sampling plans having a common sample size, but different acceptance numbers for each class having a different AQL, such as in Tables II, III, and IV.

The supplier may be required at the discretion of the responsible authority to inspect every unit of the lot or batch *for designated classes of nonconformities.* The right is reserved to inspect every unit submitted by the supplier for specified nonconformities, and to reject the lot or batch immediately, when a nonconformity of this class is found. The right is reserved also to sample, for specified classes of nonconformities, lots or batches submitted by the supplier and to reject any lot or batch if a sample drawn therefrom is found to contain one or more of these nonconformities.

6.4 RESUBMITTED LOTS OR BATCHES. Lots or batches found unacceptable shall be resubmitted for reinspection only after all units are re-examined or re-tested and all nonconforming units are removed or nonconformities corrected. The responsible authority shall determine whether normal or tightened inspection shall be used on reinspection and whether reinspection shall include all types or classes of nonconformities or only the particular types or classes of nonconformities which caused initial rejection.

7. DRAWING OF SAMPLES

7.1 SAMPLE. A sample consists of one or more units of product drawn from a lot or batch, the units of the sample being selected at random without regard to their quality. The number of units of product in the sample is the sample size.

7.2 SAMPLING. When appropriate, the number of units in the sample shall be selected in proportion to the size of sublots or subbatches, or parts of the lot or batch, identified by some rational criterion. In so doing, the units from each part of the lot or batch shall be selected at random, as defined in ANSI/ASQC Standard A2-1987.

7.3 TIME OF SAMPLING. Samples may be drawn after all the units comprising the lot or batch have been produced, or samples may be drawn during production of the lot or batch.

7.4 DOUBLE OR MULTIPLE SAMPLING. When double or multiple sampling is to be used, each sample shall be selected over the entire lot or batch.

8. NORMAL, TIGHTENED AND REDUCED INSPECTION

8.1 INITIATION OF INSPECTION. Normal inspection will be used at the start of inspection unless otherwise directed by the responsible authority.

8.2 CONTINUATION OF INSPECTION. Normal, tightened or reduced inspection shall continue unchanged on successive lots or batches except where the switching procedures given below require change.

8.3 SWITCHING PROCEDURES.

8.3.1 NORMAL TO TIGHTENED. When normal inspection is in effect, tightened inspection shall be instituted when 2 out of 5 consecutive lots or batches have been non-acceptable on original inspection (i.e., ignoring resubmitted lots or batches for this procedure).

8.3.2 TIGHTENED TO NORMAL. When tightened inspection is in effect, normal inspection shall be instituted when 5 consecutive lots or batches have been considered acceptable on original inspection.

8.3.3 NORMAL TO REDUCED. When normal inspection is in effect, reduced inspection shall be instituted providing that all of the following conditions are satisfied:

- a. The preceding 10 lots or batches (or more, as indicated by the note to Table VIII) have been on normal inspection and all have been accepted on original inspection; and

- b. The total number of nonconforming units (or nonconformities) in the samples from the preceding 10 lots or batches (or such other number as was used for condition "a" above) is equal to or less than the applicable number given in Table VIII. If double or multiple sampling is in use, all samples inspected should be included, not "first" samples only; and
- c. Production is at a steady rate; and
- d. Reduced inspection is considered desirable by the responsible authority.

8.3.4 REDUCED TO NORMAL. When reduced inspection is in effect, normal inspection shall be instituted if any of the following occur on original inspection:

- a. A lot or batch is rejected; or
- b. A lot or batch is considered acceptable under the procedures for reduced inspection given in 10.1.4; or
- c. Production becomes irregular or delayed; or
- d. Other conditions warrant that normal inspection shall be instituted.

8.4 DISCONTINUATION OF INSPECTION. In the event that 10 consecutive lots or batches remain on tightened inspection (or such other number as may be designated by the responsible authority), inspection under the provisions of this document should be discontinued pending action to improve the quality of submitted material.

8.5 LIMIT NUMBERS FOR REDUCED INSPECTION. When agreed upon by responsible authority for both parties to the inspection, that is, the supplier and the end item customer, the requirements of 8.3.3b may be dropped. This action will have little effect on the operating properties of the scheme.

8.6 SWITCHING SEQUENCE. A schematic diagram describing the sequence of application of the switching rules is shown in Figure 1.

9. SAMPLING PLANS

9.1 SAMPLING PLAN. A sampling plan indicates the number of units of product from each lot or batch which are to be inspected (sample size or series of sample sizes) and the criteria for determining the acceptability of the lot or batch (acceptance and rejection numbers).

9.2 INSPECTION LEVEL. The inspection level determines the relationship between the lot or batch size and the sample size. The inspection level to be used for any particular requirement will be prescribed by the responsible authority. Three inspection levels: I, II and III are given in Table I for general use. Unless otherwise specified, Inspection Level II will be used. However, Inspection Level I may be specified when less discrimination is needed, or Level III may be specified for greater discrimination. Four additional special levels: S-1, S-2, S-3, and S-4, are given in the same table and may be used where relatively small sample sizes are necessary and large sampling risks can or must be tolerated.

NOTE: In the designation of inspection levels S-1 to S-4, care must be exercised to avoid AQLs inconsistent with these inspection levels.

9.3 CODE LETTERS. Sample sizes are designated by code letters. Table I shall be used to find the applicable code letter for the particular lot or batch size and the prescribed inspection level.

9.4 OBTAINING SAMPLING PLAN. The AQL and the code letter shall be used to obtain the sampling plan from Tables II, III, or IV. When no sampling plan is available for a given combination of AQL and code letter, the tables direct the user to a different letter. The sample size to be used is given by the new code letter not by the original letter. If this procedure leads to different sample sizes for different classes of nonconformities, the code letter corresponding to the largest sample size derived may be used for all classes of nonconformities when designated or approved by the responsible authority. As an alternative to a single sampling plan with an acceptance number of 0, the plan with an acceptance number of 1 with its correspondingly larger sample size for a designated AQL (where available), may be used when designated or approved by the responsible authority.

9.5 TYPES OF SAMPLING PLANS. Three types of sampling plans: Single, Double and Multiple, are given in Tables II, III and IV, respectively. When several types of plans are available for a given AQL and code letter, any one may be used. A decision as to type of plan, either single, double, or multiple, when available for a given AQL and code letter, will usually be based upon the comparison between the administrative difficulty and the average sample sizes of the available plans. The average sample size of multiple plans is less than for double (except in the case corresponding to single acceptance number 1) and both of these are always less than a single sample size (see Table IX). Usually the administrative difficulty for single sam-

pling and the cost per unit of the sample are less than for double or multiple.

10. DETERMINATION OF ACCEPTABILITY

10.1 PERCENT NONCONFORMING INSPECTION.

To determine acceptability of a lot or batch under percent nonconforming inspection, the applicable sampling plan shall be used in accordance with 10.1.1, 10.1.2, 10.1.3 and 10.1.4.

10.1.1 SINGLE SAMPLING PLAN. The number of sample units inspected shall be equal to the sample size given by the plan. If the number of nonconforming units found in the sample is equal to or less than the acceptance number, the lot or batch shall be considered acceptable. If the number of nonconforming units is equal to or greater than the rejection number, the lot or batch shall be considered not acceptable.

10.1.2 DOUBLE SAMPLING PLAN. The number of sample units first inspected shall be equal to the first sample size given by the plan. If the number of nonconforming units found in the first sample is equal to or less than the first acceptance number, the lot or batch shall be considered acceptable. If the number of nonconforming units found in the first sample is equal to or greater than the first rejection number, the lot or batch shall be considered not acceptable. If the number of nonconforming units found in the first sample is between the first acceptance and rejection numbers, a second sample of the size given by the plan shall be inspected. The number of nonconforming units found in the first and second samples shall be accumulated. If the cumulative number of nonconforming units is equal to or less than the second acceptance number, the lot or batch shall be considered acceptable. If the cumulative number of nonconforming units is equal to or greater than the second rejection number, the lot or batch shall be considered not acceptable.

10.1.3 MULTIPLE SAMPLE PLAN. Under multiple sampling, the procedure shall be similar to that specified in 10.1.2, except that the number of successive samples required to reach a decision might be more than two.

10.1.4 SPECIAL PROCEDURE FOR REDUCED INSPECTION. Under reduced inspection, the sampling procedure may terminate without making a decision. In these circumstances, the lot or batch will be considered acceptable, but normal inspection will be reinstated starting with the next lot or batch (see 8.3.4(b)).

10.2 NONCONFORMITIES PER HUNDRED UNITS INSPECTION. To determine the acceptability of a lot or batch under Nonconformities per Hundred Units inspection, the procedure specified for Percent Nonconforming inspection above shall be used, except that the word "nonconformities" shall be substituted for "nonconforming units".

11. SUPPLEMENTARY INFORMATION

11.1 OPERATING CHARACTERISTIC CURVES.

Operating characteristic curves and other measures of performance presented in this standard are of two types. Those for the individual plans that represent the elements of the schemes are presented in Tables V, VI, VII, IX, and X. Analogous curves and other measures of overall scheme performance when the switching rules are used are given in Tables XI, XII, XIII, XIV, and XV. Scheme performance is defined as the composite proportion of lots accepted at a stated percent nonconforming when the switching rules are applied. The term scheme performance is used here in a very restrictive sense. It refers to how the ANSI Z1.4 scheme of switching rules would operate at a given process level under the assumption that the process stays at that level even after switching to tightened inspection or discontinuation of inspection. This gives a conservative "worst case" description of the performance of the scheme for use as a base-line in the sense that if the psychological and economic pressures associated with the switching rules are considered, the protection of the scheme may be somewhat better than that shown.

Operating characteristic curves are given in Table X for individual sampling plans for normal and tightened inspection. The operating characteristic curve for unqualified acceptance under reduced inspection can be found by using the AQL index of the normal plan with the sample size(s) and acceptance number(s) of the reduced plan. The curves shown are for single sampling; curves for double and multiple sampling are matched as closely as practicable. The O.C. curves shown for AQLs greater than 10.0 are based on the Poisson distribution and apply for nonconformities per hundred units inspection; those for AQLs of 10.0 or less and sample sizes of 80 or less are based on the binomial distribution and apply for percent nonconforming inspection; those for AQLs of 10.0 or less and sample sizes larger than 80 are based on the Poisson distribution and apply either for nonconformities per hundred units inspection, or for percent nonconforming inspection (the Poisson distribution being an adequate approximation to the binomial distribution under these conditions). Tabulated values corresponding to selected values of probabilities of acceptance

(P_a in percent) are given for each of the curves shown, and, in addition, are indexed for tightened inspection, and also show values for nonconformities per hundred units for AQLs of 10.0 or less and sample sizes of 80 or less.

The operating characteristic curves for scheme performance shown in Table XV indicate the percentage of lots or batches which may be expected to be accepted under use of the switching rules with the various sampling plans for a given process quality subject to the restrictions stated above. The operating characteristic curves of scheme performance are based on the use of limit numbers in switching to reduced inspection and are approximately correct when the limit numbers for reduced inspection are not used under Option 8.5. The curves also assume a return to tightened inspection when inspection is resumed after discontinuation has been imposed. This is also true of average outgoing quality limit and average sample size for ANSI Z1.4 scheme performance.

Note that the operating characteristic curve for scheme performance is approximately that of the normal plan for low levels of percent nonconforming and that of the tightened plan for high levels of percent nonconforming. Use of the reduced plan increases scheme probability of acceptance only for extremely low levels of percent nonconforming.

11.2 PROCESS AVERAGE. The process average is the average percent nonconforming or average number of nonconformities per hundred units (whichever is applicable) of product submitted by the supplier for original inspection. Original inspection is the first inspection of a particular quantity of product as distinguished from the inspection of product which has been resubmitted after prior rejection. When double or multiple sampling is used, only first sample results shall be included in the process average calculation.

11.3 AVERAGE OUTGOING QUALITY (AOQ). The AOQ is the average quality of outgoing product including all accepted lots or batches, plus all lots or batches which are not accepted after such lots or batches have been effectively 100 percent inspected and all nonconforming units replaced by conforming units.

11.4 AVERAGE OUTGOING QUALITY LIMIT (AOQL). The AOQL is the maximum of the AOQs for all possible incoming qualities for a given acceptance sampling plan. AOQL values are given in Table V-A for each of the single sampling plans for normal inspection and in Table V-B for each of the single sampling plans for tightened inspection. AOQL values for ANSI Z1.4 scheme performance are given in Table XI subject to the restrictions of 11.1. They show the average outgoing quality limits for

scheme performance when using single sampling. AOQL will be slightly higher when the limit numbers for reduced inspection are not used under Option 8.5.

11.5 AVERAGE SAMPLE SIZE CURVES. Average sample size curves for double and multiple sampling as compared to the single sampling plan for each acceptance number are in Table IX. These show the average sample sizes which may be expected to occur under the various sampling plans for a given process quality level. The curves assume no curtailment of inspection and are approximate to the extent that they are based upon the Poisson distribution, and that the sample sizes at each stage for double and multiple sampling are assumed to be $0.631n$ and $0.25n$ respectively, where n is the equivalent single sample size. Average sample size tables for ANSI Z1.4 scheme performance are given in Table XIV. They show the average sample size for scheme performance when using single sampling.

11.6 LIMITING QUALITY PROTECTION.

11.6.1 USE OF INDIVIDUAL PLANS. This standard is intended to be used as a system employing tightened, normal, and reduced inspection on a continuing series of lots to achieve consumer protection while assuring the producer that acceptance will occur most of the time if quality is better than the AQL.

11.6.2 IMPORTANCE OF SWITCHING RULES. Occasionally specific individual plans are selected from the standard and used without the switching rules. This is not the intended application of the ANSI Z1.4 system and its use in this way should not be referred to as inspection under ANSI Z1.4. When employed in this way, this document simply represents a repository for a collection of individual plans indexed by AQL. The operating characteristics and other measures of a plan so chosen must be assessed individually for that plan from the tables provided.

11.6.3 LIMITING QUALITY TABLES. If the lot or batch is of an isolated nature, it is desirable to limit the selection of sampling plans to those, associated with a designated AQL value, that provide not less than a specified limiting quality protection. Sampling plans for this purpose can be selected by choosing a Limiting Quality (LQ) and a consumer's risk to be associated with it. Limiting Quality is the percentage of nonconforming units (or nonconformities) in a batch or lot for which for purposes of acceptance sampling, the consumer wishes the probability of acceptance to be restricted to a specified low value.

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Tables VI and VII give process levels for which the probabilities of lot acceptance under various sampling plans are 10 percent and 5 percent respectively. If a different value of consumer's risk is required, the O.C. curves and their tabulated values may be used. For individual lots with percents *nonconforming or nonconformities per 100 units equal to* the specified Limiting Quality (LQ) values, the probabilities of lot acceptance are less than 10 percent in the case of plans listed in Table VI and less than 5 percent in the case of plans listed in Table VII. When there is reason for avoiding more than a limiting percentage of nonconforming units (or nonconformities) in a lot or batch, Tables VI and VII may be useful for fixing minimum sample sizes to be associated with the AQL and Inspection Level specified for the inspection of a series of lots or batches. For example, if an LQ of 5 percent is desired for individual lots with an associated P_a of 10 percent or less, then if an AQL of 1.5 percent is

designated for inspection of a series of lots or batches, Table VI indicates that the minimum sample size must be that given by Code Letter M.

Where there is interest in a limiting *process level*, Tables XII and XIII, which give LQ values and ANSI Z1.4 scheme performance, may be used in a similar way to fix minimum sample sizes.

In the case of an isolated lot, it is preferable for the customer to adapt a sampling plan with a small consumer's risk. The ideal method of calculating the sample size and risk is by use of the hypergeometric probability function. ANSI/ASQC Q3 contains sampling plans that have been calculated on this basis and therefore provide a more accurate set of tables for these situations.

Switching Rules for ANSI Z1.4 System

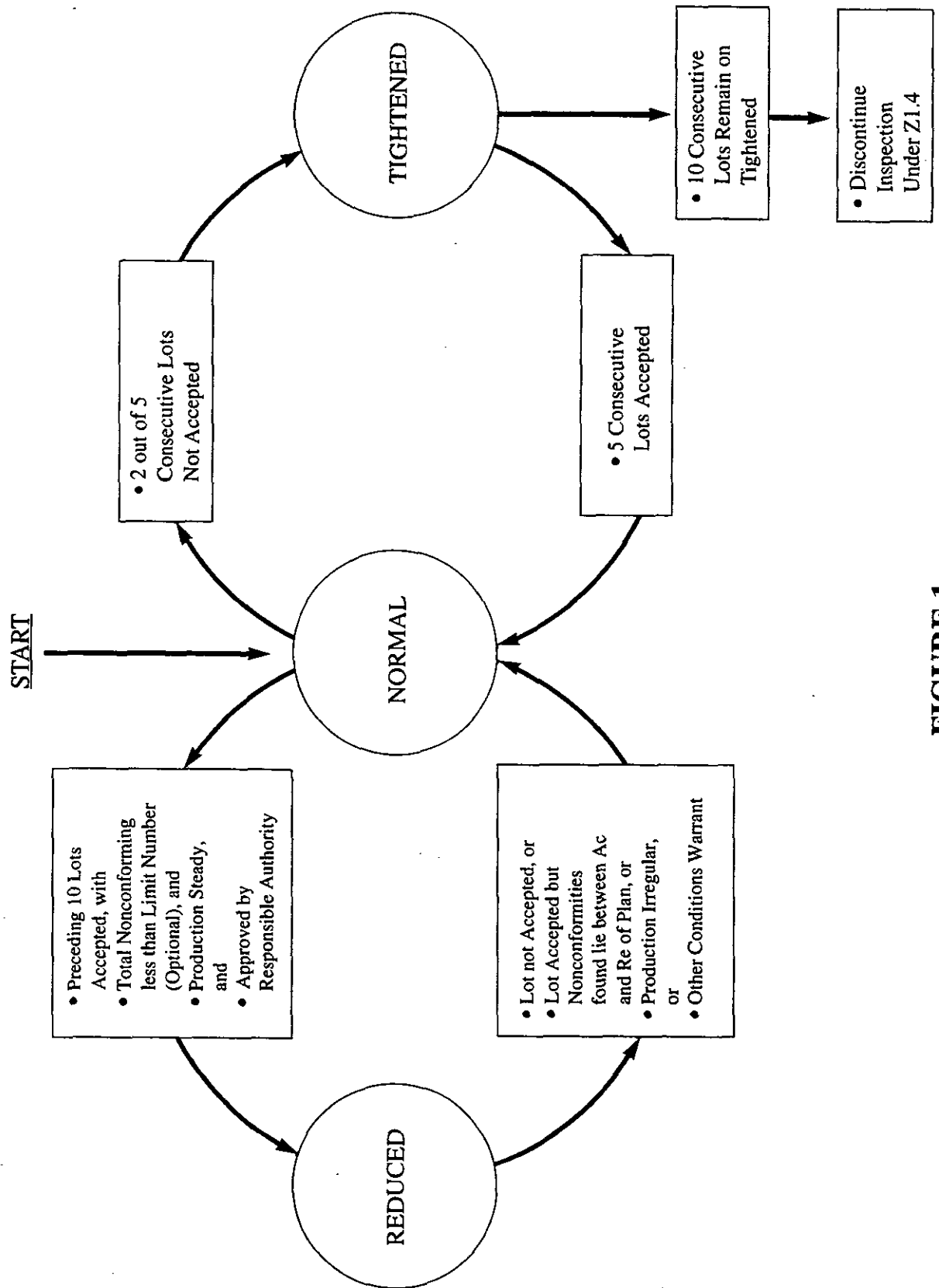


FIGURE 1

**SWITCHING
RULES**

TABLE I—Sample size code letters

(See 9.2 and 9.3)

Lot or batch size	Special inspection levels				General inspection levels		
	S-1	S-2	S-3	S-4	I	II	III
2 to 8	A	A	A	A	A	A	B
9 to 15	A	A	A	A	A	B	C
16 to 25	A	A	B	B	B	C	D
26 to 50	A	B	B	C	C	D	E
51 to 90	B	B	C	C	C	E	F
91 to 150	B	B	C	D	D	F	G
151 to 280	B	C	D	E	E	G	H
281 to 500	B	C	D	E	F	H	J
501 to 1200	C	C	E	F	G	J	K
1201 to 3200	C	D	E	G	H	K	L
3201 to 10000	C	D	F	G	J	L	M
10001 to 35000	C	D	F	H	K	M	N
35001 to 150000	D	E	G	J	L	N	P
150001 to 500000	D	E	G	J	M	P	Q
500001 and over	D	E	H	K	N	Q	R

Table II-A—Single sampling plans for normal inspection (Master table)

(See 9.4 and 9.5)

Sample size code letter		Sample size	Acceptable Quality Levels (normal inspection)																									
			0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	40	65	100	150	250	400	650	1000										
A B C	2	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
	3	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
	5	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
D E F	8	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
	13	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
	20	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
G H J	32	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
	50	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
	80	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
K L M	125	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
	200	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
	315	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
N P Q	500	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
	800	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
	1250	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
R	2000	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	

↓ = Use first sampling plan below arrow.
 ↑ = Use first sampling plan above arrow.
 Ac = Acceptance number.
 Re = Rejection number.

SINGLE
NORMAL
PLANS

Table II-B—Single sampling plans for tightened inspection (Master table)

▼ = Use first sampling plan below arrow. If sample size equals or exceeds lot or batch size, do 100 percent inspection.
 ▲ = Use first sampling plan above arrow.
 Ac = Acceptance number.
 Re = Rejection number.

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Table II-C—Single sampling plans for reduced inspection (Master table)

(See 9.4 and 9.5)

Sample size code letter		Sample size	Acceptable Quality Levels (reduced inspection) [†]																					
			0.010	0.015	0.025	0.040	0.065	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000	
A	2	2 2 2	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
B	2		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
C	2		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
D	3	3 5 8	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
E	5		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
F	8		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
G	13	13 20 32	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
H	20		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
J	32		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
K	50	50 80 125	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
L	80		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
M	125		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
N	200	200 315 500	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
P	315		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
Q	500		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
R	800		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re

↓ = Use first sampling plan below arrow. If sample size equals or exceeds lot or batch size, do 100 percent inspection.

↑ = Use first sampling plan above arrow.

Ac = Acceptance number.

Re = Rejection number.

† = If the acceptance number has been exceeded, but the rejection number has not been reached, accept the lot, but reinstate normal inspection (see 10.1.4).

SINGLE
REDUCED
PLANS

DOUBLE NORMAL PLANS

Table III-A—Double sampling plans for normal inspection (Master table)

(See 9.4 and 9.5)

Acceptable Quality Levels (normal inspection)																												
Sample size code letter	Sample size	Cumulative sample size	0.010	0.015	0.025	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000					
			Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re					
A																												
B	First Second	2 4																										
C	First Second	3 6																										
D	First Second	5 10																										
E	First Second	8 16																										
F	First Second	13 26																										
G	First Second	20 40																										
H	First Second	32 64																										
J	First Second	50 100																										
K	First Second	80 160																										
L	First Second	125 250																										
M	First Second	200 400																										
N	First Second	315 630																										
P	First Second	500 1000																										
Q	First Second	800 1600																										
R	First Second	1250 2500																										

- ▼ = Use first sampling plan below arrow. If sample size equals or exceeds lot or batch size, do 100 percent inspection.
- ▲ = Use first sampling plan above arrow.
- Ac = Acceptance number.
- Re = Rejection number.
- * = Use corresponding single sampling plan (or alternatively, use double sampling plan below, where available).

Table III-C—Double sampling plans for reduced inspection (Master table)

[illegible]

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(See 9.4 and 9.5)

AC = Acceptance number.
Re = Rejection number.
= Acceptance not permitted at this sample size.

▼ = Use first sampling plan below arrow (refer to continuation of table on following page, when necessary.) If sample size equals or exceeds lot or batch size, do 100 percent inspection.

▲ = Use first sampling plan above arrow, when necessary, if sample size equals

*** = Use corresponding single sampling plan (or alternatively, use double sampling plan below, where available).

+++ = Use corresponding double sampling plan (or alternatively, use multiple sampling plan below, where available).

MULTIPLE NORMAL PLANS

Table IV-A—Multiple sampling plans for normal inspection (Master table)
(Continued)

(Continued)

P
School - Sec 000

Re = Rejection number.

Table IV-B—Multiple sampling plans for tightened inspection (Master table)
(Continued)

(Continued)

▲ = Use first sampling plan below arrow. If sample size equals or exceeds lot or batch size, do 100 percent inspection.
 ▼ = Use first sampling plan above arrow (refer to preceding page, when necessary).
 # = Acceptance not permitted at this sample size.
 Ac = Acceptance number.
 Re = Rejection number.
 * = Use corresponding size where available).

**MULTIPLE
REDUCED
PLANS**

Table IV-C—Multiple sampling plans for reduced inspection (Master table)
(Continued)

(See 9.4 and 9.5)

Sample size code letter	Sample size	Cumulative sample size	Acceptable Quality Levels (reduced inspection) [†]																											
			0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000		
			Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	
L	First	20	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Second	20	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Third	40	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fourth	60	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fifth	80	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Sixth	100	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Seventh	120	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
M	First	32	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Second	32	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Third	64	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fourth	96	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fifth	128	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Sixth	160	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Seventh	192	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
N	First	50	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Second	50	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Third	100	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fourth	150	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fifth	200	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Sixth	250	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Seventh	300	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
P	First	80	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Second	80	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Third	160	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fourth	240	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fifth	320	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Sixth	400	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Seventh	480	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
Q	First	125	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Second	125	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Third	250	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fourth	375	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fifth	500	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Sixth	625	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Seventh	750	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
R	First	200	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Second	200	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Third	400	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fourth	600	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Fifth	800	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Sixth	1000	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		
	Seventh	1200	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		

→ = Use first sampling plan below arrow. If sample size equals, or exceeds, lot or batch size, do 100 percent inspection.

→ = Use first sampling plan above arrow (refer to preceding page when necessary).

Ac = Acceptance number.

Re = Rejection number.

= Acceptance not permitted at this sample size

† = If, after the final sample, the acceptance number has been exceeded, but the rejection number has not been reached, accept the lot, but reinstate normal inspection (see 10.1.4).

Table V-A—Factors for Determining Approximate Values for Average Outgoing
Quality Limits for Normal Inspection (Single Sampling)

(See 11.4)

		Acceptable Quality Level																				
Code Letter	Sample size	0.010	0.015	0.025	0.040	0.065	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000
A	2										18				42	69	97	160	220	330	470	730
B	3								7.4			17	28	46	63	110	150	220	310	490	720	1100
C	5												27	39	63	90	130	190	290	430	660	
D	8							4.6			11	17	24	40	56	82	120	180	270	410		
E	13						2.8				6.5	11	24	34	50	72	110	170	250			
F	20					1.8			4.2		9.7	16	22	33	47	73						
G	32							2.6	4.3	6.1	9.9	14	21	29	46							
H	50							2.7	3.9	6.3	9.0	13	19	29								
J	80			0.46		1.1	1.7	2.4	4.0	5.6	8.2	12	18									
K	125																					
L	200																					
M	315																					
N	500																					
P	800																					
Q	1250																					
R	2000																					

Note: For a more accurate AOQL, the above values must be multiplied by $\left(1 - \frac{\text{Sample size}}{\text{Lot or Batch size}}\right)$ (See 11.4)

Table V-B—Factors for Determining Approximate Values for Average Outgoing
Quality Limits for Tightened Inspection (Single Sampling)

(See 11.4)

		Acceptable Quality Level																				
Code Letter	Sample size	0.010	0.015	0.025	0.040	0.065	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000
A	2										12				42	69	97	160	260	400	620	970
B	3													28	46	65	110	170	270	410	650	1100
C	5									7.4			17	27	39	63	100	160	250	390	610	
D	8								4.6			11	17	24	40	64	99	160	240	380		
E	13							2.8			6.5	11	15	24	40	61	95	150	240			
F	20						1.8			4.2	6.9	9.7	16	26	40	62						
G	32								2.6	4.3	6.1	9.9	16	25	39							
H	50				0.74			1.7	2.7	3.9	6.3	10	16	25								
J	80			0.46			1.1	1.7	2.4	4.0	6.4	9.9	16									
K	125																					
L	200																					
M	315																					
N	500																					
P	800																					
Q	1250																					
R	2000																					
S	3150																					

Note: For a more accurate AOQL, the above values must be multiplied by $\left(1 - \frac{\text{Sample size}}{\text{Lot or Batch size}}\right)$ (See 11.4)

Table VI-A—Limiting Quality (in percent nonconforming) for Which $P_a = 10$ Percent
(for Normal Inspection, Single Sampling)

(See 11.6)

Code letter	Sample size	Acceptable Quality Level												
		0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5
A B C	2													
	3													
	5													
D E F	8													
	13													
	20													
G H J	32													
	50													
	80													
K L M	125													
	200													
	315													
N P Q	500													
	800													
	1250													
R	2000													

*Table VI-B—Limiting Quality (in nonconformities per hundred units) for Which $P_a = 10$ Percent
(for Normal Inspection, Single Sampling)*

(See 11.6)

		Acceptable Quality Level																								
		0.010	0.015	0.025	0.040	0.065	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000				
Code letter	Sample size																									
	2																									
	3																									
A	5																									
	8																									
	13																									
D	20																									
	32																									
	50																									
G	80																									
	125																									
	200																									
K	315																									
	500																									
	800																									
N	1250																									
	2000																									

Table VII-A—Limiting Quality (in percent nonconforming) for Which $P_a = 5$ Percent
(for Normal Inspection, Single Sampling)

(See 11.6)

		Acceptable Quality Level															
		0.010	0.015	0.025	0.040	0.065	1.0	1.5	2.5	4.0	6.5	10					
A B C	2	0.38	0.60	0.95	1.5	2.4	3.7	5.8	8.9	14	21	31	45	63	78	66	
	3																
	5																
D E F	8	0.24	0.38	0.62	0.97	1.3	1.6	2.1	2.5	3.3	4.2	5.4	6.1	9.6	15	24	
	13																
	20																
G H J	32	0.24	0.38	0.62	0.97	1.3	1.6	2.1	2.5	3.3	4.2	5.4	6.1	9.6	15	24	
	50																
	80																
K L M	125	0.24	0.38	0.62	0.97	1.3	1.6	2.1	2.5	3.3	4.2	5.4	6.1	9.6	15	24	
	200																
	315																
N P Q	500	0.24	0.38	0.62	0.97	1.3	1.6	2.1	2.5	3.3	4.2	5.4	6.1	9.6	15	24	
	800																
	1250																
R	2000	0.24	0.38	0.62	0.97	1.3	1.6	2.1	2.5	3.3	4.2	5.4	6.1	9.6	15	24	

Table VII-B—Limiting Quality (in nonconformities per hundred units) for Which $P_a = 5$ Percent
(for Normal Inspection, Single Sampling)

(See 11.6)

Code letter	Sample size	Acceptable Quality Level															
		0.010	0.015	0.025	0.040	0.065	1.0	1.5	2.5	4.0	6.5	100	150	250	400	650	1000
A	2																
B	3																
C	5																
D	8																
E	13																
F	20																
G	32																
H	50																
J	80																
K	125																
L	200																
M	315																
N	500																
P	800																
Q	1250																
R	2000																

Table VIII—Limit Numbers for Reduced Inspection

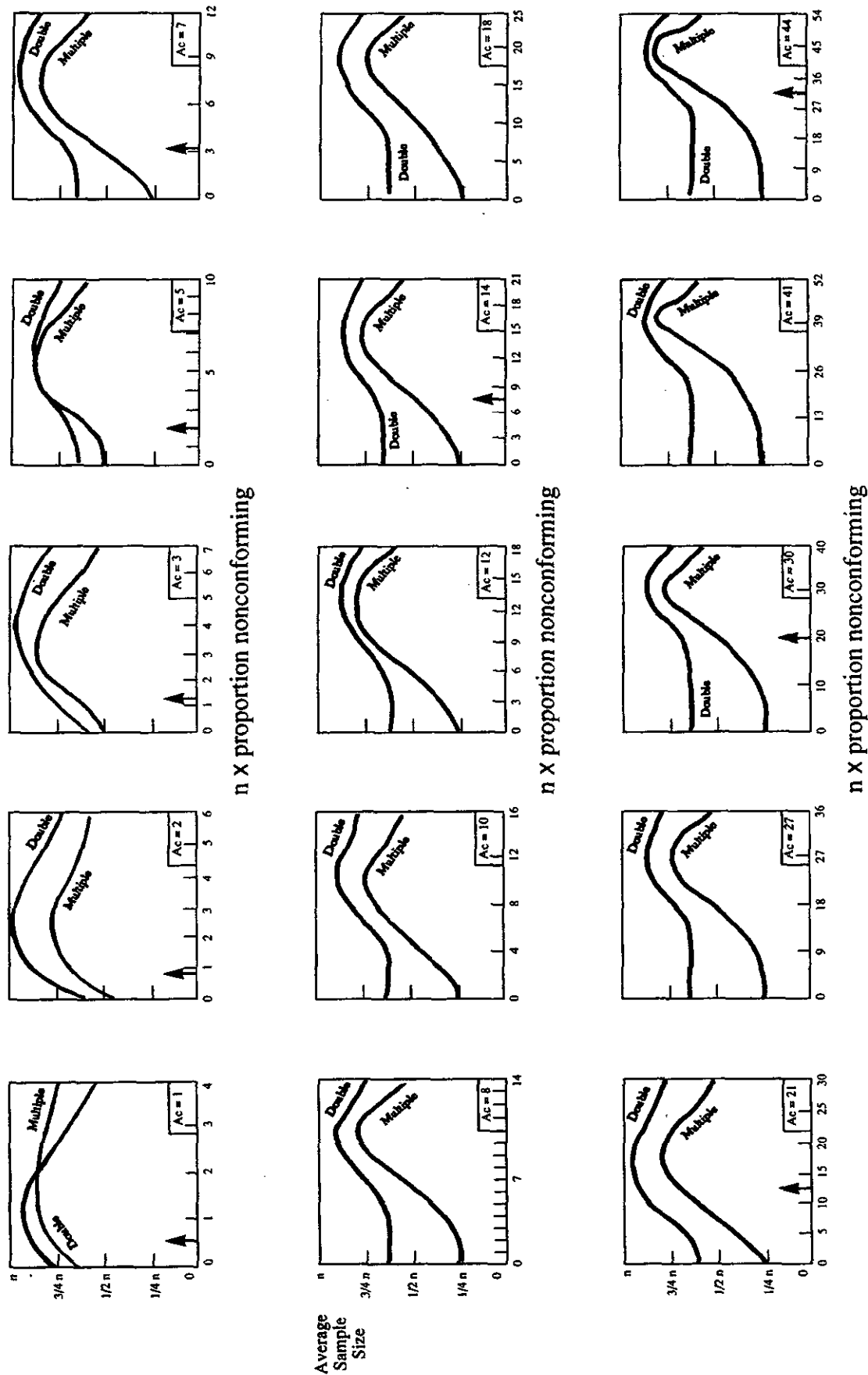
(See 4.7.3)

Number of sample units from last 10 lots or batches	Acceptable Quality Level																		
	0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	15	25	40
20-29	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
30-49	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
50-79	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
80-129	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
130-199	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
200-319	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
320-499	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
500-799	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
800-1249	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1250-1999	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2000-3149	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3150-4999	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
5000-7999	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8000-12499	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12500-19999	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20000-31499	0	0	2	4	8	14	24	40	68	115	181								
31500 & Over	0	1	4	8	14	24	38	67	111	186									

* = Denotes that the number of sample units from the last ten lots or batches is not sufficient for reduced inspection for this AQL. Is this instance more than ten lots or batches may be used for the calculation, provided that the lots or batches used are the most recent ones in sequence, that they have all been on normal inspection, and that none has been rejected while on original inspection.

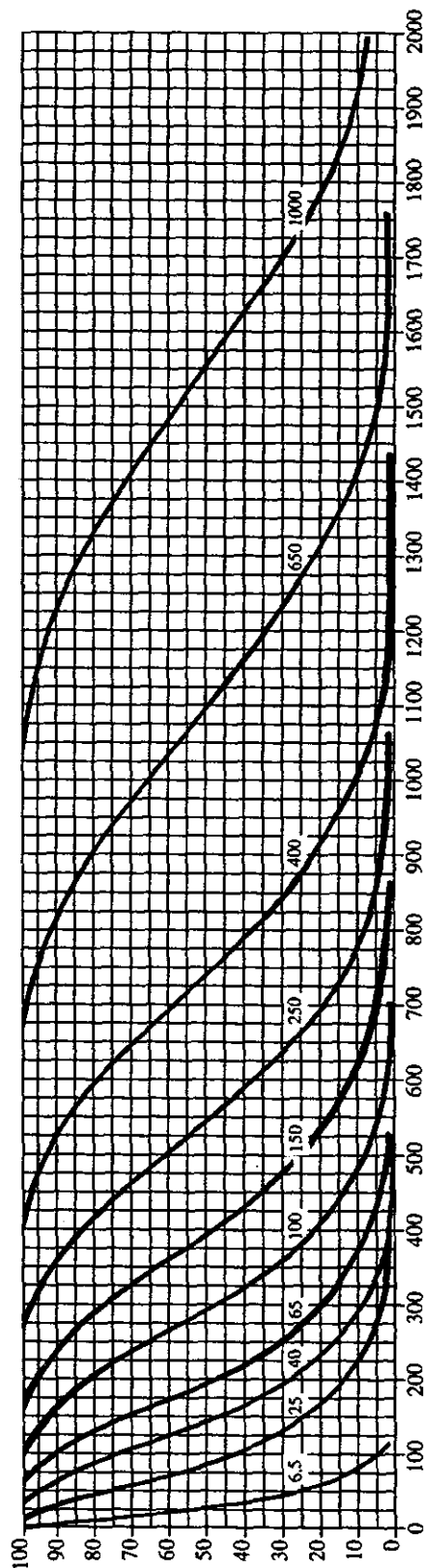
**Table IX—Average sample size curves for double and multiple sampling plans
(normal and tightened inspection)**

(See 11.5)



PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)

CHART A—OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)

Quality of Submitted Product (p, in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-A-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

Acceptable Quality Levels (normal inspection)															
P _a	6.5	6.5	25	40	65	100	150	X	250	X	400	X	625	X	1000
	p (in percent nonconforming)	p (in nonconformities per hundred units)													
99.0	0.501	0.503	7.43	21.8	41.2	89.3	145	175	239	305	374	517	629	859	977
95.0	2.53	2.56	17.8	40.9	68.3	131	199	235	308	384	462	622	745	995	1122
90.0	5.13	5.27	26.6	55.1	87.2	158	233	272	351	432	515	684	812	1073	1206
75.0	13.4	14.4	48.1	86.4	127	211	298	342	431	521	612	795	934	1214	1354
50.0	29.3	34.7	83.9	134	184	284	383	433	533	633	733	933	1083	1383	1533
25.0	50.0	69.3	135	196	255	371	484	540	651	761	870	1087	1248	1568	1728
10.0	68.4	115	194	266	334	464	589	650	770	889	1006	1238	1409	1748	1916
5.0	77.6	150	237	315	388	526	657	722	848	972	1094	1335	1512	1862	2035
1.0	90.0	230	332	420	502	655	800	870	1007	1141	1272	1529	1718	2088	2270
		X	40	65	100	150	X	250	X	400	X	650	X	1000	X
Acceptable Quality Levels (tightened inspection)															

Note: Binomial distribution used for percent nonconforming computations; Poisson for nonconformities per hundred units.

V = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.

Ac = Acceptance number

Re = Rejection number

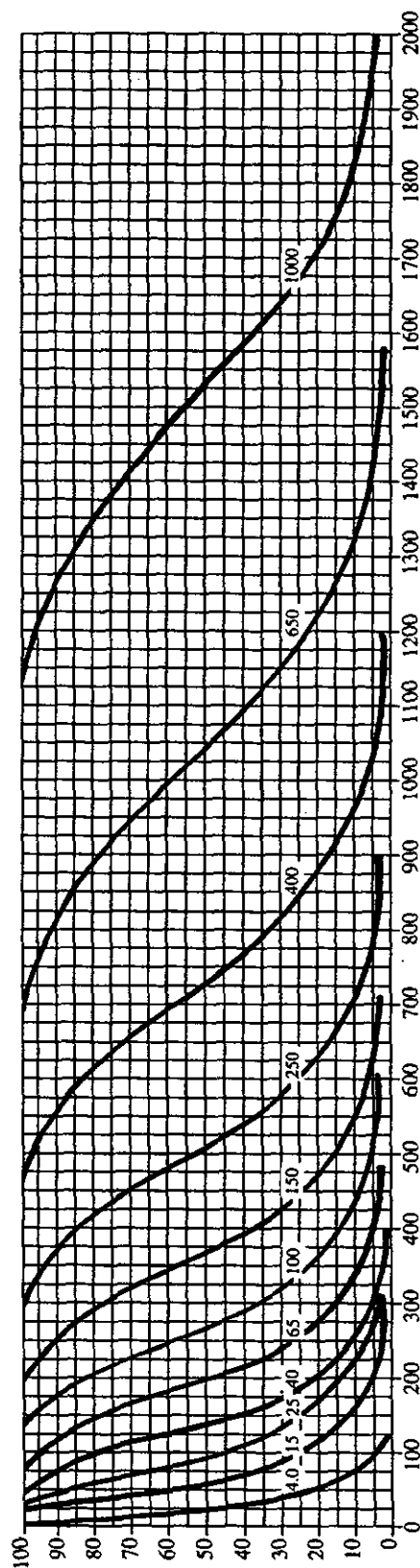
***** = Use single sampling plan above (or alternatively use code letter D).

(*) = Use single sampling (or alternatively use code letter B).

Table X-B—Tables for sample size code letter: B
INDIVIDUAL PLANS

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)

CHART B—OPERATING CHARACTERISTICS CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)



Quality of Submitted Product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-B-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P_a	p (in percent nonconforming)	Acceptable Quality Levels (normal inspection)														
		4.0	15	25	40	65	100	150	200	250	400	650	1000	p (in nonconformities per hundred units)		
		0.335	4.95	14.5	27.4	59.5	96.9	117	159	203	249	345	419	572	651	947
99.0	0.33	1.71	11.8	27.3	45.5	87.1	133	157	206	256	308	415	495	663	748	1065
95.0	1.70	3.51	17.7	36.7	58.2	105	155	181	234	288	343	456	541	716	804	1131
90.0	3.45	9.59	32.0	57.6	84.5	141	199	228	287	347	408	530	623	809	903	1249
75.0	9.14	23.1	55.9	89.1	122	189	256	289	356	422	489	622	722	922	1022	1389
50.0	20.6	46.2	89.8	131	170	247	323	360	434	507	580	724	832	1045	1152	1539
25.0	37.0	76.8	130	177	223	309	392	433	514	593	671	825	939	1165	1277	1683
10.0	53.6	99.9	158	210	258	350	438	481	565	648	730	890	1008	1241	1356	1773
5.0	63.2	154	221	280	335	437	533	580	671	761	848	1019	1145	1392	1513	1951
1.0	78.5	6.5	25	40	65	100	150	200	250	300	350	400	450	500	550	600
	6.5	6.5	25	40	65	100	150	200	250	300	350	400	450	500	550	600

Note: Binomial distribution used for percent nonconforming computations; Poisson for nonconformities per hundred units.

V = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.

Ac = Acceptance number

Re = Rejection number

***** = Use single sampling plan above (or alternatively use code letter E).

++ = Use double sampling plan above (or alternatively use code letter D).

Table X-C—Tables for sample size code letter: C

CHART C—OPERATING CHARACTERISTICS CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)

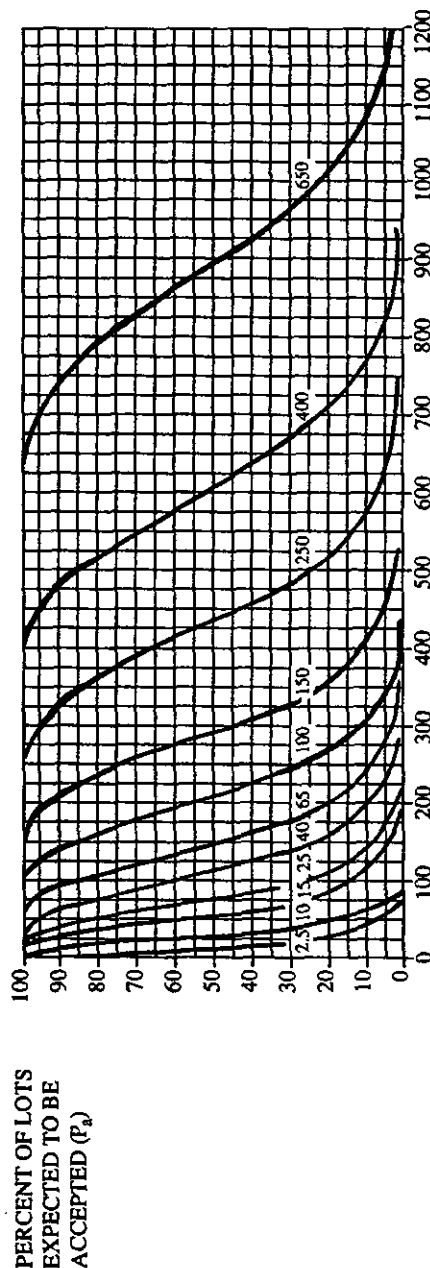


TABLE X-C-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P _a	Acceptable Quality Levels (normal inspection)																	
	2.5	10	2.5	10	15	25	40	65	X	100	X	150	X	250	X	400	X	650
	p (in nonconformities per hundred units)																	
99.0	0.201	3.27	0.201	2.97	8.72	16.5	37.5	58.1	70.1	95.4	122	150	207	251	343	391	568	618
95.0	1.02	7.64	1.03	7.11	16.4	27.3	52.3	79.6	93.9	123	154	185	249	298	398	449	639	691
90.0	2.09	11.2	2.11	10.6	22.0	34.9	63.0	93.1	109	140	173	206	273	325	429	482	679	733
75.0	5.59	19.4	5.75	19.2	34.5	50.7	84.4	119	137	172	208	245	318	374	485	542	749	806
50.0	12.9	31.4	13.9	33.6	53.5	73.4	113	153	173	213	253	293	373	433	553	613	833	893
25.0	24.2	45.4	27.7	53.9	78.4	102	148	194	216	260	304	348	435	499	627	691	923	986
10.0	36.9	58.4	46.1	77.8	106	134	185	235	260	308	356	403	495	564	699	766	1010	1076
5.0	45.1	65.7	59.9	94.9	126	155	210	263	289	339	389	438	534	605	745	814	1064	1131
1.0	60.2	77.8	92.1	133	168	201	262	320	348	403	456	509	612	687	835	908	1171	1241
	4.0	X	4.0	15	25	40	65	X	100	X	150	X	250	X	400	X	650	X
Acceptable Quality Levels (tightened inspection)																		

Note: Binomial distribution used for percent nonconforming computations; Poisson for nonconformities per hundred units.

Table X-C-2—Sampling Plans for Sample Size Code Letter: C

Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (tightened inspection)																Cumulative sample size
		Less than 2.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000		
																	Ac Re	
Single	5	∇	0 1															Use
	3	∇	*															Code
Double	6																	Letter
																		B
Multiple		∇	*															
	Less than 4.0		4.0	X	6.5	10	15	25	40	X	100	X	150	X	250	400	650	1000

∇ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.

Ac = Acceptance number

Re = Rejection number

* = Use single sampling plan above (or alternatively use code letter F).

++ = Use double sampling plan above (or alternatively use code letter D).



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Appendix B
ANSI/ASQC Z1.9-1993

AMERICAN NATIONAL STANDARD

SAMPLING PROCEDURES AND TABLES FOR INSPECTION BY VARIABLES FOR PERCENT NONCONFORMING

AMERICAN SOCIETY FOR QUALITY CONTROL

611 East Wisconsin Avenue Milwaukee, WI 53202

Table X-D-2—Sampling Plans for Sample Size Code Letter: D

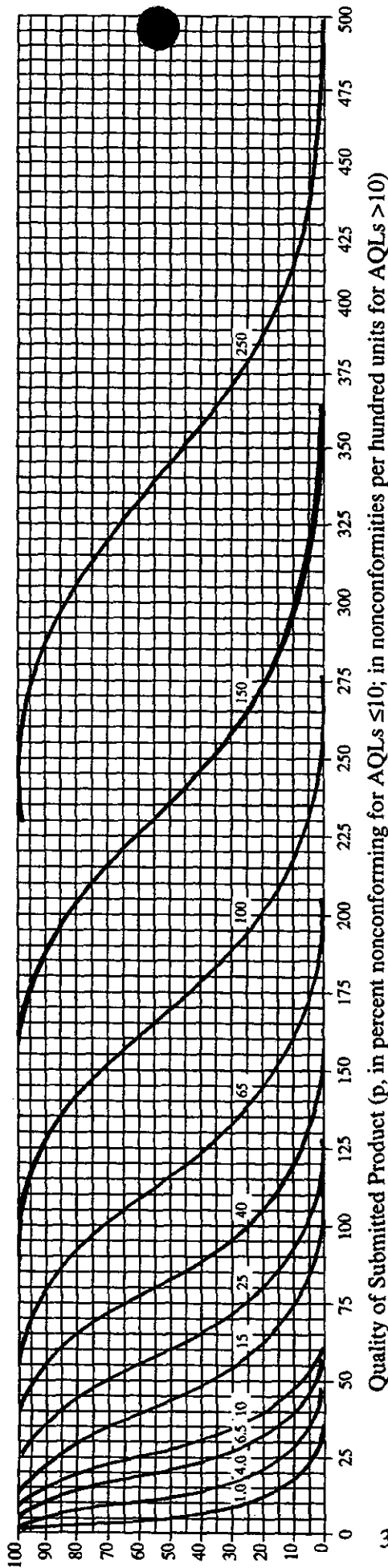
Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)																				Higher than 400	Cumulative sample size
		Less than 1.5	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	Higher than 400							
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re						
		Use Code Letter C	Use Code Letter F	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E	Use Code Letter E						
Single	8	▽	0 1				1 2	2 3	3 4	5 6	7 8	8 9	10 11	12 13	14 15	18 19	21 22	27 28	30 31	41 42	44 45	Δ	8
Double	5 10	▽	*				0 2	0 3	1 4	2 5	3 7	3 7	5 9	6 10	7 11	9 14	11 16	15 20	17 22	23 29	25 31	Δ	5 10
Multiple	2 4 6 8 10 12 14	▽	*				# 2	# 2	# 3	# 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	3 10	4 12	6 15	6 16	Δ	2 4 6 8 10 12 14
							# 2	0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14	10 17	11 19	16 25	17 26		
							0 2	0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19	17 24	19 27	26 36	29 39		
							0 3	1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25	24 31	27 34	37 46	40 49		
							1 3	2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29	32 37	36 40	49 55	53 58		
							1 3	3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33	40 43	45 47	61 64	65 68		
							2 3	4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38	48 49	53 54	72 73	77 78		
	Less than 2.5		2.5	×	4.0	6.5	10	15	25	40	×	65	×	100	×	150	×	250	×	400	×	Higher than 400	
Acceptable Quality Levels (tightened inspection)																							

Δ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.
 ▽ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.
 Ac = Acceptance number
 Re = Rejection number
 * = Use single sampling plan above (or alternatively use code letter G).
 # = Acceptance not permitted at this sample size.

Table X-E—Tables for sample size code letter: E
INDIVIDUAL PLANS

CHART E—OPERATING CHARACTERISTICS CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of Submitted Product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-E-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P_a	Acceptable Quality Levels (normal inspection)														
	1.0	4.0	6.5	10	15	25	40	65	100	150	250	400	600	1000	1500
	p (in percent nonconforming)														
99.0	0.077	1.18	3.58	6.95	11.3	20.1	36.1	66.3	113	196	321	450	600	800	1000
95.0	0.394	2.81	6.60	11.3	20.1	36.1	66.3	113	196	321	450	600	800	1000	1500
90.0	0.807	4.17	8.80	14.2	24.2	41.8	66.3	113	196	321	450	600	800	1000	1500
75.0	2.19	7.41	13.4	19.9	32.5	45.8	66.3	113	196	321	450	600	800	1000	1500
50.0	5.19	12.6	20.0	27.5	43.6	66.3	113	196	321	450	600	800	1000	1500	2500
25.0	10.1	19.4	28.0	36.1	57.1	82.1	113	196	321	450	600	800	1000	1500	2500
10.0	16.2	26.8	36.0	44.4	71.3	100	130	155	190	217	269	321	388	450	500
5.0	20.6	31.6	41.0	49.5	80.9	111	134	155	176	205	233	286	313	349	400
1.0	29.8	41.3	50.6	58.8	101	123	134	155	176	205	233	286	313	349	400
1.5		6.5	10	X	25	X	40	65	100	X	150	X	250	X	X

Acceptable Quality Levels (tightened inspection)

Note: Binomial distribution used for percent nonconforming computations; Poisson for nonconformities per hundred units.

TABLE X-E-2—SAMPLING PLANS FOR SAMPLE SIZE CODE LETTER: E

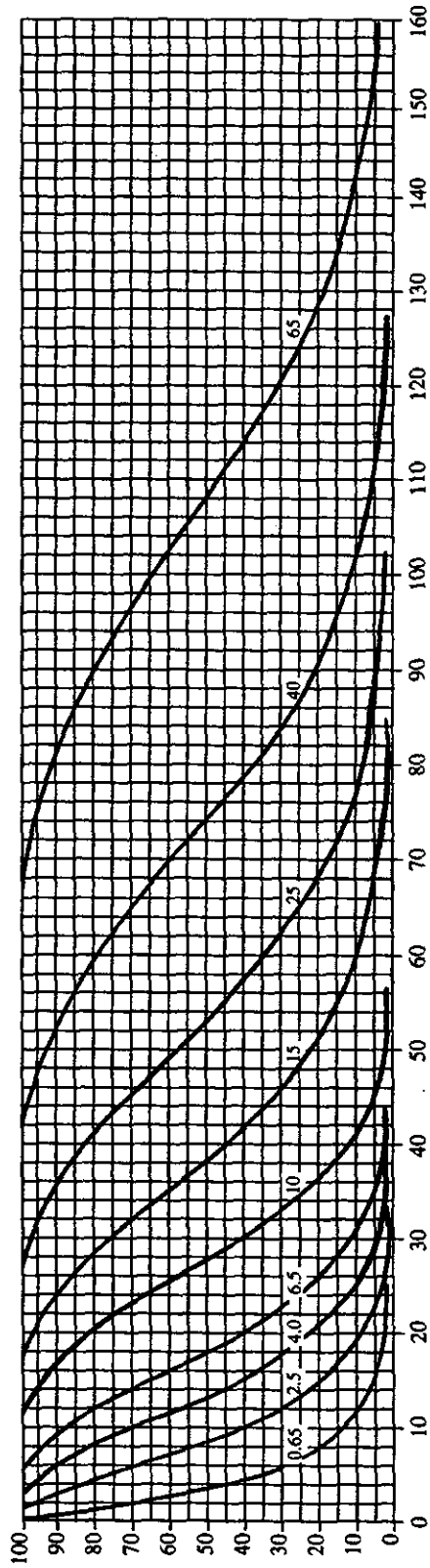
Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)																			Higher than 250	Cumulative sample size	
		Less than 1.0	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	Higher than 250							
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re						
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re						
Single	13	▽	0 1				1 2	2 3	3 4	5 6	7 8	8 9	10 11	12 13	14 15	18 19	21 22	27 28	30 31	41 42	44 45	Δ	17
Double	8	▽	*	Use Code Letter D	Use Code Letter G	Use Code Letter F	0 2	0 3	1 4	2 5	3 7	3 7	5 9	6 10	7 11	9 14	11 16	15 20	17 22	23 29	25 31	Δ	8
	13						1 2	3 4	4 5	6 7	8 9	11 12	12 13	15 16	18 19	23 24	26 27	34 35	37 38	52 53	56 57		13
Multiple	3	▽	*				# 2	# 2	# 3	# 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	3 10	4 12	6 15	6 16	Δ	3
	6						# 2	0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14	10 17	11 19	16 25	17 27	6	
	9						0 2	0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19	17 24	19 27	26 36	29 39	9	
	12						0 3	1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25	24 31	27 34	37 46	40 49	12	
	15						1 3	2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29	32 37	36 40	49 55	53 58	15	
	18						1 3	3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33	40 43	45 47	61 64	65 68	18	
	21						2 3	4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38	48 49	53 54	72 73	77 78	21	
							Less than 1.5	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	X	Acceptable Quality Levels (tightened inspection)		

Δ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.
 ▽ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.
 Ac = Acceptance number
 Re = Rejection number
 * = Use single sampling plan above (or alternatively use code letter H).
 # = Acceptance not permitted at this sample size.

Table X-F—Tables for sample size code letter: F
INDIVIDUAL PLANS

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)

CHART F—OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)



Quality of Submitted Product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-F-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P _a	Acceptable Quality Levels (normal inspection)																
	p (in percent nonconforming)					p (in nonconformities per hundred units)											
	0.65	2.5	4.0	6.5	10	0.65	2.5	4.0	6.5	10	15	25	40	65			
99.0	0.0502	0.759	2.27	4.36	9.75	0.0503	0.743	2.18	4.12	8.93	14.5	17.5	23.9	30.5	37.4	51.7	62.9
95.0	0.256	1.80	4.22	7.14	14.0	0.256	1.78	4.09	6.83	13.1	19.9	23.5	30.8	38.4	46.2	62.2	74.5
90.0	0.525	2.69	5.64	9.03	16.6	0.527	2.66	5.51	8.72	15.8	23.3	27.2	35.1	43.2	51.5	68.4	81.2
75.0	1.43	4.81	8.70	12.8	21.6	1.44	4.81	8.65	12.7	21.1	29.8	34.2	43.1	52.1	61.2	79.5	93.4
50.0	3.41	8.25	13.1	18.1	27.9	3.47	8.39	13.4	18.4	28.4	38.3	43.3	53.3	63.3	73.3	93.3	108
25.0	6.70	12.9	18.7	24.2	34.8	6.93	13.5	19.6	25.5	37.1	48.4	54.0	65.1	76.1	87.0	109	125
10.0	10.9	18.1	24.5	30.4	41.5	11.5	19.4	26.6	33.4	46.4	58.9	65.0	77.0	88.9	101	124	141
5.0	13.9	21.6	28.3	34.4	45.6	15.0	23.7	31.5	38.8	52.6	65.7	72.2	84.8	97.2	109	133	151
1.0	20.6	28.9	35.8	42.1	53.2	23.0	33.2	42.0	50.2	65.5	80.0	87.0	101	114	127	153	172
	1.0	4.0	6.5	10	X	1.0	4.0	6.5	10	15	X	25	X	40	X	65	X
Acceptable Quality Levels (tightened inspection)																	

Note: Binomial distribution used for percent nonconforming computations; Poisson for nonconformities per hundred units.

Table X-F-2—Sampling Plans for Sample Size Code Letter: F

Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)														Cumulative sample size						
		Less than 0.65	0.65	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	Higher than 65								
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re								
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re								
Single	20	▽	0 1							1 2	2 3	3 4	5 6	7 8	8 9	10 11	12 13	14 15	18 19	21 22	Δ	20
Double	13 26	▽	*							0 2	0 3	1 4	2 5	3 7	3 7	5 9	6 10	7 11	9 14	11 16	Δ	13 26
										1 2	3 4	4 5	6 7	8 9	11 12	12 13	15 16	18 19	23 24	26 27		
Multiple	5	▽	*							# 2	# 2	# 3	# 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	Δ	5
	10									# 2	0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14		10
	15									0 2	0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19		15
	20									0 3	1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25		20
	25									1 3	2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29		25
	30									1 3	3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33		30
	35									2 3	4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38		35
		Less than 1.0	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	Higher than 65									
Acceptable Quality Levels (tightened inspection)																						

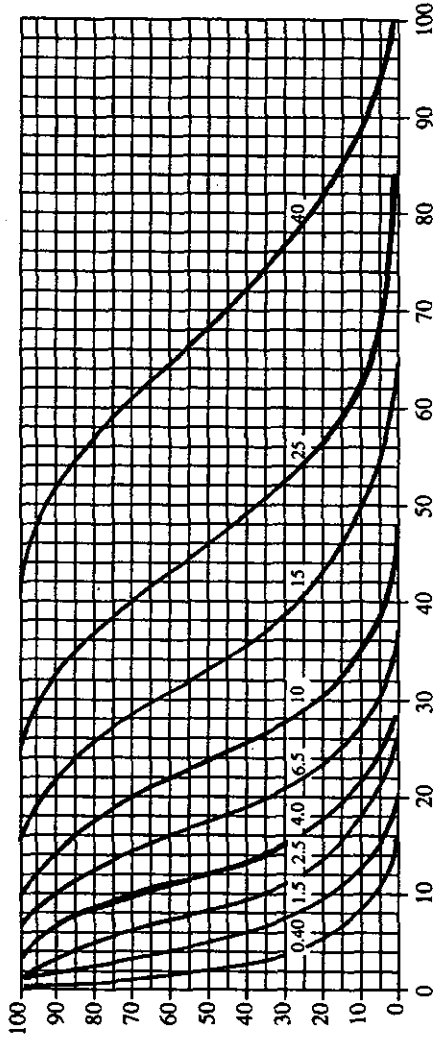
Δ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.
 ▽ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.
 Ac = Acceptance number.
 Re = Rejection number.
 * = Use single sampling plan above (or alternatively use code letter J).
 # = Acceptance not permitted at this sample size.

Table X-G—Tables for sample size code letter: G

CHART G—OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_R)

Quality of Submitted Product (p, in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-G-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P _a	Acceptable Quality Levels (normal inspection)																	
	p (in percent nonconforming)						p (in nonconformities per hundred units)											
	0.40	1.5	2.5	4.0	6.5	10	0.40	1.5	2.5	4.0	6.5	10	X	15	X	25	X	40
99.0	0.0314	0.471	1.40	2.67	5.88	9.73	0.0314	0.464	1.36	2.57	5.58	9.08	11.0	14.9	19.1	23.4	32.3	39.3
95.0	0.160	1.12	2.60	4.38	8.50	13.1	0.160	1.11	2.56	4.26	8.17	12.4	14.7	19.3	24.0	28.9	38.9	46.5
90.0	0.329	1.67	3.49	5.56	10.2	15.1	0.329	1.66	3.44	5.45	9.85	14.6	17.0	21.9	27.0	32.2	42.7	50.8
75.0	0.895	3.01	5.42	7.98	13.4	19.0	0.899	3.00	5.40	7.92	13.2	18.6	21.4	26.9	32.6	38.2	49.7	58.4
50.0	2.14	5.19	8.27	11.4	17.5	23.7	2.17	5.24	8.36	11.5	17.7	24.0	27.1	33.3	39.6	45.8	58.3	67.7
25.0	4.24	8.19	11.9	15.4	22.3	29.0	4.33	8.41	12.3	16.0	23.2	30.3	33.8	40.7	47.6	54.4	67.9	78.0
10.0	6.94	11.6	15.8	19.7	27.1	34.1	7.20	12.2	16.6	20.9	29.0	36.8	40.6	48.1	55.6	62.9	77.4	88.1
5.0	8.94	14.0	18.4	22.5	30.1	37.2	9.36	14.8	19.7	24.2	32.9	41.1	45.1	53.0	60.8	68.4	83.4	94.5
1.0	13.4	19.0	23.8	28.1	36.0	43.2	14.4	20.7	26.3	31.4	41.0	50.0	54.4	63.0	71.3	79.5	95.6	107
	0.65	2.5	4.0	6.5	10	X	0.65	2.5	4.0	6.5	10	X	15	X	25	X	40	X
	Acceptable Quality Levels (tightened inspection)																	

Note: Binomial distribution used for percent nonconforming computations; Poisson for nonconformities per hundred units.

Table X-G-2—Sampling Plans for Sample Size Code Letter: G

Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)															Cumulative sample size		
		Less than 0.40	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	15	25	40	Higher than 40					
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re					
Single	32	▽	0 1																
Double	20	▽	*																
	40																		
Multiple	8	▽	*																
	16																		
	24																		
	32																		
	40																		
	48																		
	56																		
	Less than 0.65	0.65	X	1.0	1.5	2.5	4.0	6.5	10	X	15	25	X	40	X	Higher than 40			
Acceptable Quality Levels (tightened inspection)																			

△ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.

▽ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.

Ac = Acceptance number.

Re = Rejection number.

* = Use single sampling plan above (or alternatively use code letter K).

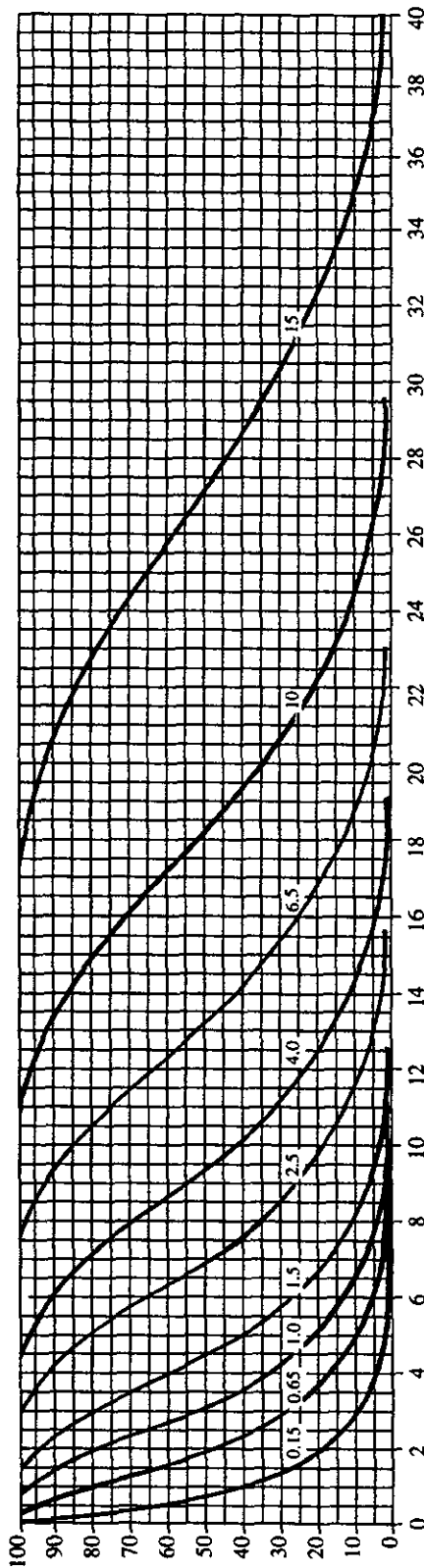
= Acceptance not permitted at this sample size.

Δ	=	Use next preceding sample size code letter for which acceptance and rejection numbers are available.
∇	=	Use next subsequent sample size code letter for which acceptance and rejection numbers are available.
Ac	=	Acceptance number.
Re	=	Rejection number.
*	=	Use single sampling plan above (or alternatively use code letter L).
#	=	Acceptance not permitted at this sample size.

Table X-J—Tables for sample size code letter: J
INDIVIDUAL PLANS

CHART J—OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of Submitted Product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-J-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P_a	Acceptable Quality Levels (normal inspection)														
	p (in percent nonconforming)							p (in nonconformities per hundred units)							
	0.15	0.65	1.0	1.5	2.5	4.0	X	6.5	X	10	X	15	X	10	X
99.0	0.0126	0.187	0.550	1.04	2.28	3.73	4.51	6.17	7.93	9.76	0.0126	0.186	0.545	1.03	2.23
95.0	0.0641	0.446	1.03	1.73	3.32	5.07	6.00	7.91	9.89	11.9	0.0641	0.444	1.02	1.71	3.27
90.0	0.132	0.667	1.39	2.20	3.99	5.91	6.90	8.95	11.0	13.2	0.132	0.665	1.38	2.18	3.94
75.0	0.359	1.201	2.16	3.18	5.30	7.50	8.61	10.9	13.2	15.5	0.360	1.20	2.16	3.17	5.27
50.0	0.863	2.09	3.33	4.57	7.06	9.55	10.8	13.3	15.8	18.3	0.866	2.10	3.34	4.59	7.09
25.0	1.72	3.33	4.84	6.30	9.14	11.9	13.3	16.0	18.6	21.3	1.73	3.37	4.90	6.39	9.28
10.0	2.84	4.78	6.52	8.16	11.3	14.3	15.7	18.6	21.4	24.2	2.88	4.86	6.65	8.35	11.6
5.0	3.68	5.79	7.66	9.41	12.7	15.8	17.3	20.3	23.2	26.0	3.74	5.93	7.87	9.69	13.1
1.0	5.59	8.01	10.1	12.0	15.6	18.9	20.5	23.6	26.6	29.5	5.76	8.30	10.5	12.6	16.4
	0.25	1.0	1.5	2.5	4.0	X	6.5	X	10	X	1.5	2.5	4.0	X	6.5

Acceptable Quality Levels (tightened inspection)

Note: Binomial distribution used for percent nonconforming computations; Poisson for nonconformities per hundred units.

Table X-J-2—Sampling Plans for Sample Size Code Letter: J

Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)															Cumulative sample size	
		Less than 0.15	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	15	Higher than 15				
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re				
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re				
Single	80	∇	0 1			1 2	2 3	3 4	5 6	7 8	8 9	10 11	12 13	14 15	18 19	21 22	Δ	80
	50 100	∇	*		Use Code Letter H	Use Code Letter L	0 2 1 2	0 3 3 4	1 4 4 5	2 5 6 7	3 7 8 9	5 9 11 12	6 10 12 13	7 11 15 16	9 14 18 19	11 16 23 24	Δ 26 27	50 100
Multiple	20	∇	*			# 2	# 2	# 3	# 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	Δ	20
	40					# 2	0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14		40
	60					0 2	0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19		60
	80					0 3	1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25		80
	100					1 3	2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29		100
	120					1 3	3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33		120
	140					2 3	4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38		140
	Less than 0.25	0.25	∇	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	15	Higher than 15					
Acceptable Quality Levels (tightened inspection)																		

Δ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.

∇ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.

Ac = Acceptance number.

Re = Rejection number.

* = Use single sampling plan above (or alternatively use code letter M).

= Acceptance not permitted at this sample size.

Table X-K-2—Sampling Plans for Sample Size Code Letter: K

Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)															Cumulative sample size		
		Less than 0.10	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	Higher than 10					
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re					
Single	125	▽	0 1															Δ	125
	80 160	▽	*		Use Code Letter J	Use Code Letter M	0 2 1 2	0 3 3 4	1 4 4 5	2 5 6 7	3 7 8 9	3 7 11 12	5 9 12 13	6 10 15 16	7 11 18 19	9 14 23 24	11 16 26 27	Δ	80 160
Multiple	32	▽	*				# 2	# 2	# 3	# 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	Δ	32
	64						# 2	0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14		64
	96						0 2	0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19		96
	128						0 3	1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25		128
	160						1 3	2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29		160
	192						1 3	3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33		192
	224						2 3	4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38		224
		Less than 0.15	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	Higher than 10						
Acceptable Quality Levels (tightened inspection)																			

Δ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.

▽ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.

Ac = Acceptance number.

Re = Rejection number.

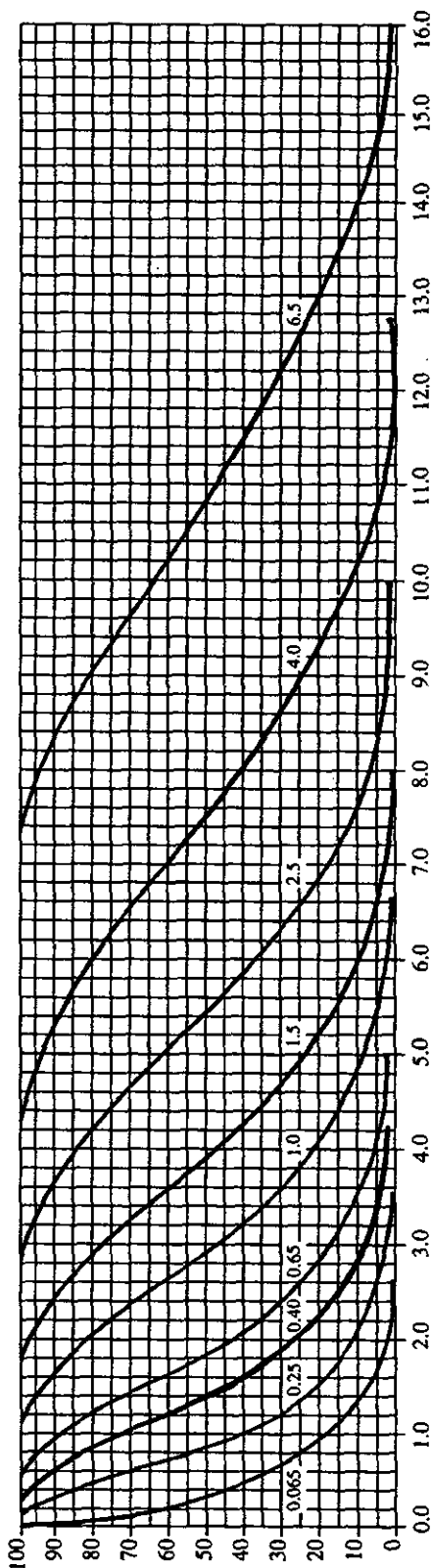
* = Use single sampling plan above (or alternatively use code letter N).

= Acceptance not permitted at this sample size.

Table X-L—Tables for sample size code letter: L
INDIVIDUAL PLANS

CHART L—OPERATING CHARACTERISTICS CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of Submitted Product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-L-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P _a	Acceptable Quality Levels (normal inspection)											
	0.065	0.25	0.40	0.65	1.0	1.5	X	2.5	X	4.0	X	6.5
	p (in percent nonconforming or nonconformities per hundred units)											
99.0	0.00503	0.0743	0.218	0.412	0.893	1.45	1.75	2.39	3.05	3.74	5.17	6.29
95.0	0.0256	0.178	0.409	0.683	1.31	1.99	2.35	3.08	3.84	4.62	6.22	7.45
90.0	0.0527	0.266	0.551	0.872	1.58	2.33	2.72	3.51	4.32	5.15	6.84	8.12
75.0	0.144	0.481	0.864	1.27	2.11	2.98	3.42	4.31	5.21	6.12	7.95	9.34
50.0	0.347	0.839	1.34	1.84	2.84	3.83	4.33	5.33	6.33	7.33	9.33	10.8
25.0	0.693	1.35	1.96	2.55	3.71	4.84	5.40	6.51	7.61	8.70	10.9	12.5
10.0	1.15	1.94	2.66	3.34	4.64	5.89	6.50	7.70	8.89	10.1	12.4	14.1
5.0	1.50	2.37	3.15	3.88	5.26	6.57	7.22	8.48	9.72	10.9	13.3	15.1
1.0	2.30	3.32	4.20	5.02	6.55	8.00	8.70	10.1	11.4	12.7	15.3	17.2
	1.0	0.40	0.65	1.0	1.5	X	2.5	X	4.0	X	6.5	X
	Acceptable Quality Levels (tightened inspection)											

Note: Values given in the Table above are based on the Poisson distribution as an approximation to the binomial distribution (See 11.1 for details).

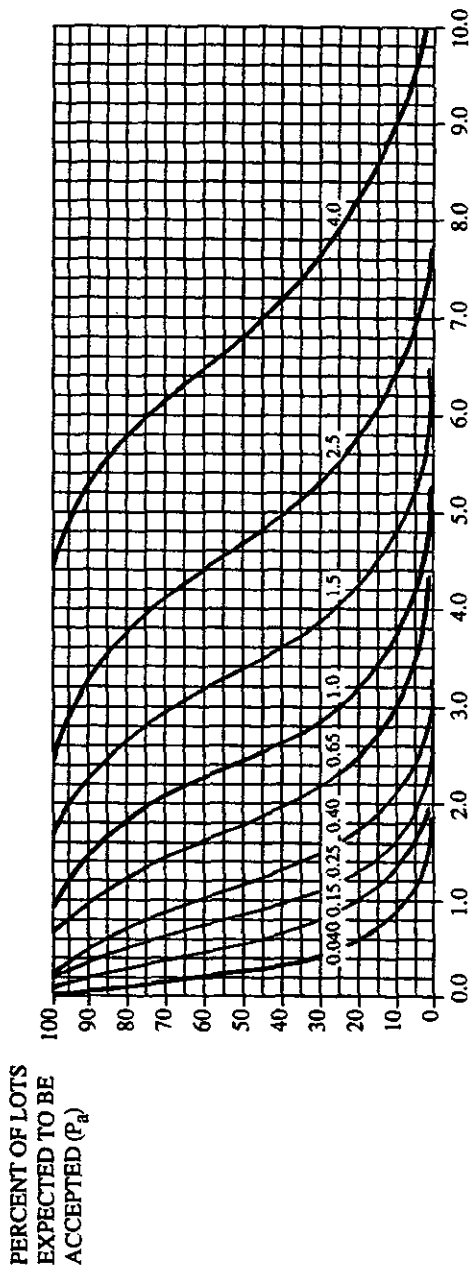
Table X-L-2—Sampling Plans for Sample Size Code Letter: L

Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)															Cumulative sample size						
		Less than 0.065	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	X	6.5	Higher than 6.5								
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re								
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re								
Single	200	▽	0 1							1 2	2 3	3 4	5 6	7 8	8 9	10 11	12 13	14 15	18 19	21 22	Δ	200	
Double	125	▽	*		Use Code Letter K	Use Code Letter N	Use Code Letter M			0 2	0 3	1 4	2 5	3 7	3 7	3 7	5 9	6 10	7 11	9 14	11 16	Δ	125
	250									1 2	3 4	4 5	6 7	8 9	11 12	12 13	15 16	18 19	23 24	26 27		250	
Multiple	50	▽	*							# 2	# 2	# 3	# 4	0 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	Δ	50
	100									# 2	0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14		100	
	150									0 2	0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19		150	
	200									0 3	1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25		200	
	250									1 3	2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29		250	
	300									1 3	3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33		300	
	350									2 3	4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38		350	
		Less than 0.10	0.10	X	0.15	0.25	0.40	0.65	1.0	1.5	X	2.5	X	4.0	6.5	X	Higher than 6.5						
Acceptable Quality Levels (tightened inspection)																							

Δ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.
 ∇ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.
 Ac = Acceptance number.
 Re = Rejection number.
 * = Use single sampling plan above (or alternatively use code letter P).
 # = Acceptance not permitted at this sample size.

Table X-M—Tables for sample size code letter: M
INDIVIDUAL PLANS

CHART M—OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)



Quality of Submitted Product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-M-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P_a	Acceptable Quality Levels (normal inspection)											
	0.040	0.15	0.25	0.40	0.65	1.0	X	1.5	X	2.5	X	4.0
	p (in percent nonconforming or nonconformities per hundred units)											
99.0	0.0039	0.0472	0.138	0.261	0.567	0.923	1.11	1.51	1.94	2.37	3.28	3.99
95.0	0.0163	0.113	0.260	0.434	0.830	1.26	1.49	1.96	2.44	2.94	3.95	4.73
90.0	0.0335	0.169	0.350	0.554	1.00	1.48	1.72	2.23	2.74	3.27	4.34	5.16
75.0	0.0913	0.305	0.548	0.805	1.34	1.89	2.17	2.74	3.31	3.89	5.05	5.93
50.0	0.220	0.533	0.849	1.17	1.80	2.43	2.75	3.39	4.02	4.66	5.93	6.88
25.0	0.440	0.855	1.24	1.62	2.36	3.07	3.43	4.13	4.83	5.52	6.90	7.92
10.0	0.731	1.23	1.69	2.12	2.94	3.74	4.13	4.89	5.64	6.39	7.86	8.95
5.0	0.951	1.51	2.00	2.46	3.34	4.17	4.58	5.38	6.17	6.95	8.47	9.60
1.0	1.46	2.11	2.67	3.19	4.16	5.08	5.52	6.40	7.24	8.08	9.71	10.9
	0.065	0.25	0.40	0.65	1.0	X	1.5	X	2.5	X	4.0	X
	Acceptable Quality Levels (tightened inspection)											

Note: Values given in the Table above are based on the Poisson distribution as an approximation to the binomial distribution (See 11.1 for details).

Table X-M-2—Sampling Plans for Sample Size Code Letter: M

Type of sampling plan		Cumulative sample size	Acceptable Quality Levels (normal inspection)														Cumulative sample size			
			Less than 0.040	0.040	0.065	X	0.10	0.15	0.25	0.40	0.65	1.0	X	1.5	X	2.5		X	4.0	Higher than 4.0
Single		315	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Δ	315
Double		200	Δ	*	Use Code Letter L	Use Code Letter P	Use Code Letter N	0 2	0 3	1 4	2 5	3 7	3 7	5 9	6 10	7 11	9 14	11 16	Δ	200
		315	1 2					3 4	4 5	6 7	8 9	11 12	12 13	15 16	18 19	23 24	26 27	400		
Multiple		80	Δ	*	Use Code Letter L	Use Code Letter P	Use Code Letter N	# 2	# 2	# 3	# 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	Δ	80
		160	# 2					0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14	160		
		240	0 2					0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19	240		
		320	0 3					1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25	320		
		400	1 3					2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29	400		
		480	1 3					3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33	480		
		560	2 3					4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38	560		
		Less than 0.065	0.065	X	0.10	0.15	0.25	0.40	0.65	X	1.5	X	2.5	X	4.0	X	Higher than 4.0			
		Acceptable Quality Levels (tightened inspection)																		

△ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.

▽ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.

Ac = Acceptance number.

Re = Rejection number.

* = Use single sampling plan above (or alternatively use code letter Q).

= Acceptance not permitted at this sample size.

Table X-N-2—Sampling Plans for Sample Size Code Letter: N

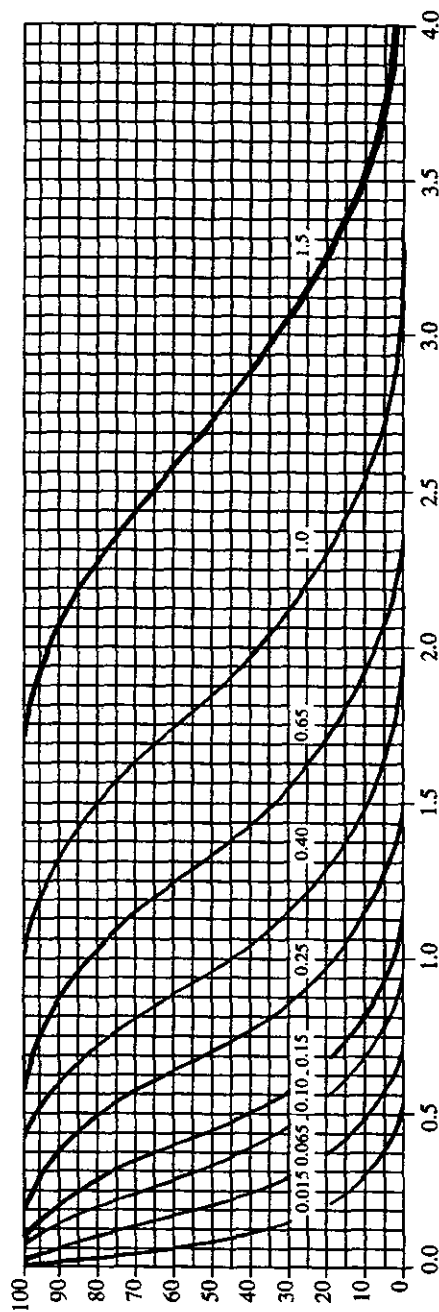
Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)															Cumulative sample size					
		Less than 0.025	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	Higher than 2.5								
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re								
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re								
Single	500	▽	0 1							1 2	2 3	3 4	5 6	7 8	8 9	10 11	12 13	14 15	18 19	21 22	Δ	500
Double	315	▽	*		Use	Code	Use			0 2	0 3	1 4	2 5	3 7	3 7	5 9	6 10	7 11	9 14	11 16	Δ	315
	630				Letter	Letter	Letter			1 2	3 4	4 5	6 7	8 9	11 12	12 13	15 16	18 19	23 24	26 27		630
Multiple	125	▽	*							# 2	# 2	# 3	# 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	Δ	125
	250									# 2	0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14		250
	375									0 2	0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19		375
	500									0 3	1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25		500
	615									1 3	2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29		625
	750									1 3	3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33		750
	875									2 3	4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38		875
		Less than 0.040	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	3.5	Higher than 2.5	Acceptable Quality Levels (tightened inspection)								
			X							X	X	X	X	X	X	X	X	X	X	X	X	

Δ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.
 ▽ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.
 Ac = Acceptance number.
 Re = Rejection number.
 * = Use single sampling plan above (or alternatively use code letter R).
 # = Acceptance not permitted at this sample size.

Table X-P—Tables for sample size code letter: P
INDIVIDUAL PLANS

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)

CHART P—OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)



Quality of Submitted Product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-P-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P_a	Acceptable Quality Levels (normal inspection)											
	0.015	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	1.5	1.5	1.5
	p (in percent nonconforming or nonconformities per hundred units)											
99.0	0.00126	0.0186	0.0545	0.103	0.223	0.363	0.438	0.596	0.762	0.935	1.29	1.57
95.0	0.00641	0.0444	0.102	0.171	0.327	0.498	0.587	0.771	0.961	1.16	1.56	1.86
90.0	0.0132	0.0665	0.138	0.218	0.394	0.582	0.679	0.878	1.08	1.29	1.71	2.03
75.0	0.0360	0.120	0.216	0.317	0.527	0.745	0.855	1.08	1.30	1.53	1.99	2.34
50.0	0.0866	0.210	0.334	0.459	0.709	0.959	1.08	1.33	1.58	1.83	2.33	2.71
25.0	0.173	0.337	0.490	0.639	0.928	1.21	1.35	1.63	1.90	2.17	2.72	3.12
10.0	0.288	0.486	0.665	0.835	1.16	1.47	1.62	1.93	2.22	2.52	3.09	3.52
5.0	0.374	0.593	0.787	0.969	1.31	1.64	1.80	2.12	2.43	2.74	3.34	3.78
1.0	0.576	0.830	1.05	1.26	1.64	2.00	2.18	2.52	2.85	3.18	3.82	4.29
0.025	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.0	2.5	3.0	3.5	4.0
	Acceptable Quality Levels (tightened inspection)											

Note: Values given in the Table above are based on the Poisson distribution as an approximation to the binomial distribution (See 11.1 for details).

Table X-P-2—Sampling Plans for Sample Size Code Letter: P

Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)															Cumulative sample size		
		0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	Higher than 1.5					
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re				
Single	800	▽	0 1				1 2	2 3	3 4	5 6	7 8	8 9	10 11	12 13	14 15	18 19	21 22	△	800
Double	500	▽	*				0 2	0 3	1 4	2 5	3 7	3 7	5 9	6 10	7 11	9 14	11 16	△	500
	1000						1 2	3 4	4 5	6 7	8 9	11 12	12 13	15 16	18 19	23 24	26 27		1000
Multiple	200	▽	*				# 2	# 2	# 3	# 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	△	200
	400						# 2	0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14		400
	600						0 2	0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19		600
	800						0 3	1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25		800
	1000						1 3	2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29		1000
	1200						1 3	3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33		1200
	1400						2 3	4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38		1400
	Less than 0.025		×		0.040	0.065	0.10	0.15	0.25	0.40	×	0.65	×	1.0	×	1.5	×	Higher than 1.5	
Acceptable Quality Levels (tightened inspection)																			

△ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.

▽ = Use next subsequent sample size code letter for which acceptance and rejection numbers are available.

Ac = Acceptance number.

Re = Rejection number.

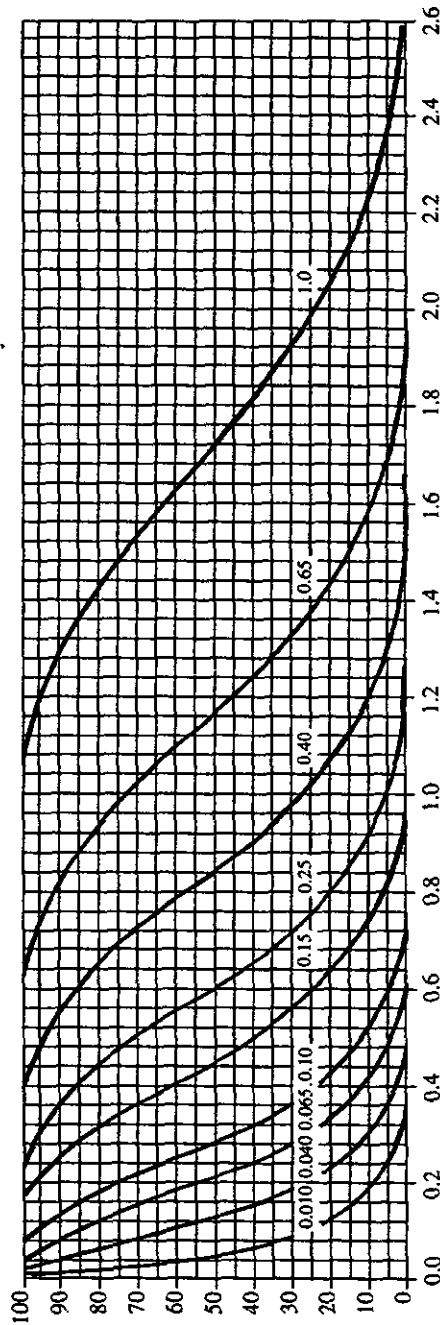
* = Use single sampling plan above.

= Acceptance not permitted at this sample size.

Table X-Q—Tables for sample size code letter: Q
INDIVIDUAL PLANS

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)

CHART Q—OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)



Quality of Submitted Product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-Q-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P_a	Acceptable Quality Levels (normal inspection)										
	0.010	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.0	1.0
	p (in percent nonconforming or nonconformities per hundred units)										
99.0	0.000804	0.0119	0.0349	0.0659	0.143	0.232	0.281	0.382	0.488	0.598	0.828
95.0	0.00410	0.0284	0.0654	0.109	0.209	0.318	0.376	0.494	0.615	0.740	0.995
90.0	0.00843	0.0425	0.0882	0.140	0.252	0.372	0.435	0.562	0.692	0.824	1.09
75.0	0.0230	0.0769	0.138	0.203	0.338	0.476	0.547	0.690	0.834	0.979	1.27
50.0	0.0555	0.134	0.214	0.294	0.454	0.614	0.694	0.853	1.01	1.17	1.49
25.0	0.111	0.215	0.314	0.409	0.594	0.775	0.864	1.04	1.22	1.39	1.74
10.0	0.184	0.311	0.426	0.534	0.742	0.942	1.04	1.23	1.42	1.61	1.98
5.0	0.240	0.380	0.504	0.620	0.841	1.05	1.15	1.36	1.56	1.75	2.14
1.0	0.368	0.531	0.672	0.804	1.05	1.28	1.39	1.61	1.83	2.04	2.45
0.015	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.73	2.00	2.25	2.42
0.015	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.73	2.00	2.25	2.42
0.015	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.73	2.00	2.25	2.42

Note: Values given in the Table above are based on the Poisson distribution as an approximation to the binomial distribution (See 11.1 for details).

Table X-Q-2—Sampling Plans for Sample Size Code Letter: Q

Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)																	Cumulative sample size			
		X	0.010	0.015	X	0.025	0.040	0.065	0.10	0.15	0.25	X	0.40	X	0.65	X	1.0	Higher than 1.0				
			Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re		Ac Re		
Single	1250	Use Code Letter R	0 1	Use Code Letter P	Use Code Letter S	Use Code Letter R	1 2	2 3	3 4	5 6	7 8	8 9	10 11	12 13	14 15	18 19	21 22	Δ	1250			
Double	800	Use Code Letter R	*	Use Code Letter P	Use Code Letter S	Use Code Letter R	0 2	0 3	1 4	2 5	3 7	3 7	5 9	6 10	7 11	9 14	11 16	Δ	800			
	1600		1 2				3 4	4 5	6 7	8 9	11 12	12 13	15 16	18 19	23 24	26 27				1600		
Multiple	315	Use Code Letter R	*	Use Code Letter P	Use Code Letter S	Use Code Letter R	# 2	# 2	# 3	# 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	Δ	315			
	630		# 2				0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14					630	
	945		0 2				0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19						945
	1260		0 3				1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25						1260
	1575		1 3				2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29						1575
	1890		1 3				3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33						1890
	2205		2 3				4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38						2205
		0.010	0.015	X	0.025	0.040	0.065	0.10	0.15	0.25	X	0.40	X	0.65	X	1.0	X	Higher than 1.0				
Acceptable Quality Levels (tightened inspection)																						

Δ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.

Ac = Acceptance number.

Re = Rejection number.

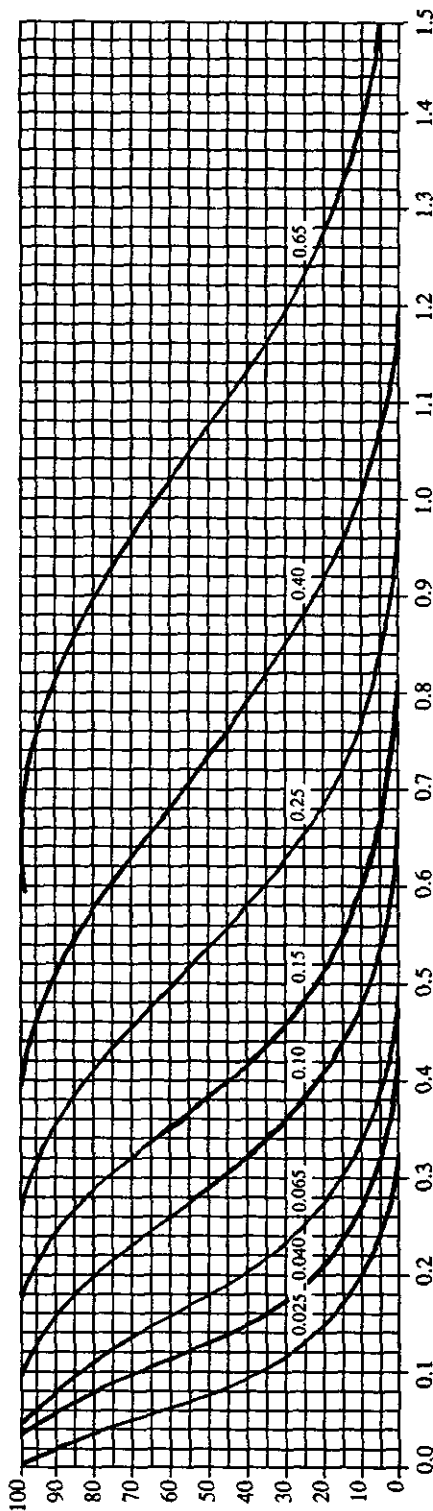
* = Use single sampling plan above.

= Acceptance not permitted at this sample size.

Table X-R—Tables for sample size code letter: R
INDIVIDUAL PLANS

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)

CHART R—OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS
(Curves for double and multiple sampling are matched as closely as practicable)



Quality of Submitted Product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE X-R-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P _a	Acceptance Quality Levels (normal inspection)										
	0.025	0.040	0.065	0.10	0.15	X	0.25	X	0.40	X	0.65
	p (in percent nonconforming or nonconformities per hundred units)										
99.0	0.00743	0.0218	0.0412	0.0893	0.145	0.175	0.239	0.305	0.374	0.517	0.629
95.0	0.0178	0.0409	0.0683	0.131	0.199	0.235	0.308	0.384	0.462	0.622	0.745
90.0	0.0266	0.0551	0.0872	0.158	0.233	0.272	0.351	0.432	0.515	0.684	0.812
75.0	0.0481	0.0864	0.127	0.211	0.298	0.342	0.431	0.521	0.612	0.795	0.934
50.0	0.0839	0.134	0.184	0.284	0.383	0.433	0.533	0.633	0.733	0.933	1.08
25.0	0.135	0.196	0.255	0.371	0.484	0.540	0.651	0.761	0.870	1.09	1.25
10.0	0.194	0.266	0.334	0.464	0.589	0.650	0.770	0.889	1.01	1.24	1.41
5.0	0.237	0.315	0.388	0.526	0.657	0.722	0.848	0.972	1.09	1.33	1.51
1.0	0.332	0.420	0.502	0.655	0.800	0.870	1.01	1.14	1.27	1.53	1.72
	0.040	0.065	0.10	0.15	X	0.25	X	0.40	X	0.65	X
	Acceptable Quality Levels (tightened inspection)										

Note: Values given in the Table above are based on the Poisson distribution as an approximation to the binomial distribution (See 1.1.1 for details).

Table X-R-2—Sampling Plans for Sample Size Code Letter: R

Type of sampling plan	Cumulative sample size	Acceptable Quality Levels (normal inspection)													Cumulative sample size									
		X	0.010	0.015	X	0.025	0.040	0.065	0.10	0.15	X	0.25	X	0.40		X	0.65	Higher than 0.65						
		Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re		Ac Re	Ac Re	Ac Re						
Single	2000	0 1										1 2	2 3	3 4	5 6	7 8	8 9	10 11	12 13	14 15	18 19	21 22	Δ	2000
Double	1250	*										0 2	0 3	1 4	2 5	3 7	3 7	5 9	6 10	7 11	9 14	11 16	Δ	1250
	2500											1 2	3 4	4 5	6 7	8 9	11 12	12 13	15 16	18 19	23 24	26 27		2500
Multiple	500	*										# 2	# 2	# 3	# 4	0 4	0 4	0 5	0 6	1 7	1 8	2 9	Δ	500
	1000											# 2	0 3	0 3	1 5	1 6	2 7	3 8	3 9	4 10	6 12	7 14		1000
	1500											0 2	0 3	1 4	2 6	3 8	4 9	6 10	7 12	8 13	11 17	13 19		1500
	2000											0 3	1 4	2 5	3 7	5 10	6 11	8 13	10 15	12 17	16 22	19 25		2000
	2500											1 3	2 4	3 6	5 8	7 11	9 12	11 15	14 17	17 20	22 25	25 29		2500
	3000											1 3	3 5	4 6	7 9	10 12	12 14	14 17	18 20	21 23	27 29	31 33		3000
3500											2 3	4 5	6 7	9 10	13 14	14 15	18 19	21 22	25 26	32 33	37 38		3500	
		0.010	0.015	X	0.025	0.040	0.065	0.10	0.15	X	0.25	X	0.40	X	0.65	X	Higher than 0.65							
Acceptable Quality Levels (tightened inspection)																								

Δ = Use next preceding sample size code letter for which acceptance and rejection numbers are available.

Ac = Acceptance number.

Re = Rejection number.

* = Use single sampling plan above.

= Acceptance not permitted at this sample size.

Table X-S—Tables for Sample Size Code Letter: S

Type of sampling plan	Cumulative sample size	Acceptable Quality Level (normal inspection)	
		Ac	Re
Single	2000	1	2
Double	2000	0	2
	4000	1	2
Multiple	800	#	2
	1600	#	2
	2400	0	2
	3200	0	3
	4000	1	3
	4800	1	3
	5600	2	3
		0.025	
		Acceptable Quality Level (tightened inspection)	

Ac = Acceptance number.
 Re = Rejection number.
 # = Acceptance not permitted at this sample size.

Table XI—Average Outgoing Quality Limit Factors for ANSI-Z14 Scheme Performance
(In nonconformities per hundred units, also applicable to percent nonconforming for AQL less than 15 with specific values for percent nonconforming shown in parentheses)

Code Letter	Acceptable Quality Level																					
	0.010	0.015	0.025	0.040	0.065	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000	
A										(11) 13			30	48	78	130	200	310	450	710	1100	
B									(6.8) 7.5			19	32	52	84	130	210	300	480	710	1100	
C								(4.4) 4.7			(12) 12	20	31	51	78	130	180	290	430	660		
D							(2.8) 2.9			(7.0) 7.0	(13) 12	20	32	49	76	120	180	270	410			
E									(4.5) 4.5	(7.5) 7.4	(13) 12	20	30	47	69	110	170	260				
F								(2.9) 2.9	(4.9) 4.8	(7.9) 7.8	(14) 13	20	31	45	71							
G								(1.8) 1.8	(3.0) 3.0	(8.7) 8.7	(13) 13	18	28	45								
H								(1.2) 1.2	(2.0) 3.1	(5.1) 5.1	(13) 13	18	29									
J							(.30) .30	(1.2) 2.0	(3.2) 3.2	(5.0) 7.6	(12) 12	18										
K																						
L																						
M																						
N																						
P		.030																				
Q	.019																					
R			.029	.048	.078	.13	.20	.31	.45	.71												

Note: For a better approximation to the AOQL, the above values must be multiplied by $\left(1 - \frac{\text{Normal Plan Sample Size}}{\text{Lot or Batch Size}}\right)$

Table XII—Limiting Quality for ANSI-Z14 Scheme Performance for Which $P_a = 10$ Percent
(In nonconformities per hundred units, also applicable to percent nonconforming for AQL less than 15 with specific values for percent nonconforming shown in parentheses)

Code Letter	Acceptable Quality Level																					
	0.010	0.015	0.025	0.040	0.065	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000	
A										(53.6) 76.7			130	194	266	334	464	650	889	1240	1750	
B									(36.9) 46.0			77.8	130	177	223	309	433	593	825	1170	1680	
C								(25.0) 28.8		(40.6) 48.6		77.8	106	134	185	260	356	495	699	1010		
D							(16.2) 17.7			(26.8) 29.9	(40.6) 48.6	66.5	83.5	116	162	222	309	437	631			
E							(10.9) 11.5		(18.1) 19.4	(26.8) 29.9	(36.0) 40.9	51.4	71.3	100	137	190	269	388				
F									(11.6) 12.2	(18.1) 19.4	(24.5) 26.6	30.4 33.4	46.4	65.0	88.9	124						
G				(4.50) 4.60				(7.56) 7.78	(11.6) 12.2	(15.8) 16.6	(19.7) 20.9	27.1 29.0	40.6	55.6	77.4							
H			(2.84) 2.88			(4.77) 4.86	(7.56) 7.78	(10.3) 10.6	(12.9) 13.4	(17.8) 18.5	(24.7) 26.0	35.6	49.5									
J						(1.83) 1.84	(4.77) 4.86	(6.52) 6.65	(8.16) 8.35	(11.3) 11.6	(15.7) 16.2	21.4 22.2	30.9									
K				1.94	3.11	4.26	5.34	7.42	10.4	14.2	19.8											
L				1.23	1.94	2.66	3.34	4.64	6.50	8.89	12.4											
M				1.23	1.69	2.12	2.94	4.13	5.64	7.86												
N			.288	1.06	1.34	1.85	2.60	3.56	4.95													
P		.184			3.11	4.86	.665	.835	1.16	1.62	2.22	3.09										
Q	.115				.194	.311	.426	.534	.742	1.04	1.42	1.98										
R			.123	.194	.266	.334	.464	.650	.889	1.24												

Table XIII—Limiting Quality for ANSI-Z1.4 Scheme Performance for Which $P_a = 5$ Percent
(In nonconformities per hundred units, also applicable to percent nonconforming for AQL less than 15 with specific values for percent nonconforming shown in parentheses)

Code Letter	Acceptable Quality Level																									
	0.010	0.015	0.025	0.040	0.065	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000					
A										(63.2) 99.8			158	237	315	388	526	722	972	1340	1860					
B									(45.1) 59.9			94.9	158	210	258	350	481	648	890	1240	1770					
C								(31.2) 37.4			(47.1) 59.3															
D							(20.6) 23.0			(31.6) 36.5	(47.1) 59.3															
E						(13.9) 15.0			(21.6) 23.7	(31.6) 36.5	(41.0) 48.4															
F									(14.0) 14.8	(21.6) 23.7	(34.4) 38.8	52.6	72.2	97.2	133											
G									(9.14) 9.49	(14.0) 14.8	(22.5) 24.2	45.1	60.8	83.4												
H									(5.79) 5.93	(9.14) 9.49	(14.8) 15.5	(19.9) 21.0	38.9	53.4												
J									(3.74) 3.79	(7.66) 7.87	(9.41) 9.69	(12.7) 13.1	23.2	33.4												
K																										
L																										
M																										
N																										
P																										
Q	.150																									
R																										

**Table XIV—Average Sample Size Tables for ANSI-Z1.4 Scheme Performance
(Single Sampling)**

Table XIV—A Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code A

P _a	Acceptable Quality Levels (normal inspection)											
	6.5	6.5	25	40	65	100	150	250	400	650	1000	
	p (in nonconformities per hundred units)											
99.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
95.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
90.0	2.1	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
75.0	2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
50.0	2.9	2.9	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
25.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
10.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
5.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
1.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	

A

Table XIV—B Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code B

P _a	Acceptable Quality Levels (normal inspection)											
	4.0	4.0	15	25	40	65	100	150	250	400	650	1000
	p (in nonconformities per hundred units)											
99.0	2.1	2.1	2.7	2.6	2.5	2.7	2.4	2.7	2.5	2.7	2.4	2.7
95.0	2.6	2.6	3.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
90.0	3.1	3.1	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
75.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
50.0	4.8	4.8	4.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
25.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
10.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
1.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

B

Table XIV—C Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code C

P _a	Acceptable Quality Levels (normal inspection)											
	2.5	10	2.5	10	15	25	40	65	100	150	250	400
	p (in nonconformities per hundred units)											
99.0	2.4	3.7	2.4	3.6	3.5	4.0	4.2	4.1	4.1	4.2	4.3	4.0
95.0	3.6	4.8	3.6	4.8	4.8	4.9	5.0	5.0	5.0	5.0	5.0	5.0
90.0	4.7	5.4	4.7	5.4	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
75.0	6.5	6.5	6.5	6.6	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
50.0	7.8	7.7	7.8	7.7	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
25.0	8.0	8.0	8.0	8.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	8.0	8.0	8.0	8.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5.0	8.0	8.0	8.0	8.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
1.0	8.0	8.0	8.0	8.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

C

Table XIV—D Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code D

P _a	Acceptable Quality Levels (normal inspection)													
	1.5	6.5	10	1.5	6.5	10	15	25	40	65	100	150	250	400
	p (in nonconformities per hundred units)													
99.0	3.7	5.8	5.3	3.7	5.7	5.1	6.2	6.6	6.6	5.9	5.8	7.0	6.1	5.4
95.0	5.7	7.7	7.4	5.7	7.6	7.2	7.8	7.9	8.0	7.9	7.9	8.0	8.0	7.9
90.0	7.4	8.6	7.9	7.4	8.6	7.8	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
75.0	11	11	8.0	11	11	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
50.0	13	13	8.0	13	13	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
25.0	13	13	8.0	13	13	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
10.0	13	13	8.0	13	13	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
5.0	13	13	8.0	13	13	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
1.0	13	13	8.0	13	13	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0

D

* p (in percent nonconforming)

**AVERAGE
SAMPLE SIZE
SCHEME
PERFORMANCE**

**Table XIV—Average Sample Size Tables for ANSI-Z1.4 Scheme Performance
(Single Sampling)**

Table XIV—E Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code E

E P_a	Acceptable Quality Levels (normal inspection)														
	1.0	4.0	6.5	10	1.0	4.0	6.5	10	15	25	40	65	100	150	250
	p (in percent nonconformities)				p (in nonconformities per hundred units)										
99.0	6.0	9.4	8.6	11	6.0	9.3	8.4	10	11	10	9.8	8.9	10	11	8.6
95.0	9.2	12	12	13	9.2	12	12	13	13	13	13	13	13	13	13
90.0	12	14	13	13	12	14	13	13	13	13	13	13	13	13	13
75.0	17	17	13	13	17	17	13	13	13	13	13	13	13	13	13
50.0	19	19	13	13	19	19	13	13	13	13	13	13	13	13	13
25.0	20	20	13	13	20	20	13	13	13	13	13	13	13	13	13
10.0	20	20	13	13	20	20	13	13	13	13	13	13	13	13	13
5.0	20	20	13	13	20	20	13	13	13	13	13	13	13	13	13
1.0	20	20	13	13	20	20	13	13	13	13	13	13	13	13	13

Table XIV—F Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code F

F P_a	Acceptable Quality Levels (normal inspection)														
	.65	2.5	4.0	6.5	10	.65	2.5	4.0	6.5	10	15	25	40	65	
	p (in percent nonconforming)					p (in nonconformities per hundred units)									
99.0	9.5	14.6	13.4	15.7	17.9	9.5	14.5	13.2	15.3	16.8	17.8	16.2	15.1	15.7	
95.0	14.4	19.1	18.5	19.5	19.0	14.4	19.0	18.3	19.3	19.8	20.0	19.9	19.8	19.9	
90.0	18.6	21.5	19.7	19.9	20.0	18.6	21.5	19.6	19.9	20.0	20.0	20.0	20.0	20.0	
75.0	26.1	26.2	20.0	20.0	20.0	26.0	26.2	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
50.0	31.0	30.9	20.0	20.0	20.0	31.0	30.9	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
25.0	32.0	32.0	20.0	20.0	20.0	32.0	32.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
10.0	32.0	32.0	20.0	20.0	20.0	32.0	32.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
5.0	32.0	32.0	20.0	20.0	20.0	32.0	32.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
1.0	32.0	32.0	20.0	20.0	20.0	32.0	32.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	

Table XIV—G Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code G

G P_a	Acceptable Quality Levels (normal inspection)														
	.4	1.5	2.5	4.0	6.5	10	.4	1.5	2.5	4.0	6.5	10	15	25	40
	p (in percent nonconforming)						p (in nonconformities per hundred units)								
99.0	15.5	25.1	21.4	25.0	28.1	28.6	15.5	24.9	21.3	24.6	27.1	27.0	26.8	24.4	26.3
95.0	23.1	31.7	29.5	31.2	31.9	32.0	23.1	31.7	29.4	31.0	31.7	31.8	31.9	31.8	31.9
90.0	29.7	34.6	31.4	31.9	32.0	32.0	29.7	34.6	31.4	31.8	32.0	32.0	32.0	32.0	32.0
75.0	41.1	41.4	32.0	32.0	32.0	32.0	41.1	41.4	32.0	32.0	32.0	32.0	32.0	32.0	32.0
50.0	48.6	48.3	32.0	32.0	32.0	32.0	48.6	48.3	32.0	32.0	32.0	32.0	32.0	32.0	32.0
25.0	50.0	50.0	32.0	32.0	32.0	32.0	50.0	50.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
10.0	50.0	50.0	32.0	32.0	32.0	32.0	50.0	50.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
5.0	50.0	50.0	32.0	32.0	32.0	32.0	50.0	50.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
1.0	50.0	50.0	32.0	32.0	32.0	32.0	50.0	50.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0

Table XIV—H Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code H

H

**AVERAGE
SAMPLE SIZE
SCHEME
PERFORMANCE**

* p (in percent nonconforming)

**Table XIV—Average Sample Size Tables for ANSI-Z1.4 Scheme Performance
(Single Sampling)**

Table XIV—J Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code J

P _a	Acceptable Quality Levels (normal inspection)																
	.15	.65	1.0	1.5	2.5	4.0	6.5	10	.15	.65	1.0	1.5	2.5	4.0	6.5	10	15
	p (in percent nonconforming)								p (in nonconformities per hundred units)								
99.0	38.3	58.0	52.9	64.2	68.3	68.7	64.2	64.7	38.3	57.9	52.8	63.7	67.3	67.1	61.7	60.5	73.5
95.0	57.5	76.2	73.4	78.6	79.5	79.7	79.6	79.8	57.5	76.1	73.2	78.5	79.3	79.6	79.3	79.3	80.0
90.0	74.0	85.5	78.5	79.8	79.9	80.0	80.0	80.0	74.0	85.4	78.4	79.8	79.9	80.0	80.0	80.0	80.0
75.0	103	103	80.0	80.0	80.0	80.0	80.0	80.0	103	103	80.0	80.0	80.0	80.0	80.0	80.0	80.0
50.0	121	121	80.0	80.0	80.0	80.0	80.0	80.0	121	121	80.0	80.0	80.0	80.0	80.0	80.0	80.0
25.0	125	125	80.0	80.0	80.0	80.0	80.0	80.0	125	125	80.0	80.0	80.0	80.0	80.0	80.0	80.0
10.0	125	125	80.0	80.0	80.0	80.0	80.0	80.0	125	125	80.0	80.0	80.0	80.0	80.0	80.0	80.0
5.0	125	125	80.0	80.0	80.0	80.0	80.0	80.0	125	125	80.0	80.0	80.0	80.0	80.0	80.0	80.0
1.0	125	125	80.0	80.0	80.0	80.0	80.0	80.0	125	125	80.0	80.0	80.0	80.0	80.0	80.0	80.0

J

Table XIV—K Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code K

P _a	Acceptable Quality Levels (normal inspection)															
	.10	.40	.65	1.0	1.5	2.5	4.0	6.5	10							
	p (in nonconformities per hundred units)															
99.0	59.6	90.5	82.4	99.6	109	105	101	92.6	107							
95.0	90.1	119	114	123	124	124	124	124	125							
90.0	116	134	123	125	125	125	125	125	125							
75.0	163	164	125	125	125	125	125	125	125							
50.0	194	193	125	125	125	125	125	125	125							
25.0	200	200	125	125	125	125	125	125	125							
10.0	200	200	125	125	125	125	125	125	125							
5.0	200	200	125	125	125	125	125	125	125							
1.0	200	200	125	125	125	125	125	125	125							

K

Table XIV—L Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code L

P _a	Acceptable Quality Levels (normal inspection)															
	.065	.25	.40	.65	1.0	1.5	2.5	4.0	6.5							
	p (in nonconformities per hundred units)															
99.0	95.6	145	132	153	168	178	162	151	157							
95.0	144	190	183	193	198	200	199	198	199							
90.0	185	214	196	199	200	200	200	200	200							
75.0	258	260	200	200	200	200	200	200	200							
50.0	306	304	200	200	200	200	200	200	200							
25.0	315	315	200	200	200	200	200	200	200							
10.0	315	315	200	200	200	200	200	200	200							
5.0	315	315	200	200	200	200	200	200	200							
1.0	315	315	200	200	200	200	200	200	200							

L

Table XIV—M Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code M

P _a	Acceptable Quality Levels (normal inspection)															
	.04	.15	.25	.40	.65	1.0	1.5	2.5	4.0							
	p (in nonconformities per hundred units)															
99.0	149	244	207	240	264	263	268	242	263							
95.0	226	312	288	304	312	313	314	313	315							
90.0	292	342	309	313	315	315	315	315	315							
75.0	408	411	315	315	315	315	315	315	315							
50.0	485	483	315	315	315	315	315	315	315							
25.0	500	499	315	315	315	315	315	315	315							
10.0	500	500	315	315	315	315	315	315	315							
5.0	500	500	315	315	315	315	315	315	315							
1.0	500	500	315	315	315	315	315	315	315							

M

**AVERAGE
SAMPLE SIZE
SCHEME
PERFORMANCE**

**Table XIV—Average Sample Size Tables for ANSI-Z1.4 Scheme Performance
(Single Sampling)**

N

Table XIV—N Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code N

P _a	Acceptable Quality Levels (normal inspection)									
	.025	.10	.15	.25	.40	.65	1.0	1.5	2.5	
	p (in nonconformities per hundred units)									
99.0	238	362	353	398	421	407	405	419	427	
95.0	360	476	477	490	496	496	498	499	499	
90.0	465	537	496	499	499	500	500	500	500	
75.0	651	656	500	500	500	500	500	500	500	
50.0	776	772	500	500	500	500	500	500	500	
25.0	799	799	500	500	500	500	500	500	500	
10.0	800	800	500	500	500	500	500	500	500	
5.0	800	800	500	500	500	500	500	500	500	
1.0	800	800	500	500	500	500	500	500	500	

P

Table XIV—P Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code P

P _a	Acceptable Quality Levels (normal inspection)									
	.015	.065	.10	.15	.25	.40	.65	1.0	1.5	
	p (in nonconformities per hundred units)									
99.0	378	576	523	634	670	667	610	598	730	
95.0	572	759	730	784	793	795	792	793	800	
90.0	738	854	784	798	799	800	800	800	800	
75.0	1027	1035	800	800	800	800	800	800	800	
50.0	1214	1208	800	800	800	800	800	800	800	
25.0	1249	1249	800	800	800	800	800	800	800	
10.0	1250	1250	800	800	800	800	800	800	800	
5.0	1250	1250	800	800	800	800	800	800	800	
1.0	1250	1250	800	800	800	800	800	800	800	

Q

Table XIV—Q Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code Q

P _a	Acceptable Quality Levels (normal inspection)									
	.01	.04	.065	.10	.15	.25	.40	.65	1.0	
	p (in nonconformities per hundred units)									
99.0	596	905	824	996	1090	1050	1010	926	1070	
95.0	901	1190	1140	1230	1240	1240	1250	1240	1250	
90.0	1160	1340	1230	1250	1250	1250	1250	1250	1250	
75.0	1630	1640	1250	1250	1250	1250	1250	1250	1250	
50.0	1940	1930	1250	1250	1250	1250	1250	1250	1250	
25.0	2000	2000	1250	1250	1250	1250	1250	1250	1250	
10.0	2000	2000	1250	1250	1250	1250	1250	1250	1250	
5.0	2000	2000	1250	1250	1250	1250	1250	1250	1250	
1.0	2000	2000	1250	1250	1250	1250	1250	1250	1250	

R

Table XIV—R Tabulated Values for Average Sample Size for ANSI-Z1.4 Scheme Performance

Code R

P _a	Acceptable Quality Levels (normal inspection)									
	.025	.040	.065	.10	.15	.25	.40	.65		
	p (in nonconformities per hundred units)									
99.0	1450	1320	1530	1680	1780	1620	1510	1570		
95.0	1900	1830	1930	1980	2000	1990	1980	1990		
90.0	2140	1960	1990	2000	2000	2000	2000	2000		
75.0	2600	2000	2000	2000	2000	2000	2000	2000		
50.0	3040	2000	2000	2000	2000	2000	2000	2000		
25.0	3150	2000	2000	2000	2000	2000	2000	2000		
10.0	3150	2000	2000	2000	2000	2000	2000	2000		
5.0	3150	2000	2000	2000	2000	2000	2000	2000		
1.0	3150	2000	2000	2000	2000	2000	2000	2000		

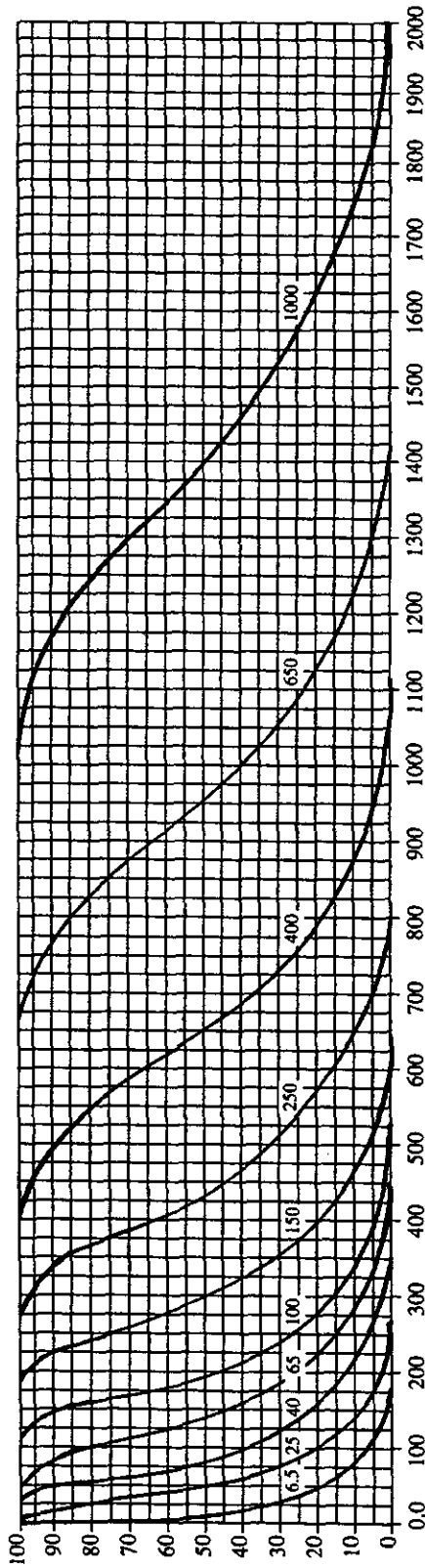
**AVERAGE
SAMPLE SIZE
SCHEME
PERFORMANCE**

Scheme Performance with Switching Rules

Chart XV-A Operating Characteristic Curves for ANSI Z1.4 Scheme Performance

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE XV-A-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

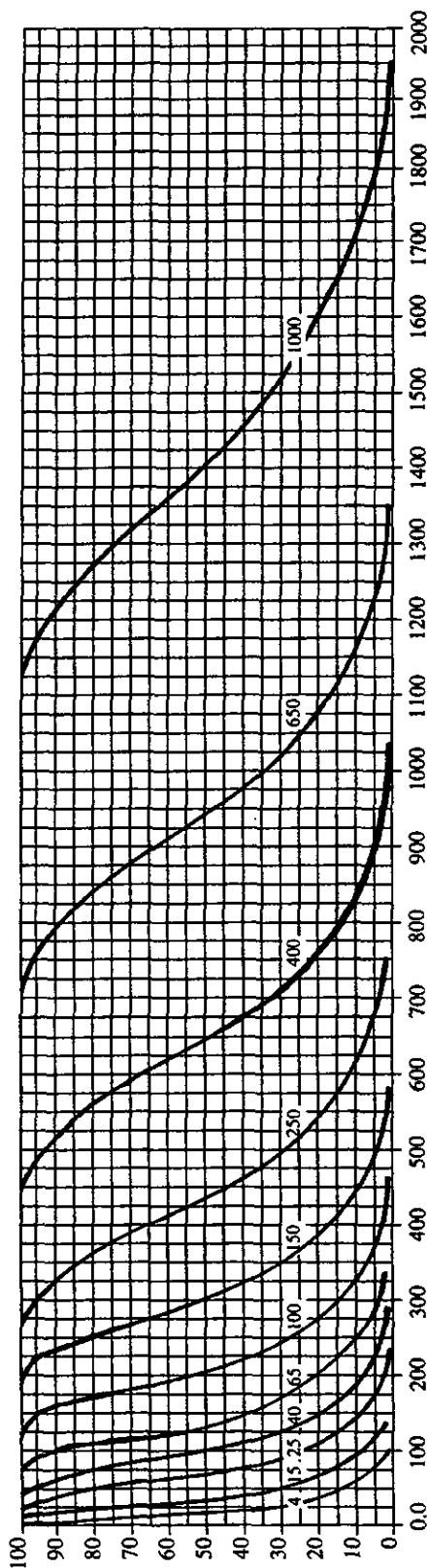
P _a	Acceptable Quality Levels (normal inspection)										
	6.5	6.5	25	40	65	100	150	250	400	650	1000
	p (in nonconformities per hundred units)										
99.0	0.501	0.502	7.43	21.8	41.2	89.1	145	239	374	628	977
95.0	2.50	2.53	17.5	38.7	66.1	123	192	302	456	734	1110
90.0	4.84	4.96	24.6	47.9	79.9	138	214	333	497	783	1180
75.0	10.8	11.4	38.0	63.7	103	162	248	380	560	855	1270
50.0	21.2	23.8	57.8	88.5	138	195	294	443	642	948	1400
25.0	37.0	46.3	89.9	135	196	256	372	540	761	1090	1570
10.0	53.6	76.7	130	194	266	334	464	650	889	1240	1750
5.0	63.2	99.8	158	237	315	388	526	722	972	1340	1860
1.0	78.4	154	221	332	420	502	655	871	1140	1530	2090

B SCHEME PERFORMANCE

Scheme Performance with Switching Rules *Chart XV-B Operating Characteristic Curves for ANSI Z14 Scheme Performance*

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for $AQLs \leq 10$; in nonconformities per hundred units for $AQLs > 10$)
Note: Figures on curves are Acceptable Quality Levels ($AQLs$) for normal inspection.

TABLE XV-B-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

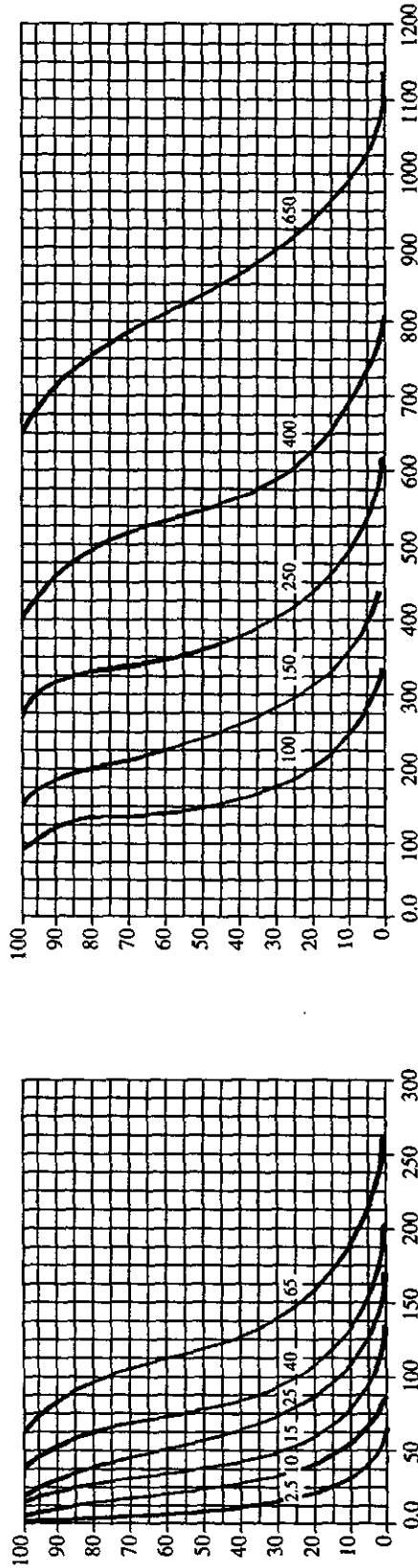
P_a	Acceptable Quality Levels (normal inspection)														
	4.0	1.5	0.65	0.25	0.10	0.05	0.025	0.01	0.005	0.0025	0.001	0.0005	0.00025	0.0001	0.00005
	p (in nonconformities per hundred units)														
99.0	0.467	5.46	16.2	31.4	60.2	92.5	154	244	401	637	1010				
95.0	1.96	11.6	25.8	44.4	81.9	128	201	304	489	742	1150				
90.0	3.40	15.9	31.9	53.3	92.2	143	222	332	522	785	1200				
75.0	6.94	23.8	42.4	68.8	108	165	253	373	570	850	1290				
50.0	13.4	35.1	59.0	92.0	130	196	295	428	632	931	1400				
25.0	24.2	53.9	89.9	131	171	248	360	507	725	1050	1540				
10.0	36.9	77.8	130	177	223	309	433	593	825	1170	1680				
5.0	45.1	94.9	158	210	258	350	481	648	890	1240	1770				
1.0	60.2	133	221	280	335	437	581	761	1020	1390	1950				

Scheme Performance with Switching Rules

Chart XV-C Operating Characteristic Curves for ANSI Z1.4 Scheme Performance

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE XV-C-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

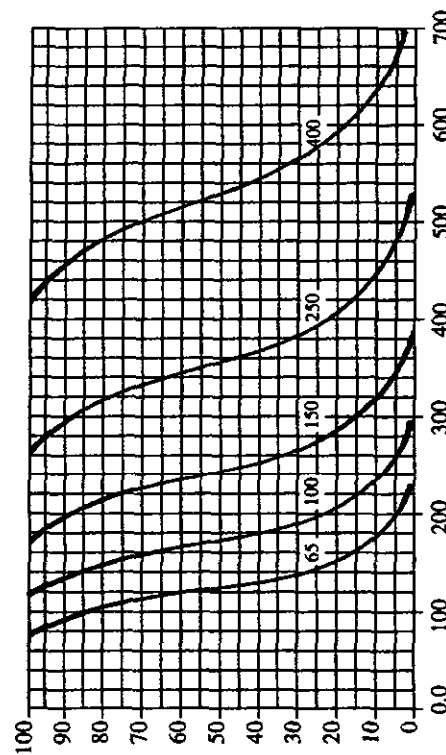
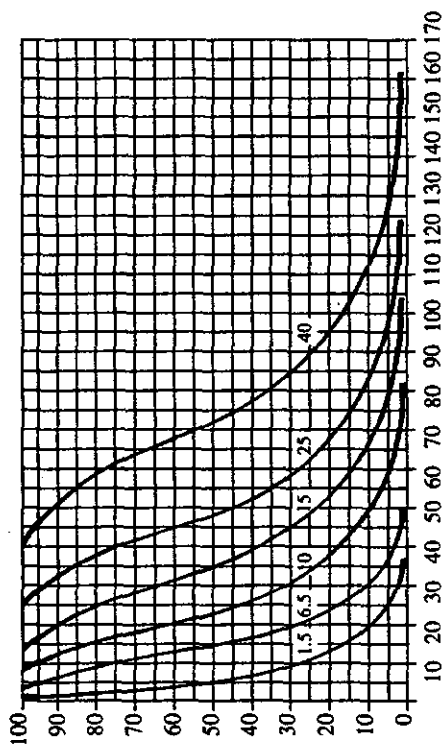
P_a	Acceptable Quality Levels (normal inspection)												
	2.5	10	2.5	10	15	25	40	65	100	150	250	400	650
	p (in percent nonconforming)												
99.0	0.416	4.16	0.416	3.83	10.8	18.4	37.7	61.3	100	154	256	399	640
95.0	1.42	7.73	1.43	7.29	15.7	26.6	49.2	76.9	121	183	294	445	689
90.0	2.26	10.2	2.29	9.79	19.2	32.0	55.3	85.7	133	199	313	471	722
75.0	4.36	14.7	4.46	14.6	25.5	41.3	64.7	99.0	152	224	342	510	774
50.0	8.58	20.9	8.98	21.8	35.4	55.2	77.8	117	177	257	379	559	838
25.0	15.9	30.3	17.3	33.07	53.9	78.5	102	149	216	304	435	627	924
10.0	25.0	40.6	28.8	48.6	77.8	106	134	185	260	356	495	699	1010
5.0	31.2	47.1	37.4	59.3	94.9	126	155	210	289	389	534	745	1060
1.0	43.7	58.9	57.6	83.0	133	168	201	262	348	457	612	835	1170

D **SCHEME** **PERFORMANCE**

Scheme Performance with Switching Rules *Chart XV-D Operating Characteristic Curves for ANSI Z1.4 Scheme Performance*

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE XV-D-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

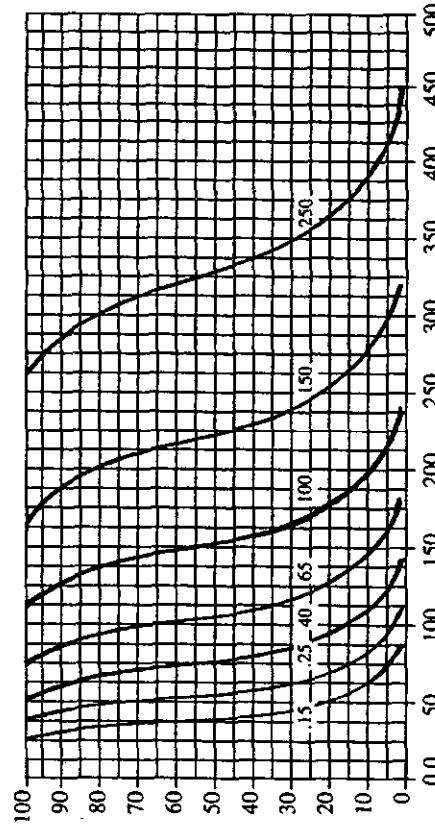
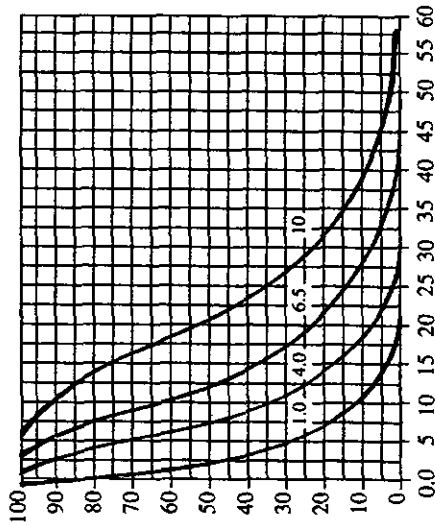
P _a	Acceptable Quality Levels (normal inspection)														
	1.5	6.5	10	1.5	6.5	10	15	25	40	65	100	150	250	400	
	p (in percent nonconforming)														
p (in nonconformities per hundred units)															
99.0	0.272	2.55	7.86	0.273	2.43	7.20	11.6	23.7	38.3	64.1	99.7	160	252	403	
95.0	0.911	4.73	10.7	0.915	4.57	10.1	16.6	30.8	48.0	75.7	114	184	278	431	
90.0	1.43	6.26	12.7	1.44	6.10	12.1	20.0	34.6	53.5	83.2	124	196	294	451	
75.0	2.73	9.10	16.2	2.77	9.07	15.9	25.8	40.4	61.9	95.0	140	214	319	484	
50.0	5.38	13.1	21.3	5.53	13.5	22.1	34.5	48.6	73.4	111	161	237	349	524	
25.0	10.1	19.4	30.3	10.7	20.7	33.7	49.0	64.0	92.9	135	190	272	392	577	
10.0	16.2	26.8	40.6	17.7	29.9	48.6	66.5	83.5	116	162	222	309	437	631	
5.0	20.6	31.6	47.1	23.0	36.5	59.3	78.7	96.9	131	180	243	334	465	665	
1.0	29.8	41.3	58.9	35.5	51.1	83.0	105	126	164	218	285	382	522	732	

Scheme Performance with Switching Rules

Chart XV-E Operating Characteristic Curves for ANSI Z14 Scheme Performance

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

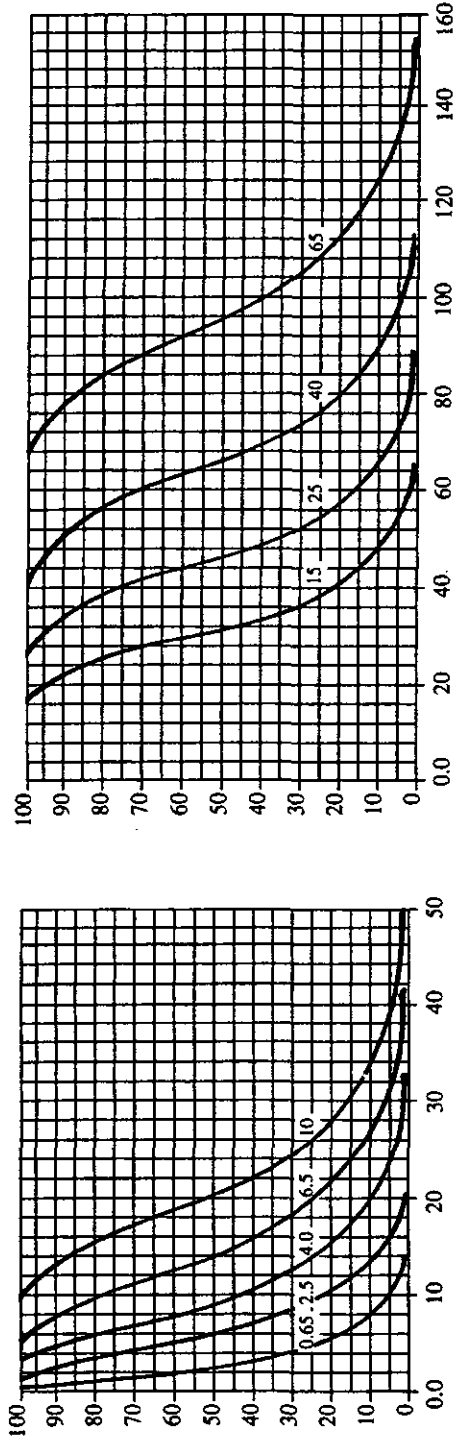
TABLE XV-E-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

P_a	Acceptable Quality Levels (normal inspection)															
	p (in percent nonconforming)								p (in nonconformities per hundred units)							
	1.0	4.0	6.5	10	1.0	4.0	6.5	10	15	25	40	65	100	150	250	
99.0	0.165	1.53	4.64	7.62	0.165	1.48	4.41	7.13	14.4	23.7	39.3	62.2	100	153	248	
95.0	0.558	2.88	6.42	10.9	0.560	2.82	6.19	10.2	18.9	29.6	46.6	70.6	113	171	265	
90.0	0.889	3.86	7.64	12.9	0.893	3.80	7.42	12.3	21.3	32.9	51.2	76.5	120	181	278	
75.0	1.74	5.77	9.88	16.2	1.75	5.76	9.80	15.9	24.9	38.1	58.4	86.2	132	196	298	
50.0	3.51	8.55	13.3	20.7	3.58	8.70	13.6	21.2	29.9	45.2	68.1	98.8	146	215	322	
25.0	6.70	12.9	19.4	28.0	6.94	13.5	20.7	30.2	39.4	57.2	83.1	117	167	241	355	
10.0	10.9	18.1	26.8	36.0	11.5	19.4	29.9	40.9	51.4	71.3	100	137	190	269	388	
5.0	13.9	21.6	31.6	41.0	15.0	23.7	36.5	48.4	59.6	80.9	111	150	205	286	409	
1.0	20.6	28.9	41.3	50.6	23.1	33.2	51.1	64.7	77.3	101	134	176	235	321	450	

Scheme Performance with Switching Rules *Chart XV-F Operating Characteristic Curves for ANSI Z1.4 Scheme Performance*

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for $AQLs \leq 10$; in nonconformities per hundred units for $AQLs > 10$)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE XV-F-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

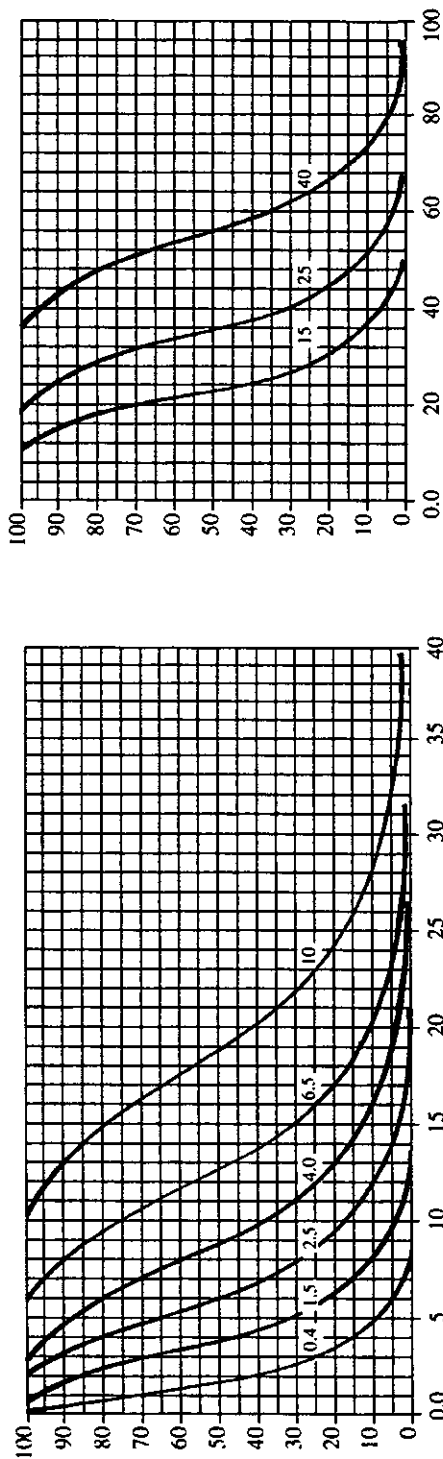
P _a	Acceptable Quality Levels (normal inspection)																	
	.65	2.5	4.0	6.5	10	p (in nonconformities per hundred units)												
						p (in percent nonconforming)												
						.65	2.5	4.0	6.5	10	15	25	40	65				
99.0	0.104	.978	2.94	4.93	10.1	0.104	.958	2.84	4.72	9.41	15.0	25.0	39.5	64.9				
95.0	0.357	1.85	4.11	6.94	13.0	0.358	1.82	4.02	6.69	12.3	19.2	30.2	45.7	73.4				
90.0	0.571	2.47	4.91	8.24	14.4	0.572	2.45	4.82	8.00	13.8	21.4	33.3	49.7	78.3				
75.0	1.11	3.66	6.40	10.4	16.5	1.11	3.66	6.37	10.3	16.2	24.8	38.0	56.0	85.5				
50.0	2.22	5.40	8.71	13.6	19.2	2.24	5.46	8.85	13.8	19.5	29.4	44.3	64.2	94.8				
25.0	4.24	8.21	12.9	18.7	24.3	4.34	8.43	13.5	19.6	25.6	37.2	54.0	76.1	109				
10.0	6.94	11.6	18.1	24.5	30.4	7.19	12.2	19.4	26.6	33.4	46.4	65.0	88.9	124				
5.0	8.94	14.0	21.6	28.3	34.4	9.36	14.8	23.7	31.5	38.8	52.6	72.2	97.2	133				
1.0	13.4	19.0	28.9	35.8	42.1	14.4	20.7	33.2	42.0	50.2	65.5	87.1	114	153				

Scheme Performance with Switching Rules

Chart XV-G Operating Characteristic Curves for ANSI Z1.4 Scheme Performance

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for $AQLs \leq 10$; in nonconformities per hundred units for $AQLs > 10$)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection

TABLE XV-G-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

P _a	Acceptable Quality Levels (normal inspection)															
	p (in percent nonconforming)							p (in nonconformities per hundred units)								
	.4	1.5	2.5	4.0	6.5	10	.4	1.5	2.5	4.0	6.5	10	15	25	40	
99.0	0.0643	0.571	1.80	3.02	6.12	10.0	0.0643	.564	1.77	2.95	5.88	9.49	15.5	24.6	40.3	
95.0	0.223	1.12	2.54	4.28	7.96	12.6	0.223	1.11	2.51	4.18	7.69	12.0	18.9	28.6	45.9	
90.0	0.357	1.53	3.05	5.09	8.87	13.9	0.358	1.52	3.01	5.00	8.64	13.4	20.8	31.1	48.9	
75.0	0.703	2.32	3.99	6.49	10.2	15.7	0.706	2.32	3.98	6.45	10.1	15.5	23.7	35.0	53.4	
50.0	1.42	3.46	5.48	8.54	12.1	18.2	1.43	3.48	5.53	8.63	12.2	18.3	27.7	40.1	59.2	
25.0	2.74	5.30	8.21	11.9	15.5	22.3	2.78	5.39	8.43	12.3	16.0	23.2	33.8	47.6	67.9	
10.0	4.50	7.56	11.6	15.8	19.7	27.1	4.60	7.78	12.2	16.6	20.9	29.0	40.6	55.6	77.4	
5.0	5.81	9.14	14.0	18.4	22.5	30.1	5.99	9.49	14.8	19.7	24.2	32.9	45.1	60.8	83.4	
1.0	8.80	12.5	19.0	23.8	28.1	36.0	9.22	13.3	20.7	26.3	31.4	41.0	54.4	71.4	95.6	

Scheme Performance with Switching Rules
Chart XV-H Operating Characteristic Curves for ANSI Z1.4 Scheme Performance
(Curves for double and multiple sampling are matched as closely as practicable)

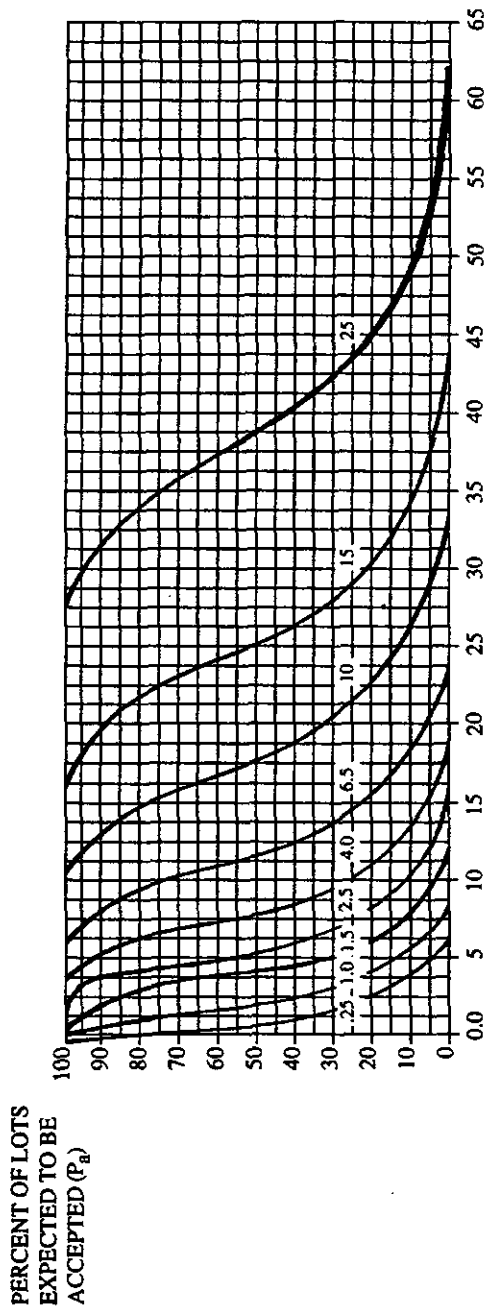


TABLE XV-H-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

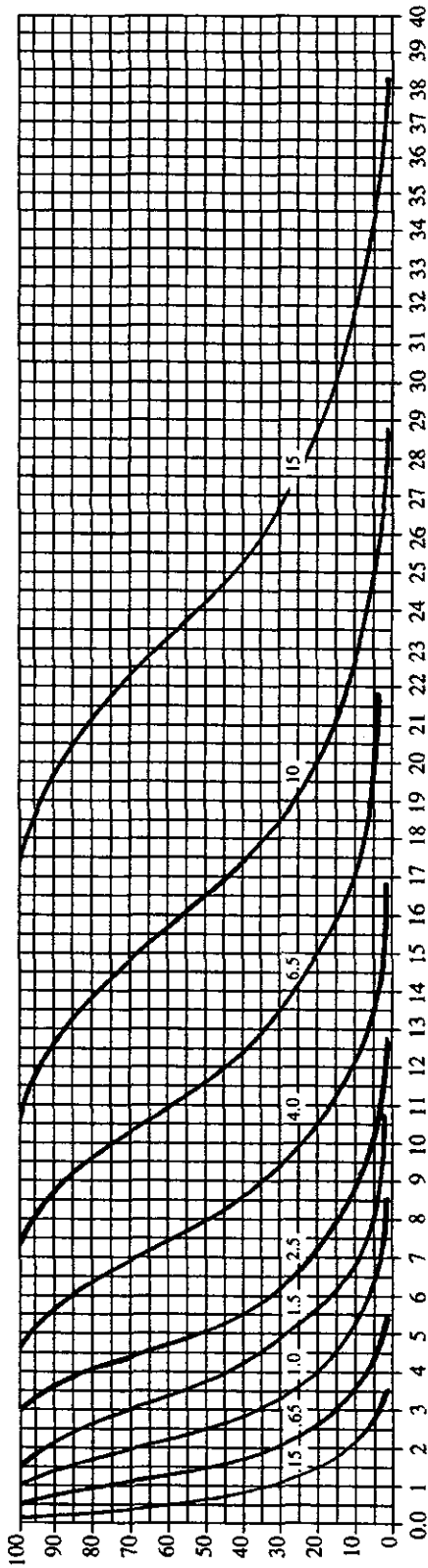
P_a	Acceptable Quality Levels (normal inspection)														
	p (in percent nonconforming)							p (in nonconformities per hundred units)							
	.25	1.0	1.5	2.5	4.0	6.5	10	.0416	0.383	1.08	1.84	3.77	6.14	10.0	15.4
99.0	0.0416	0.386	1.09	1.87	3.86	6.33	10.4	0.0416	0.383	1.08	1.84	3.77	6.14	10.0	15.4
95.0	0.143	0.733	1.59	2.70	5.03	7.92	12.6	0.143	0.729	1.57	2.66	4.92	7.69	12.1	18.3
90.0	0.229	0.983	1.93	3.23	5.62	8.76	13.7	0.229	0.979	1.92	3.20	5.53	8.57	13.3	19.9
75.0	0.445	1.46	2.55	4.15	6.52	10.0	15.4	0.446	1.46	2.55	4.13	6.47	9.90	15.2	22.4
50.0	0.893	2.17	3.52	5.49	7.74	11.7	17.6	0.898	2.18	3.54	5.52	7.78	11.7	17.7	25.7
25.0	1.72	3.34	5.30	7.70	10.0	14.5	21.0	1.73	3.37	5.39	7.85	10.2	14.9	21.6	30.4
10.0	2.84	4.77	7.56	10.3	12.9	17.8	24.7	2.88	4.86	7.78	10.6	13.4	18.5	26.0	35.6
5.0	3.68	5.79	9.14	12.1	14.8	19.9	27.0	3.74	5.93	9.49	12.6	15.5	21.0	28.9	38.9
1.0	5.59	8.01	12.5	15.8	18.7	24.1	31.6	5.76	8.30	13.3	16.8	20.1	26.2	34.8	45.7

Scheme Performance with Switching Rules

Chart XV-J Operating Characteristic Curves for ANSI Z1.4 Scheme Performance

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p, in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

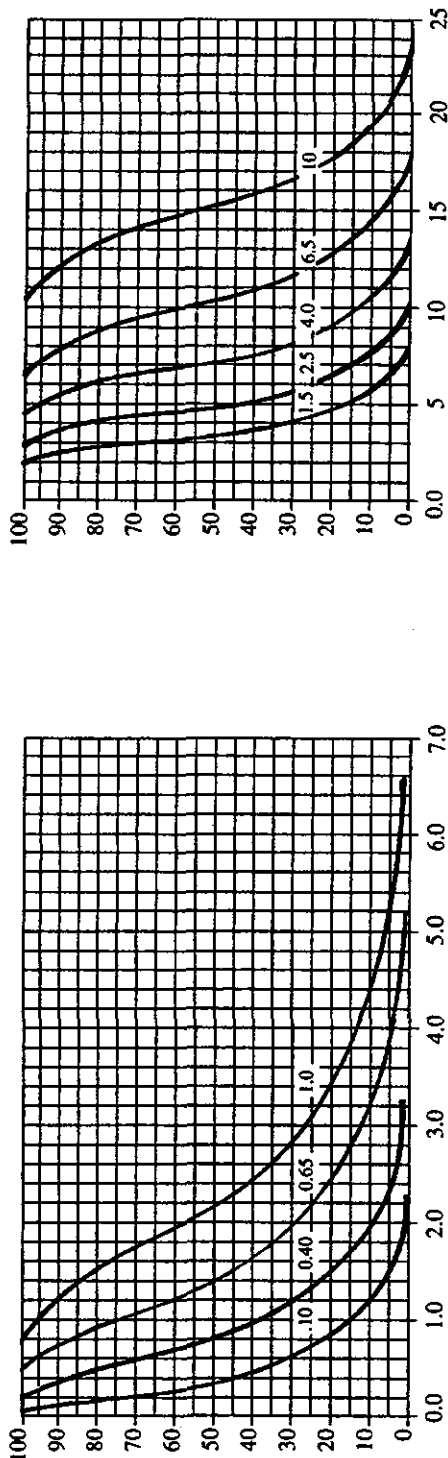
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE XV-J-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

P_a	Acceptable Quality Levels (normal inspection)															
	p (in percent nonconforming)								p (in nonconformities per hundred units)							
	.15	.65	1.0	1.5	2.5	4.0	6.5	10	.15	.65	1.0	1.5	2.5	4.0	6.5	10
99.0	0.0260	0.240	0.715	1.16	2.39	3.88	6.49	10.2	0.0260	0.239	0.710	1.15	2.35	3.80	6.35	9.87
95.0	0.0896	0.458	1.01	1.68	3.12	4.89	7.74	11.8	0.0897	0.457	1.00	1.66	3.08	4.80	7.56	11.4
90.0	0.144	0.617	1.21	2.01	3.49	5.43	8.48	12.7	0.144	0.615	1.20	2.00	3.46	5.35	8.32	12.4
75.0	0.282	0.928	1.59	2.59	4.06	6.23	9.58	14.2	0.282	0.928	1.59	2.58	4.04	6.19	9.50	14.0
50.0	0.571	1.39	2.20	3.44	4.85	7.31	11.0	16.0	0.573	1.39	2.21	3.45	4.86	7.34	11.1	16.1
25.0	1.10	2.14	3.34	4.85	6.32	9.15	13.3	18.6	1.11	2.16	3.37	4.90	6.40	9.29	13.5	19.0
10.0	1.83	3.08	4.77	6.52	8.16	11.3	15.7	21.4	1.84	3.11	4.86	6.65	8.35	11.6	16.2	22.2
5.0	2.37	3.74	5.79	7.66	9.41	12.7	17.3	23.2	2.40	3.79	5.93	7.87	9.69	13.1	18.0	24.3
1.0	3.62	5.19	8.01	10.1	12.0	15.6	20.5	26.6	3.69	5.31	8.30	10.5	12.6	16.4	21.8	28.5
																38.2

Scheme Performance with Switching Rules
Chart XV-K Operating Characteristic Curves for ANSI Z1.4 Scheme Performance
(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE XV-K-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

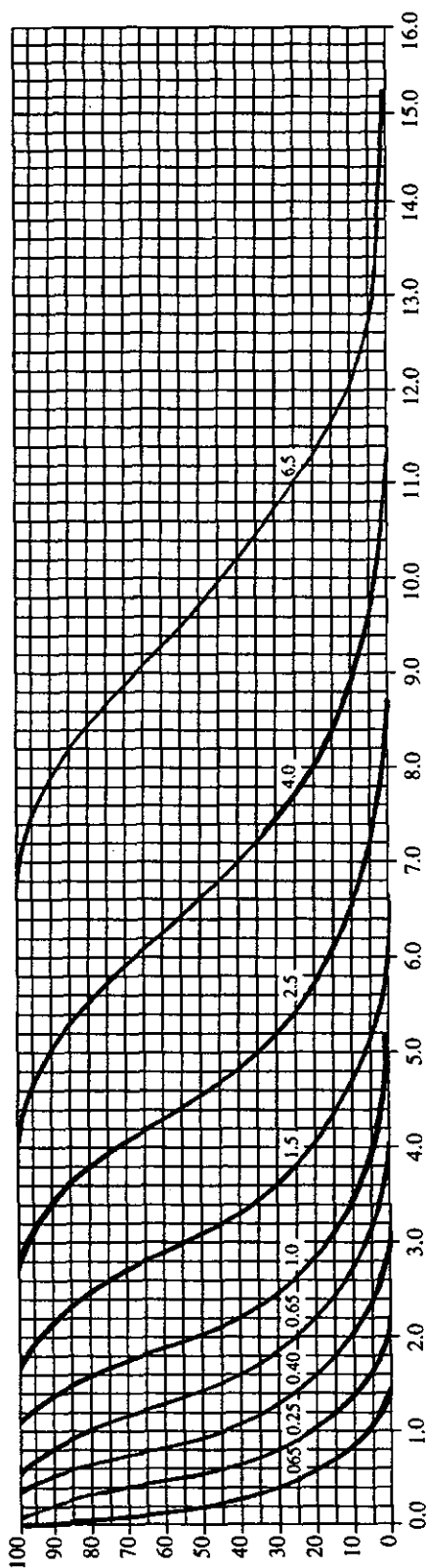
P_a	Acceptable Quality Levels (normal inspection)										
	.10	.40	.65	1.0	1.5	2.5	4.0	6.5	10		
	p (in percent nonconforming or nonconformities per hundred units)										
99.0	0.0167	0.153	0.455	0.738	1.49	2.43	4.01	6.34	10.3		
95.0	0.0573	0.292	0.643	1.06	1.97	3.07	4.84	7.32	11.7		
90.0	0.0916	0.392	0.771	1.28	2.21	3.43	5.33	7.96	12.5		
75.0	0.178	0.586	1.02	1.65	2.59	3.96	6.08	8.96	13.7		
50.0	0.359	0.873	1.42	2.21	3.11	4.70	7.08	10.3	15.2		
25.0	0.694	1.35	2.16	3.14	4.10	5.94	8.65	12.2	17.4		
10.0	1.15	1.94	3.11	4.26	5.34	7.42	10.4	14.2	19.8		
5.0	1.50	2.37	3.79	5.04	6.20	8.41	11.5	15.6	21.4		
1.0	2.31	3.32	5.31	6.73	8.04	10.5	13.9	18.3	24.5		

Scheme Performance with Switching Rules

Chart XV-L Operating Characteristic Curves for ANSI Z1.4 Scheme Performance

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

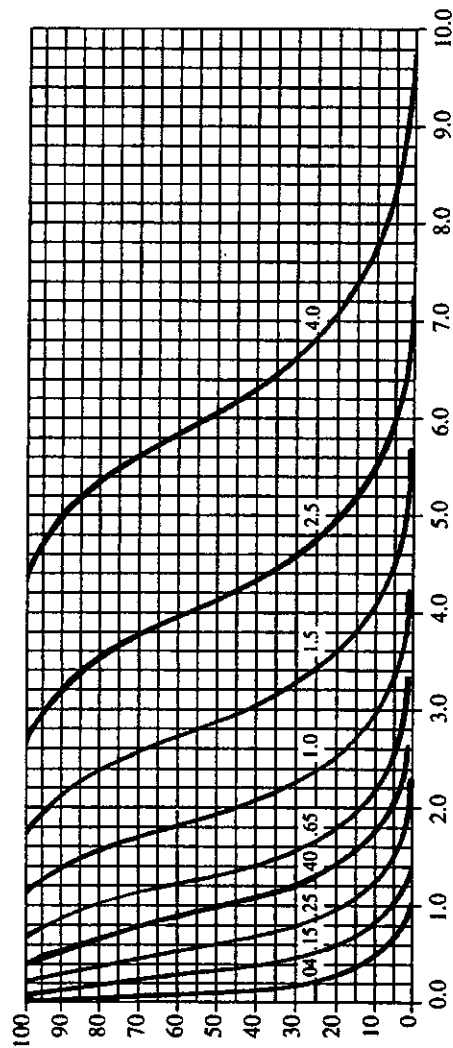
TABLE XV-L-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR SINGLE SAMPLING PLANS

P_a	Acceptable Quality Levels (normal inspection)											
	p (in percent nonconforming or nonconformities per hundred units)											
	.065	.25	.40	.65	1.0	1.5	2.5	4.0	6.5			
99.0	0.0104	0.0957	0.284	0.472	0.941	1.50	2.50	3.95	6.49			
95.0	0.0358	0.183	0.402	0.669	1.23	1.92	3.02	4.57	7.34			
90.0	0.0574	0.246	0.482	0.800	1.38	2.14	3.33	4.97	7.83			
75.0	0.112	0.369	0.637	1.03	1.62	2.48	3.80	5.60	8.55			
50.0	0.228	0.554	0.885	1.38	1.95	2.94	4.43	6.42	9.48			
25.0	0.441	0.856	1.35	1.96	2.56	3.72	5.40	7.61	10.9			
10.0	0.731	1.23	1.94	2.66	3.34	4.64	6.50	8.89	12.4			
5.0	0.951	1.51	2.37	3.15	3.88	5.26	7.22	9.72	13.3			
1.0	1.46	2.11	3.32	4.20	5.02	6.55	8.71	11.4	15.3			

Scheme Performance with Switching Rules *Chart XV-M Operating Characteristic Curves for ANSI Z1.4 Scheme Performance*

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE XV-M-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

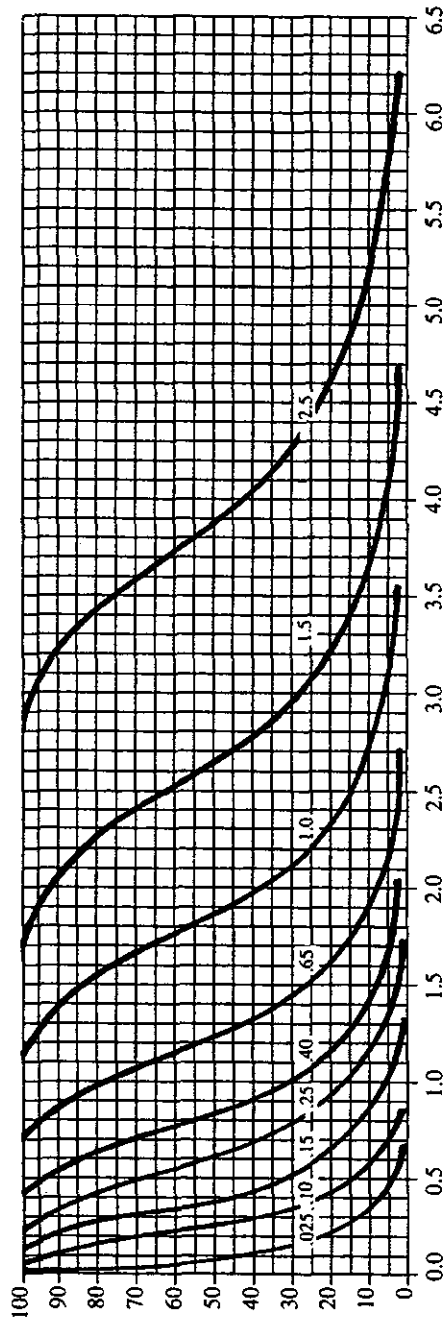
P_a	Acceptable Quality Levels (normal inspection)										
	.04	.15	.25	.40	.65	1.0	1.5	2.5	4.0		
	p (in percent nonconforming or nonconformities per hundred units)										
99.0	0.00665	0.0574	0.181	0.300	0.598	0.967	1.57	2.50	4.08		
95.0	0.0228	0.113	0.255	0.425	0.781	1.22	1.92	2.90	4.66		
90.0	0.0364	0.154	0.306	0.508	0.878	1.36	2.11	3.16	4.97		
75.0	0.0711	0.233	0.404	0.655	1.03	1.57	2.41	3.56	5.43		
50.0	0.143	0.349	0.562	0.876	1.23	1.86	2.81	4.08	6.02		
25.0	0.278	0.539	0.856	1.25	1.63	2.36	3.43	4.83	6.90		
10.0	0.460	0.778	1.23	1.69	2.12	2.94	4.13	5.64	7.86		
5.0	0.599	0.949	1.51	2.00	2.46	3.34	4.58	6.17	8.47		
1.0	0.922	1.33	2.11	2.67	3.19	4.16	5.53	7.25	9.71		

Scheme Performance with Switching Rules

Chart XV-N Operating Characteristic Curves for ANSI Z1.4 Scheme Performance

(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P)



Quality of submitted product (p, in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

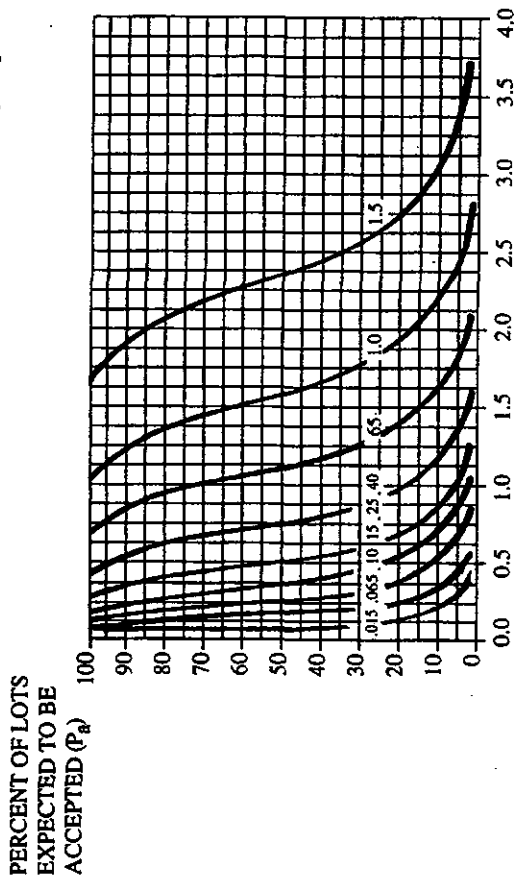
TABLE XV-N-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

P,	Acceptable Quality Levels (normal inspection)										
	.025	.10	.15	.25	.40	.65	1.0	1.5	2.5		
	p (in percent nonconforming or nonconformities per hundred units)										
99.0	0.00416	0.0383	0.108	0.184	0.377	0.613	1.00	1.54	2.56		
95.0	0.0143	0.0729	0.157	0.266	0.492	0.769	1.21	1.83	2.94		
90.0	0.0229	0.0979	0.192	0.320	0.553	0.857	1.33	1.99	3.13		
75.0	0.0446	0.146	0.255	0.413	0.647	0.990	1.52	2.24	3.42		
50.0	0.0898	0.218	0.354	0.552	0.778	1.17	1.77	2.57	3.79		
25.0	0.174	0.337	0.539	0.785	1.02	1.49	2.16	3.04	4.35		
10.0	0.288	0.486	0.778	1.06	1.34	1.85	2.60	3.56	4.95		
5.0	0.374	0.593	0.949	1.26	1.55	2.10	2.89	3.89	5.34		
1.0	0.576	0.830	1.33	1.68	2.01	2.62	3.48	4.57	6.12		

Scheme Performance with Switching Rules

Chart XV-P Operating Characteristic Curves for ANSI Z1.4 Scheme Performance

(Curves for double and multiple sampling are matched as closely as practicable)



Quality of submitted product (p, in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

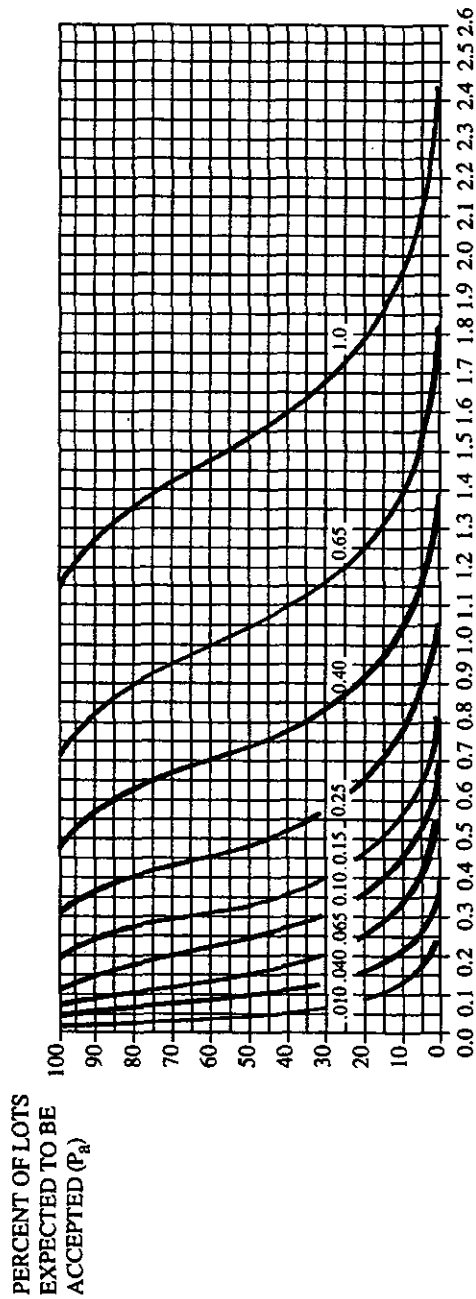
TABLE XV-P-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

P_a	Acceptable Quality Levels (normal inspection)											
	p (in percent nonconforming or nonconformities per hundred units)											
	.015	.065	.10	.15	.25	.40	.65	1.0	1.5			
99.0	0.00263	0.0240	0.0713	0.116	0.236	0.381	0.636	0.989	1.59			
95.0	0.00901	0.0457	0.101	0.166	0.308	0.480	0.757	1.14	1.84			
90.0	0.0144	0.0616	0.121	0.200	0.346	0.535	0.832	1.24	1.96			
75.0	0.0283	0.0928	0.159	0.258	0.404	0.619	0.950	1.40	2.14			
50.0	0.0573	0.139	0.221	0.345	0.486	0.734	1.11	1.61	2.37			
25.0	0.111	0.216	0.337	0.490	0.640	0.929	1.35	1.90	2.72			
10.0	0.184	0.311	0.486	0.665	0.835	1.16	1.62	2.22	3.09			
5.0	0.240	0.379	0.593	0.787	0.969	1.31	1.80	2.43	3.34			
1.0	0.369	0.531	0.830	1.05	1.26	1.64	2.18	2.85	3.82			

Scheme Performance with Switching Rules

Chart XV-Q Operating Characteristic Curves for ANSI Z1.4 Scheme Performance

(Curves for double and multiple sampling are matched as closely as practicable)



Quality of submitted product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)

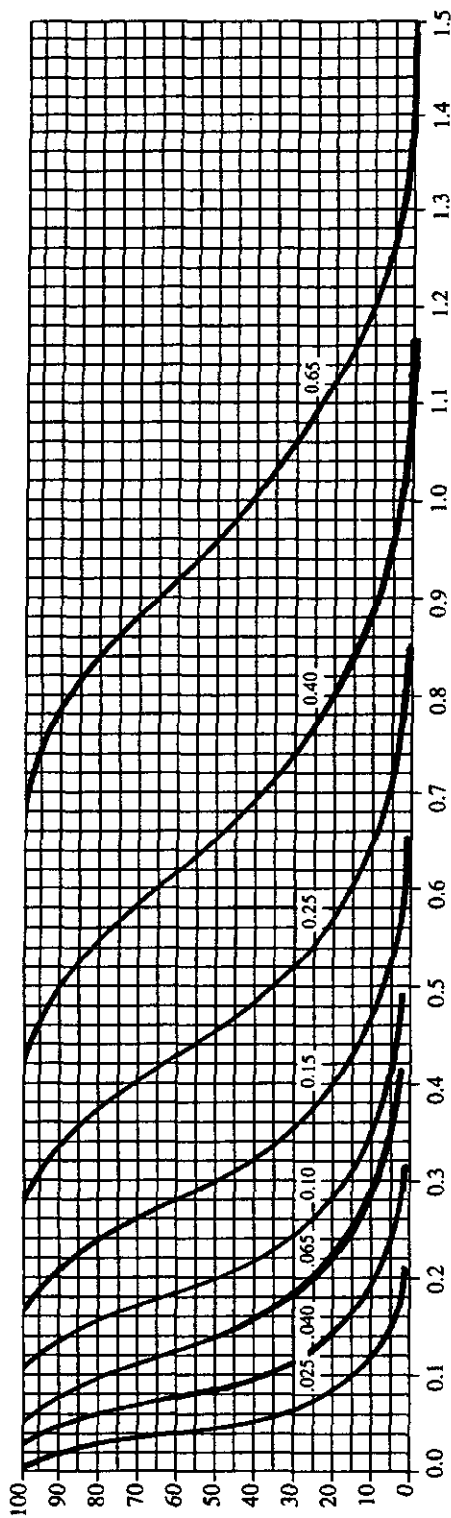
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE XV-Q-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

P_a	Acceptable Quality Levels (normal inspection)											
	.01	.04	.065	.10	.15	.25	.40	.65	1.0			
	p (in percent nonconforming or nonconformities per hundred units)											
99.0	0.00167	0.0153	0.0455	0.0738	0.149	0.243	0.401	0.634	1.03			
95.0	0.00573	0.0292	0.0643	0.106	0.197	0.307	0.484	0.732	1.17			
90.0	0.00915	0.0392	0.0771	0.128	0.221	0.343	0.533	0.796	1.25			
75.0	0.0178	0.0586	0.102	0.165	0.259	0.396	0.608	0.896	1.37			
50.0	0.0358	0.0873	0.142	0.221	0.311	0.470	0.708	1.03	1.52			
25.0	0.0694	0.135	0.216	0.314	0.410	0.594	0.865	1.22	1.74			
10.0	0.115	0.194	0.311	0.426	0.534	0.742	1.04	1.42	1.98			
5.0	0.150	0.237	0.379	0.504	0.620	0.841	1.15	1.56	2.14			
1.0	0.231	0.332	0.531	0.673	0.804	1.05	1.39	1.83	2.45			

Scheme Performance with Switching Rules
Chart XV-R Operating Characteristic Curves for ANSI Z1.4 Scheme Performance
(Curves for double and multiple sampling are matched as closely as practicable)

PERCENT OF LOTS
EXPECTED TO BE
ACCEPTED (P_a)



Quality of submitted product (p , in percent nonconforming for AQLs ≤ 10 ; in nonconformities per hundred units for AQLs > 10)
Note: Figures on curves are Acceptable Quality Levels (AQLs) for normal inspection.

TABLE XV-R-1—TABULATED VALUES FOR OPERATING CHARACTERISTIC CURVES FOR ANSI Z1.4 SCHEME PERFORMANCE

P_a	Acceptable Quality Levels (normal inspection)									
	.025	.040	.065	.10	.15	.25	.40	.65		
	p (in percent nonconforming or nonconformities per hundred units)									
99.0	0.00957	0.0284	0.0473	0.0941	0.150	0.250	0.395	0.649		
95.0	0.0183	0.0402	0.0669	0.123	0.192	0.302	0.457	0.734		
90.0	0.0246	0.0482	0.0800	0.138	0.214	0.333	0.497	0.783		
75.0	0.0369	0.0637	0.103	0.162	0.248	0.380	0.560	0.855		
50.0	0.0554	0.0885	0.138	0.195	0.294	0.443	0.642	0.948		
25.0	0.0856	0.135	0.196	0.256	0.372	0.540	0.761	1.09		
10.0	0.123	0.194	0.266	0.334	0.464	0.650	0.889	1.24		
5.0	0.151	0.237	0.315	0.388	0.526	0.722	0.972	1.33		
1.0	0.211	0.332	0.420	0.502	0.656	0.871	1.14	1.53		

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