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An American National Standard

# Standard Practice for Use of Process Oriented AOQL and LTPD Sampling Plans<sup>1</sup>

This standard is issued under the fixed designation E 1994; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\varepsilon$ ) indicates an editorial change since the last revision or reapproval.

#### INTRODUCTION

This standard is an abbreviated compilation of the sampling plans presented by H.F. Dodge and H.G. Romig in their classic development of sampling plans for use with the process associated with a continuing supply of products. The so called AOQL plans provide a means for disposition of product whether or not the process is in control as well as incentives for process improvement in terms of reduced sample size as the process average percent defective is lowered. In addition, so called LTPD plans are provided for use with individual lots of product, not necessarily associated with a process stream.

The sampling plans and parts of the text given here are taken from the Wiley Classics Library Edition of the Dodge-Romig tables (copyright 1998). Additional tables and detailed discussion of the plans, OC curves, and their derivation will be found in that text.<sup>2</sup> The theoretical development of the Dodge-Roming plans will be found in Volumes 8 and 20 of the Bell System Technical Journal<sup>3,4</sup> and an amplification of the plans is given in *Acceptance Sampling in Quality Control*.<sup>5</sup>

### 1. Scope

1.1 This practice is primarily a statement of principals for the guidance of ASTM technical committees and others in the use of Average Outgoing Quality Limit, AOQL, and Lot Tolerance Percent Defective, LTPD, sampling plans for determining acceptable of lots of product.

### 2. Referenced Documents

- 2.1 ASTM Standards: <sup>6</sup>
- E 178 Practice for Dealing with With Outlying Observations
- E 456 Terminology Relating to Quality and Statistics The F1004-08
- 3. Terminologylards.iteh.ai/catalog/standards/sist/60a55518-4600-4fce-86ac-12b77b810482/astm-e1994-08
  - 3.1 Definitions— Terminology E 456 provides a more extensive list of terms in E11 standards.
- 3.2 lot tolerance percent defective (LTPD)— the percentage of defective units 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, specifically 10 % for this practice. This is also referred to by the more general term *limiting quality* taken at 10 % consumer risk.

3.2

3.3 average outgoing quality (AOQ)—the average percent defective of outgoing product including all accepted lots or batches, after any defective units found in them are replaced by acceptable units, plus all lots or batches which are not accepted after such lots or batches have been effectively 100 % inspected and all defective units replaced by acceptable units.

3.3

<u>3.4</u> average outgoing quality limit (AOQL)— the maximum of the AOQs for all possible incoming percentages defective for the process, for a given acceptance sampling plan.

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<sup>&</sup>lt;sup>1</sup> This practice is under the jurisdiction of ASTM Committee E11.30 on Data Analysis.

<sup>&</sup>lt;sup>1</sup> This practice is under the jurisdiction of ASTM Committee E11.30 on Statistical Quality Control.

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<sup>&</sup>lt;sup>2</sup> Available from John Wiley and Sons, Inc., 605 Third Ave., New York, NY 10158.

<sup>&</sup>lt;sup>3</sup> Dodge, H.F. and Romig, H.G., "A Method of Sampling Inspection," The Bell System Technical Journal, Vol 8, No. 10, 1924, pp. 613–631.

<sup>&</sup>lt;sup>4</sup> Dodge, H.F. and Romig, H.G., "Single Sampling and Double Sampling Inspection Tables, The Bell System Technical Journal, Vol 20, No. 1, 1941, pp. 1–61.

<sup>&</sup>lt;sup>5</sup> Schilling, E.G., "Acceptance Sampling in Quality Control," Marcel Dekker Inc., NY, 1982, pp. 372–399.

<sup>&</sup>lt;sup>6</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service@astm.org. For Annual Book of ASTM Standards, Vol 14.02-volume information, refer to the standard's Document Summary page on the ASTM website.

- 3.4
- <u>3.5</u> lot quality protection—a type of protection in which there is prescribed some chosen value of limiting percent defective in a lot (lot tolerance percent defective, (LTPD)) and also some chosen value for the probability (called the consumer's risk) of accepting a submitted lot that has a percent defective equal to the lot tolerance percent defective.
- 3.5average quality protection—a type of protection in which there is prescribed some chosen value of average percent defective in the product after inspection (average outgoing quality limit (AOQL), that shall not be exceeded in the long run no matter what may be the level of percent defective in the product submitted to the inspector.
- 3.6 <u>average quality protection—a type of protection in which there is prescribed some chosen value of average percent defective in the product after inspection (average outgoing quality limit (AOQL), that shall not be exceeded in the long run no matter what may be the level of percent defective in the product submitted to the inspector.</u>
  - 3.7\_consumer's risk—the probability that a lot whose percentage defective is equal to the LTPD will be accepted by the plan.

### 4. Significance and Use

- 4.1 Two general types of tables (Note 1) are given, one based on the concept of lot tolerance, LTPD, and the other on AOQL. The broad conditions under which the different types have been found best adapted are indicated below.
- 4.1.1 For each of the types, tables are provided both for single sampling and for double sampling. Each of the individual tables constitutes a collection of solutions to the problem of minimizing the over-all amount of inspection. Because each line in the tables covers a range of lot sizes, the AOQL values in the LTPD tables and the LTPD values in the AOQL tables are often conservative.

Note 1—Tables in Annex A1-Annex A4 and parts of the text are reproduced by permission of John R. Wiley and Sons. More extensive tables and discussion of the methods will be found in that text.

- 4.2 The sampling tables based on lot quality protection (LTPD) (the tables in Annex A1 and Annex A2) are perhaps best adapted to conditions where interest centers on each lot separately, for example, where the individual lot tends to retain its identity either from a shipment or a service standpoint. These tables have been found particularly useful in inspections made by the ultimate consumer or a purchasing agent for lots or shipments purchased more or less intermittently.
- 4.3 The sampling tables based on average quality protection (AOQL) (the tables in Annex A3 and Annex A4) are especially adapted for use where interest centers on the average quality of product after inspection rather than on the quality of each individual lot and where inspection is, therefore, intended to serve, if necessary, as a partial screen for defective pieces. The latter point of view has been found particularly helpful, for example, in consumer inspections of continuing purchases of large quantities of a product and in manufacturing process inspections of parts where the inspection lots tend to lose their identity by merger in a common storeroom from which quantities are withdrawn on order as needed.
- 4.4 The plans based on average quality protection (AOQL) consider the degree to which the entire inspection procedure screens out defectives in the product submitted to the inspector. Lots accepted by sample undergo a partial screening through the elimination of defectives found in samples. Lots that fail to be accepted by sample are completely cleared of defectives. Obviously, this requires a nondestructive test. The over-all result is some average percent defective in the product as it leaves the inspector, termed the average outgoing quality, which depends on the level of percent defective for incoming product and the proportion of total defectives that are screened out.
- 4.5 Given a specific problem of replacing a 100 % screening inspection by a sampling inspection, the first step is to decide on the type of protection desired, to select the desired limit of percent defective lot tolerance (LTPD) or AOQL value for that type of protection, and to choose between single and double sampling. This results in the selection of one of the appended tables. The second step is to determine whether the quality of product is good enough to warrant the introduction of sampling. The economies of sampling will be realized, of course, only insofar as the percent defective in submitted product is such that the acceptance criteria of the selected sampling plan will be met. A statistical analysis of past inspection results should first be made, therefore, in order to determine existing levels and fluctuations in the percent defective for the characteristic or the group of characteristics under consideration. This provides information with respect to the degree of control as well as the usual level of percent defective to be expected under existing conditions. Determine a value from this and other information for the *process average* percent defective that should be used in applying the selected sampling table, if sampling is to be introduced.

### 5. Procedure

- 5.1 Two distinct methods of inspection are employed, single sampling and double sampling. In single sampling only one sample is permitted before a decision is reached regarding the disposition of the lot, and the acceptance criterion is expressed as an acceptance number, c. In double sampling, a second sample is permitted and two acceptance numbers are used; the first,  $c_1$ , applying to the observed number of defectives for the first sample alone and the second,  $c_2$ , applying to the observed number of defectives for the first and second samples combined. The specific procedures assumed in the development of the tables are as follows:
  - 5.1.1 Single Sampling Inspection Procedure:
  - 5.1.1.1 Inspect a sample of n pieces.
  - 5.1.1.2 If the number of defectives found in the sample does not exceed c, the acceptance number, accept the lot.
  - 5.1.1.3 If the number of defectives found in the sample exceeds c, inspect all the pieces in the remainder of the lot.



- 5.1.1.4 Regardless of whether or not the lot was accepted, correct or replace all defective pieces found in the sample as well as in any subsequent inspection of the remainder of the lot.
  - 5.1.2 Double Sampling Inspection Procedure:
  - 5.1.2.1 Inspect a first sample of  $n_1$  pieces.
- 5.1.2.2 If the number of defectives found in the first sample does not exceed  $c_1$ , the acceptance number for the first sample, accept the lot.
- 5.1.2.3 If the number of defectives found in the first sample exceeds  $c_2$ , the acceptance number for the combined first and second samples, inspect all the pieces in the remainder of the lot.
- 5.1.2.4 If the number of defectives found in the first sample exceeds  $c_1$ , but does not exceed  $c_2$ , inspect a second sample of  $n_2$  pieces.
  - 5.1.2.5 If the total number of defectives found in the first and second samples combined does not exceed  $c_2$ , accept the lot.
- 5.1.2.6 If the total number of defectives found in the first and second samples combined exceeds  $c_2$ , inspect all the pieces in the remainder of the lot.
- 5.1.2.7 Regardless of whether or not the lot was accepted, correct or replace all defective pieces found in either sample as well as any in subsequent inspection or the remainder of the lot.
- 5.2 In choosing a sampling plan for a particular application, a number of decisions must be made which depend on the conditions under which the plan is to be used. The accompanying *Sequence of Steps* gives an outline of a typical procedure. These steps are shown in the following numbered paragraphs.
  - 5.3 Sequence of Steps:
  - 5.3.1 Decide what characteristics will be included in the inspection.
- 5.3.1.1 If advantageous, use a separate sampling plan for a single characteristic or selected group of characteristics of like importance. Sampling need not wait until all characteristics have good quality.
- 5.3.1.2 If one or two characteristics give an outstandingly high number of defective units, treat them separately (using 100 percent inspection; also, if possible, concentrate on correcting the causes of trouble) and include the rest collectively in the sampling inspection.
  - 5.3.1.3 If all characteristics have satisfactory quality, include all of them collectively in the sampling inspection.
- 5.3.1.4 In general, combine at one inspection station characteristics subject to essentially similar inspection operations, for example, all visual inspection items together, all gauging, or all testing. Visual and gauging inspection operations often combine well.
- 5.3.1.5 Include in any group characteristics of essentially the same degree of seriousness. If two degrees of seriousness are involved, say major and minor, keep all majors together in one group and all minors in a second group.
- 5.3.1.6 Consider these plans applicable to all basic types of inspection for manufactured products receiving, process, and final and to the inspection of administrative and clerical products as in *paper-work quality control*.
  - 5.3.2 Decide what is to constitute a lot for purposes of sampling inspection.
- 5.3.2.1 So far as practicable, require that individual lots presented for acceptance comprise essentially homogeneous material from a common source.
- 5.3.2.2 If presented material comes from two or more direct sources not under a common system of control, arrange to have each presented lot comprise material from only one of those sources; otherwise have source identification information furnished with each lot.
- 5.3.2.3 To minimize the amount of inspection, make the lots as large as practicable, considering the limitations of available storage space, delays in shipment, difficulty in handling large rejected lots, etc.
  - 5.3.3 Choose between lot quality (LTPD) and average outgoing quality (AOQL) protection.
- 5.3.3.1 Choose AOQL if interest centers on the general level of quality of product after inspection. AOQL plans have been found generally more useful than LTPD plans in inspections of a continuing supply of product, especially in consumer's acceptance inspections and in producer's receiving, process, and final inspections.
- 5.3.3.2 Choose AOQL for a percent defective that will almost always be safely met by the running average quality of product after inspection.
- 5.3.3.3 Choose LTPD for a percent defective that will almost always be met by each lot. (This will be a much more pessimistic figure than the AOQL value of the plan).
- 5.3.3.4 As a manufacturer trying to meet a consumer's stated AQL (Note 2), use for final inspection an AOQL plan with an AOQL value equal to the specified AQL value, in order to provide good assurance that outgoing quality will be found acceptable by the consumer (or set the AOQL at one and one third times the AQL for reasonably good assurance).
- Note 2—AQL = Acceptable Quality Level, as used to index certain systems of sampling plans, signifying what the consumer feels to be the maximum percent defective that, for sampling purposes, can be considered satisfactory as a process average.
- 5.3.3.5 When producer and consumer of a product are two departments of the same company, use AOQL plans with the provision that the producer perform the 100 percent inspection of rejected lots. Close interchange of quality findings will expedite good process control of quality.
  - 5.3.3.6 Wherever practicable, make arrangements for the producer to perform the 100 percent inspection of rejected lots under



procedures acceptable to the consumer and to provide suitable certifications of work performed.

- 5.3.4 Choose a suitable figure of quality (LTPD or AOQL) for the sampling plan
- 5.3.4.1 For LTPD, choose the value of percent defective for lot acceptance not more than 10 % of the time (that is, reject at least 90 % of the time).
  - 5.3.4.2 For AOQL, choose the value of average percent defective in product after inspection that should not be exceeded.
- 5.3.4.3 In choosing a value of LTPD (or AOQL), consider and compare the cost of inspection with the economic loss that would ensue if quality as bad as the LTPD were accepted often (or if the average level of percent defective were greater than the AOQL). Even though the evaluation of economic loss may be difficult, relative values for different levels of percent defective may often be determined.
  - 5.3.5 Choose between single sampling and double sampling.
  - 5.3.5.1 In general, for economy in overall inspection effort, use double sampling rather than single sampling.
  - 5.3.5.2 In general, for minimum variation in the inspector's workload, use single sampling.
- 5.3.5.3 Consider adopting double sampling as the normal standard for sampling plans in a given plant, with a view to effecting overall economies.
- 5.3.5.4 In a particular case, for a given AOQL and given process average, compare the OC curves of the two sampling plans (single sampling and double sampling) as an aid in making a choice. (Note 3)
  - Note 3—See the Dodge-Romig text for OC curves.
  - 5.3.6 Select the proper sampling table in Annex A1-Annex A4, on the basis of the above choices.
  - 5.3.7 Obtain an estimate of process average percent defective.
  - 5.3.7.1 Use recent data to estimate the process average.
- 5.3.7.2 Use rough estimates at the start, if little or no actual data are available; a poor estimate merely prevents getting the most economical plan but keeps the same (LTPD or AOQL) protection.
  - 5.3.7.3 As more data are collected, make improved estimates of process average.
- 5.3.7.4 Omit wild and obviously nonrepresentative sets of data in making estimates and adopt some suitable rule for discarding data. (see Practice E 178)
  - 5.3.8 Choose a sampling plan for the given lot size and the estimated process average.
- 5.3.8.1 If the estimated process average percent defective, PA, falls within the range of PA values in the selected table, choose the sampling plan corresponding to the PA value and to the given lot size.
- 5.3.8.2 If the PA is unknown or is estimated to be larger than the largest PA value given in the table, choose the sampling plan corresponding to the largest PA in the table (last column) and to the given lot size.
- 5.3.8.3 Under 5.3.8.2, obtain revised estimates of the PA from the lot-by-lot data and use a sampling plan with a smaller sample size as soon as a revised estimate of the PA permits.
- 5.3.8.4 If, for single sampling, the sampling plan given by the table has c = 0, consider whether it would be preferable to use a plan with c = 1 to avoid making rejections on finding a single defective. There is no such problem for double sampling, since  $c_2$  always equals I or more.
- 5.3.8.5 If inspection includes two classes of defects, major and minor, with two AOQL values, choose the two sampling plans from the appropriate tables in the Annexes and use them simultaneously.
  - 5.3.9 Check the OC curve of the chosen plan(s). (Note 4)
  - Note 4—See the Dodge-Romig text for OC Curves.
  - 5.3.10 From the lot, select sample units by means of a random procedure.
- 5.3.10.1 Consider the use of random numbers as the preferred way of selecting sample units *at random*. Each unit in the lot is assigned a serial number usually on paper, and then those units whose serial numbers correspond to the numbers in some section of a listing of random numbers are included in the sample.
  - 5.3.10.2 If a double sampling plan has been chosen, consider selecting sample units for both samples at the same time.
  - 5.3.11 Follow the sampling inspection procedure for single sampling or double sampling, whichever was chosen.
  - 5.3.11.1 Inspect each unit in the sample for all the characteristics decided on in Section 5.3.
- 5.3.11.2 If single sampling is being used, inspect all units in the sample even though the acceptance number is exceeded before all units have been inspected. This facilitates estimation of the process average.
- 5.3.11.3 If double sampling is being used, inspect all units in the first sample; if desired, discontinue inspection of the second sample when the acceptance number,  $c_2$ , is exceeded.
  - 5.3.12 Keep a running check on the process average and change the sampling plan if the process average changes sufficiently.
- 5.3.12.1 Adopt a definite plan for making periodic estimates of the process average, every 20 or 50 lots or every month, quarter, or six months, depending on the production rate and the quality history.
- 5.3.12.2 Keep the producing organization informed of the running quality of presented product, preferably in control chart form, and furnish prompt information regarding any sudden adverse shifts in quality.
- 5.3.12.3 Change from one sampling plan to another within a sampling table, as the process average changes from one general level to another. This provides a general basis for tightened and reduced inspection while holding to a given AOQL or LTPD. If,



with stable quality at an excellent level, it is desired to reduce inspection even further, use a larger AOQL or LTPD value, twice as large as the basic AOQL or LTPD.

### 6. Precision and Bias

The use of this standard assumes that test methods are used with sufficient precision and accuracy that test results can be safely translated into attribute (go-no go) results.

### 7. Keywords

7.1 average outgoing quality limit; lot tolerance percent defective; sampling; sampling plans

### **ANNEXES**

### (Mandatory Information)

- A1. SINGLE SAMPLING TABLES FOR STATED VALUES OF LOT TOLERANCE PERCENT DEFECTIVE (LTPD) WITH CONSUMER'S RISK OF 0.10, 0.5 % LTPD, 1.0 % LTP, 2.0 % LTP, 5.0 % LTPD, 10.0 % LTPD
- A1.1 Tables A1.1-A1.5 illustrate single sampling stated values of lot tolerance percent.

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TABLE A1.1 Single Sampling Table for Lot Tolerance Percent Defective (LTPD) = 0.5 %

Note 1-n = sample size; c = acceptance number; AOQL = average outgoing quality limit; "all" indicates that each piece in the lot is to be inspected.

|                |     | cess Av<br>to 0.00 | 0         |      | ess Av | 0         |      | ess Av<br>to 0. | 0         |      | ess Ave | 0         |      |    | erage<br>200 % |      |    | verage<br>.250 % |
|----------------|-----|--------------------|-----------|------|--------|-----------|------|-----------------|-----------|------|---------|-----------|------|----|----------------|------|----|------------------|
| Lot Size       | n   | С                  | AOQL<br>% | n    | С      | AOQL<br>% | n    | С               | AOQL<br>% | n    | С       | AOQL<br>% | n    | С  | AOQL           | n    | С  | AOQL<br>%        |
| 1–180          | all | 0                  | 0         | all  | 0      | 0         | all  | 0               | 0         | all  | 0       | 0         | all  | 0  | 0              | all  | 0  | 0                |
| 181-210        | 180 | 0                  | 0.02      | 180  | 0      | 0.02      | 180  | 0               | 0.02      | 180  | 0       | 0.02      | 180  | 0  | 0.02           | 180  | 0  | 0.02             |
| 211–250        | 210 | 0                  | 0.03      | 210  | 0      | 0.03      | 210  | 0               | 0.03      | 210  | 0       | 0.03      | 210  | 0  | 0.03           | 210  | 0  | 0.03             |
| 251-300        | 240 | 0                  | 0.03      | 240  | 0      | 0.03      | 240  | 0               | 0.03      | 240  | 0       | 0.03      | 240  | 0  | 0.03           | 240  | 0  | 0.03             |
| 301-400        | 275 | 0                  | 0.04      | 275  | 0      | 0.04      | 275  | 0               | 0.04      | 275  | 0       | 0.04      | 275  | 0  | 0.04           | 275  | 0  | 0.04             |
| 401–500        | 300 | 0                  | 0.05      | 300  | 0      | 0.05      | 300  | 0               | 0.05      | 300  | 0       | 0.05      | 300  | 0  | 0.05           | 300  | 0  | 0.05             |
| 501-600        | 320 | 0                  | 0.05      | 320  | 0      | 0.05      | 320  | 0               | 0.05      | 320  | 0       | 0.05      | 320  | 0  | 0.05           | 320  | 0  | 0.05             |
| 601-800        | 350 | 0                  | 0.06      | 350  | 0      | 0.06      | 350  | 0               | 0.06      | 350  | 0       | 0.06      | 350  | 0  | 0.06           | 350  | 0  | 0.06             |
| 801–1000       | 365 | 0                  | 0.06      | 365  | 0      | 0.06      | 365  | 0               | 0.06      | 365  | 0       | 0.06      | 365  | 0  | 0.06           | 365  | 0  | 0.06             |
| 1001-2000      | 410 | 0                  | 0.07      | 410  | 0      | 0.07      | 410  | 0               | 0.07      | 670  | 1       | 0.08      | 670  | 1  | 0.08           | 670  | 1  | 0.08             |
| 2001-3000      | 430 | 0                  | 0.07      | 430  | 0      | 0.07      | 705  | 1               | 0.09      | 705  | 1       | 0.09      | 955  | 2  | 0.10           | 955  | 2  | 0.10             |
| 3001–4000      | 440 | 0                  | 0.07      | 440  | 0      | 0.07      | 730  | 1               | 0.09      | 985  | 2       | 0.10      | 1230 | 3  | 0.11           | 1230 | 3  | 0.11             |
| 4001-5000      | 445 | 0                  | 0.08      | 740  | 1      | 0.10      | 1000 | 2               | 0.11      | 1000 | 2       | 0.11      | 1250 | 3  | 0.12           | 1480 | 4  | 0.12             |
| 5001-7000      | 450 | 0                  | 0.08      | 750  | 1      | 0.10      | 1020 | 2               | 0.12      | 1280 | 3       | 0.12      | 1510 | 4  | 0.13           | 1760 | 5  | 0.14             |
| 7001–10 000    | 455 | 0                  | 0.08      | 760  | 1      | 0.10      | 1040 | 2               | 0.12      | 1530 | 4       | 0.14      | 1790 | 5  | 0.14           | 2240 | 7  | 0.16             |
| 10 001–20 000  | 460 | 0                  | 0.08      | 775  | 1      | 0.10      | 1330 | 3               | 0.14      | 1820 | 5       | 0.16      | 2300 | 7  | 0.17           | 2780 | 9  | 0.18             |
| 20 001-50 000  | 775 | 1                  | 0.11      | 1050 | 2      | 0.13      | 1600 | 4               | 0.15      | 2080 | 5       | 0.18      | 3060 | 10 | 0.20           | 4200 | 15 | 0.22             |
| 50 001-100 000 | 780 | 1                  | 0.11      | 1060 | 2      | 0.13      | 1840 | 5               | 0.17      | 2590 | 8       | 0.19      | 3780 | 13 | 0.22           | 5140 | 19 | 0.24             |

TABLE A1.2 Single Sampling Table for Lot Tolerance Percent Defective (LTPD) = 1.0 %

Note—n = sample size; c = acceptance number; AOQL = average outgoing quality limit; "all" indicates that each piece in the lot is to be inspected.

|                |     | cess Av<br>to 0.01 | 0         |     | ess Avo | 0         |      | ess Av<br>to 0.2 | 0         |      | ess Ave<br>1 to 0.3 | 0         |      |    | verage<br>40 % |      |    | verage<br>.50 % |
|----------------|-----|--------------------|-----------|-----|---------|-----------|------|------------------|-----------|------|---------------------|-----------|------|----|----------------|------|----|-----------------|
| Lot Size       | n   | С                  | AOQL<br>% | n   | С       | AOQL<br>% | n    | С                | AOQL<br>% | n    | С                   | AOQL<br>% | n    | С  | AOQL           | n    | С  | AOQL<br>%       |
| 1–120          | all | 0                  | 0         | all | 0       | 0         | all  | 0                | 0         | all  | 0                   | 0         | all  | 0  | 0              | all  | 0  | 0               |
| 121-150        | 120 | 0                  | 0.06      | 120 | 0       | 0.06      | 120  | 0                | 0.06      | 120  | 0                   | 0.06      | 120  | 0  | 0.06           | 120  | 0  | 0.06            |
| 151–200        | 140 | 0                  | 0.08      | 140 | 0       | 80.0      | 140  | 0                | 0.08      | 140  | 0                   | 0.08      | 140  | 0  | 0.08           | 140  | 0  | 0.08            |
| 201–300        | 165 | 0                  | 0.10      | 165 | 0       | 0.10      | 165  | 0                | 0.10      | 165  | 0                   | 0.10      | 165  | 0  | 0.10           | 165  | 0  | 0.10            |
| 301-400        | 175 | 0                  | 0.12      | 175 | 0       | 0.12      | 175  | 0                | 0.12      | 175  | 0                   | 0.12      | 175  | 0  | 0.12           | 175  | 0  | 0.12            |
| 401–500        | 180 | 0                  | 0.13      | 180 | 0       | 0.13      | 180  | 0                | 0.13      | 180  | 0                   | 0.13      | 180  | 0  | 0.13           | 180  | 0  | 0.13            |
| 501–600        | 190 | 0                  | 0.13      | 190 | 0       | 0.13      | 190  | 0                | 0.13      | 190  | 0                   | 0.13      | 190  | 0  | 0.13           | 305  | 1  | 0.14            |
| 601-800        | 200 | 0                  | 0.14      | 200 | 0       | 0.14      | 200  | 0                | 0.14      | 330  | 1                   | 0.15      | 330  | 1  | 0.15           | 330  | 1  | 0.15            |
| 801–1000       | 205 | 0                  | 0.14      | 205 | 0       | 0.14      | 205  | 0                | 0.14      | 335  | 1                   | 0.17      | 335  | 1  | 0.17           | 335  | 1  | 0.17            |
| 1001–2000      | 220 | 0                  | 0.15      | 220 | 0       | 0.15      | 360  | 1                | 0.19      | 490  | 2                   | 0.21      | 490  | 2  | 0.21           | 610  | 3  | 0.22            |
| 2001-3000      | 220 | 0                  | 0.15      | 375 | 1       | 0.20      | 505  | 2                | 0.23      | 630  | 3                   | 0.24      | 745  | 4  | 0.26           | 870  | 5  | 0.26            |
| 3001–4000      | 225 | 0                  | 0.15      | 380 | 1       | 0.20      | 510  | 2                | 0.24      | 645  | 3                   | 0.25      | 880  | 5  | 0.28           | 1000 | 6  | 0.29            |
| 4001-5000      | 225 | 0                  | 0.16      | 380 | 1       | 0.20      | 520  | 2                | 0.24      | 770  | 4                   | 0.28      | 895  | 5  | 0.29           | 1120 | 7  | 0.31            |
| 5001-7000      | 230 | 0                  | 0.15      | 385 | 1       | 0.21      | 655  | 3                | 0.27      | 780  | 4                   | 0.29      | 1020 | 6  | 0.32           | 1260 | 8  | 0.34            |
| 7001–10 000    | 230 | 0                  | 0.16      | 520 | 2       | 0.25      | 660  | 3                | 0.28      | 910  | 5                   | 0.32      | 1150 | 7  | 0.34           | 1500 | 10 | 0.37            |
| 10 001–20 000  | 390 | 1                  | 0.21      | 525 | 2       | 0.26      | 785  | 4                | 0.31      | 1040 | 6                   | 0.35      | 1400 | 9  | 0.39           | 1980 | 14 | 0.43            |
| 20 001-50 000  | 390 | 1                  | 0.21      | 530 | 2       | 0.26      | 920  | 5                | 0.34      | 1300 | 8                   | 0.39      | 1890 | 13 | 0.44           | 2570 | 19 | 0.48            |
| 50 001-100 000 | 390 | 1                  | 0.21      | 670 | 3       | 0.29      | 1040 | 6                | 0.36      | 1420 | 9                   | 0.41      | 2120 | 15 | 0.47           | 3150 | 23 | 0.50            |

TABLE A1.3 Single Sampling Table for Lot Tolerance Percent Defective (LTPD ) = 2.0 %

Note—n = sample size; c = acceptance number; AOQL = average outgoing quality limit; "all" indicates that each piece in the lot is to be inspected.

| Lot Size                 |         | ess Ave<br>o 0.02 | 0         |         | ess Ave<br>to 0.20 | 0         |      | ess Av | 0         |      | cess Av<br>41 to 0.6 | 0         | Proce<br>0.61 | ss Avo | 0         |      | cess Av<br>31 to 1. | 0         |
|--------------------------|---------|-------------------|-----------|---------|--------------------|-----------|------|--------|-----------|------|----------------------|-----------|---------------|--------|-----------|------|---------------------|-----------|
| Lot Size                 | n       | С                 | AOQL<br>% | n       | С                  | AOQL<br>% | n    | С      | AOQL<br>% | n    | С                    | AOQL<br>% | n             | С      | AOQL<br>% | n    | С                   | AOQL<br>% |
| 1–75                     | all     | 0                 | 0         | all     | 0                  | 0         | all  | _ O_   | 0 0       | all  | 0                    | 0         | all           | 0      | 0         | all  | 0                   | 0         |
| 76-100                   | 70      | 0                 | 0.16      | 70      | 0                  | 0.16      | 70   | 0      | 0.16      | 70   | 0                    | 0.16      | 70            | 0      | 0.16      | 70   | 0                   | 0.16      |
| 101-200/ <sub>Stat</sub> | nda851s | iten.             | 0.25      | log85ta | ndarc              | 0.25      | 85 5 | 5 108  | 0.25      | 4 85 | -8 <b>0</b> ac       | 0.25      | 7 85          | 0408   | 0.25      | 85   | 994                 | 0.25      |
| 201–300                  | 95      | 0                 | 0.26      | 95      | 0                  | 0.26      | 95   | 0      | 0.26      | 95   | 0                    | 0.26      | 95            | 0      | 0.26      | 95   | 0                   | 0.26      |
| 301-400                  | 100     | 0                 | 0.28      | 100     | 0                  | 0.28      | 100  | 0      | 0.28      | 160  | 1                    | 0.32      | 160           | 1      | 0.32      | 160  | 1                   | 0.32      |
| 401–500                  | 105     | 0                 | 0.28      | 105     | 0                  | 0.28      | 105  | 0      | 0.28      | 165  | 1                    | 0.34      | 165           | 1      | 0.34      | 165  | 1                   | 0.34      |
| 501-600                  | 105     | 0                 | 0.29      | 105     | 0                  | 0.29      | 175  | 1      | 0.34      | 175  | 1                    | 0.34      | 175           | 1      | 0.34      | 235  | 2                   | 0.36      |
| 601-800                  | 110     | 0                 | 0.29      | 110     | 0                  | 0.29      | 180  | 1      | 0.36      | 240  | 2                    | 0.40      | 240           | 2      | 0.40      | 300  | 3                   | 0.41      |
| 801–1000                 | 115     | 0                 | 0.28      | 115     | 0                  | 0.28      | 185  | 1      | 0.37      | 245  | 2                    | 0.42      | 305           | 3      | 0.44      | 305  | 3                   | 0.44      |
| 1001–2000                | 115     | 0                 | 0.30      | 190     | 1                  | 0.40      | 255  | 2      | 0.47      | 325  | 3                    | 0.50      | 380           | 4      | 0.54      | 440  | 5                   | 0.56      |
| 2001-3000                | 115     | 0                 | 0.31      | 190     | 1                  | 0.41      | 260  | 2      | 0.48      | 385  | 4                    | 0.58      | 450           | 5      | 0.60      | 565  | 7                   | 0.64      |
| 3001–4000                | 115     | 0                 | 0.31      | 195     | 1                  | 0.41      | 330  | 3      | 0.54      | 450  | 5                    | 0.63      | 510           | 6      | 0.65      | 690  | 9                   | 0.70      |
| 4001-5000                | 195     | 1                 | 0.41      | 260     | 2                  | 0.50      | 335  | 3      | 0.54      | 455  | 5                    | 0.63      | 575           | 7      | 0.69      | 750  | 10                  | 0.74      |
| 5001-7000                | 195     | 1                 | 0.42      | 265     | 2                  | 0.50      | 335  | 3      | 0.55      | 515  | 6                    | 0.69      | 640           | 8      | 0.73      | 870  | 12                  | 0.80      |
| 7001–10 000              | 195     | 1                 | 0.42      | 265     | 2                  | 0.50      | 395  | 4      | 0.62      | 520  | 6                    | 0.69      | 760           | 10     | 0.79      | 1050 | 15                  | 0.86      |
| 10 001–20 000            | 200     | 1                 | 0.42      | 265     | 2                  | 0.51      | 460  | 5      | 0.67      | 650  | 8                    | 0.77      | 885           | 12     | 0.86      | 1230 | 18                  | 0.94      |
| 20 001-50 000            | 200     | 1                 | 0.42      | 335     | 3                  | 0.58      | 520  | 6      | 0.73      | 710  | 9                    | 0.81      | 1060          | 15     | 0.93      | 1520 | 23                  | 1.0       |
| 50 001-100 000           | 200     | 1                 | 0.42      | 335     | 3                  | 0.58      | 585  | 7      | 0.76      | 770  | 10                   | 0.84      | 1180          | 17     | 0.97      | 1690 | 26                  | 1.1       |



### TABLE A1.4 Single Sampling Table for Lot Tolerance Percent Defective (LTPD) = 5.0 %

Note—n = sample size; c = acceptance number; AOQL = average outgoing quality limit; "all" indicates that each piece in the lot is to be inspeted.

| Lot Size       |     | cess Av<br>to 0.05 | U         |     | ess Ave<br>5 to 0.5 | U         |     | ess Av<br>to 1.0 | 0         |     | ess Ave | 0         |     |    | verage<br>.00 % |     |    | verage<br>.50 % |
|----------------|-----|--------------------|-----------|-----|---------------------|-----------|-----|------------------|-----------|-----|---------|-----------|-----|----|-----------------|-----|----|-----------------|
| Lot Size       | n   | С                  | AOQL<br>% | n   | С                   | AOQL<br>% | n   | С                | AOQL<br>% | n   | С       | AOQL<br>% | n   | С  | AOQL<br>%       | n   | С  | AOQL<br>%       |
| 1–30           | all | 0                  | 0         | all | 0                   | 0         | all | 0                | 0         | all | 0       | 0         | all | 0  | 0               | all | 0  | 0               |
| 31-50          | 30  | 0                  | 0.49      | 30  | 0                   | 0.49      | 30  | 0                | 0.49      | 30  | 0       | 0.49      | 30  | 0  | 0.49            | 30  | 0  | 0.49            |
| 51-100         | 37  | 0                  | 0.63      | 37  | 0                   | 0.63      | 37  | 0                | 0.63      | 37  | 0       | 0.63      | 37  | 0  | 0.63            | 37  | 0  | 0.63            |
| 101–200        | 40  | 0                  | 0.74      | 40  | 0                   | 0.74      | 40  | 0                | 0.74      | 40  | 0       | 0.74      | 40  | 0  | 0.74            | 40  | 0  | 0.74            |
| 201-300        | 43  | 0                  | 0.74      | 43  | 0                   | 0.74      | 70  | 1                | 0.92      | 70  | 1       | 0.92      | 95  | 2  | 0.99            | 95  | 2  | 0.99            |
| 301-400        | 44  | 0                  | 0.74      | 44  | 0                   | 0.74      | 70  | 1                | 0.99      | 100 | 2       | 1.0       | 120 | 3  | 1.1             | 145 | 4  | 1.1             |
| 401–500        | 45  | 0                  | 0.75      | 75  | 1                   | 0.95      | 100 | 2                | 1.1       | 100 | 2       | 1.1       | 125 | 3  | 1.2             | 150 | 4  | 1.2             |
| 501-600        | 45  | 0                  | 0.76      | 75  | 1                   | 0.98      | 100 | 2                | 1.1       | 125 | 3       | 1.2       | 150 | 4  | 1.3             | 175 | 5  | 1.3             |
| 601-800        | 45  | 0                  | 0.77      | 75  | 1                   | 1.0       | 100 | 2                | 1.2       | 130 | 3       | 1.2       | 175 | 5  | 1.4             | 200 | 6  | 1.4             |
| 801–1000       | 45  | 0                  | 0.78      | 75  | 1                   | 1.0       | 105 | 2                | 1.2       | 155 | 4       | 1.4       | 180 | 5  | 1.4             | 225 | 7  | 1.5             |
| 1001-2000      | 45  | 0                  | 0.80      | 75  | 1                   | 1.0       | 130 | 3                | 1.4       | 180 | 5       | 1.6       | 230 | 7  | 1.7             | 280 | 9  | 1.8             |
| 2001-3000      | 75  | 1                  | 1.1       | 105 | 2                   | 1.3       | 135 | 3                | 1.4       | 210 | 6       | 1.7       | 280 | 9  | 1.9             | 370 | 13 | 2.1             |
| 3001-4000      | 75  | 1                  | 1.1       | 105 | 2                   | 1.3       | 160 | 4                | 1.5       | 210 | 6       | 1.7       | 305 | 10 | 2.0             | 420 | 15 | 2.2             |
| 4001–5000      | 75  | 1                  | 1.1       | 105 | 2                   | 1.3       | 160 | 4                | 1.5       | 235 | 7       | 1.8       | 330 | 11 | 2.0             | 440 | 16 | 2.2             |
| 5001-7000      | 75  | 1                  | 1.1       | 105 | 2                   | 1.3       | 185 | 5                | 1.7       | 260 | 8       | 1.9       | 350 | 12 | 2.2             | 490 | 18 | 2.4             |
| 7001–10 000    | 75  | 1                  | 1.1       | 105 | 2                   | 1.3       | 185 | 5                | 1.7       | 260 | 8       | 1.9       | 380 | 13 | 2.2             | 535 | 20 | 2.5             |
| 10 001–20 000  | 75  | 1                  | 1.1       | 135 | 3                   | 1.4       | 210 | 6                | 1.8       | 285 | 9       | 2.0       | 425 | 15 | 2.3             | 610 | 23 | 2.6             |
| 20 001-50 000  | 75  | 1                  | 1.1       | 135 | 3                   | 1.4       | 235 | 7                | 1.9       | 305 | 10      | 2.1       | 470 | 17 | 2.4             | 700 | 27 | 2.7             |
| 50 001–100 000 | 75  | 1                  | 1.1       | 160 | 4                   | 1.6       | 235 | 7                | 1.9       | 355 | 12      | 2.2       | 515 | 19 | 2.5             | 770 | 30 | 2.8             |

### TABLE A1.5 Single Sampling Table for Lot Tolerance Percent Defective (LTPD) = 10.0 %

Note—n = sample size; c = acceptance number; AOQL = average outgoing quality limit; "all" indicates that each piece in the lot is to be inspected.

| Lat Cias        |        | ess Av<br>to 0.10 | 0         |         | ess Ave | 0         |                   | ess Av<br>1 to 2.0 |           |     | cess Ave | 0         |     |     | verage<br>.00 % |      |     | verage<br>.00 % |
|-----------------|--------|-------------------|-----------|---------|---------|-----------|-------------------|--------------------|-----------|-----|----------|-----------|-----|-----|-----------------|------|-----|-----------------|
| Lot Size -      | n      | С                 | AOQL<br>% | n       | С       | AOQL<br>% | n                 | С                  | AOQL<br>% | n   | С        | AOQL<br>% | n   | С   | AOQL<br>%       | n    | С   | AOQL<br>%       |
| 1–20            | all    | 0                 | 0         | all     | 0       | AST       | vall <sub>E</sub> | 1994               | -08       | all | 0        | 0         | all | 0   | 0               | all  | 0   | 0               |
| ht 21-50 standa | 17 ite | 0                 | 1.3       | st17.ds | 0/9     | 1.3       | 5 17 1            | 20                 | 1.3       | 17  | 000      | 1.3       | 171 | 20/ | 1.3             | 1170 | 4_0 | 2 1.3           |
| 51–100          | 20     | 0                 | 1.5       | 20      | 0       | 1.5       | 20                | 0                  | 1.5       | 33  | 1        | 1.7       | 33  | 1   | 1.7             | 33   | 1   | 1.7             |
| 101–200         | 22     | 0                 | 1.5       | 22      | 0       | 1.5       | 35                | 1                  | 2.0       | 48  | 2        | 2.2       | 48  | 2   | 2.2             | 60   | 3   | 2.4             |
| 201–300         | 23     | 0                 | 1.5       | 38      | 1       | 1.9       | 50                | 2                  | 2.3       | 65  | 3        | 2.4       | 75  | 4   | 2.6             | 85   | 5   | 2.7             |
| 301-400         | 23     | 0                 | 1.5       | 38      | 1       | 2.0       | 50                | 2                  | 2.4       | 65  | 3        | 2.5       | 90  | 5   | 2.7             | 100  | 6   | 2.9             |
| 401–500         | 23     | 0                 | 1.5       | 38      | 1       | 2.0       | 50                | 2                  | 2.5       | 75  | 4        | 2.8       | 90  | 5   | 2.9             | 110  | 7   | 3.2             |
| 501-600         | 23     | 0                 | 1.5       | 38      | 1       | 2.1       | 65                | 3                  | 2.7       | 80  | 4        | 3.0       | 100 | 6   | 3.2             | 125  | 8   | 3.3             |
| 601-800         | 23     | 0                 | 1.6       | 38      | 1       | 2.1       | 65                | 3                  | 2.8       | 90  | 5        | 3.1       | 100 | 6   | 3.3             | 140  | 9   | 3.4             |
| 801–1000        | 39     | 1                 | 2.1       | 50      | 2       | 2.6       | 65                | 3                  | 2.8       | 90  | 5        | 3.2       | 115 | 7   | 3.4             | 150  | 10  | 3.7             |
| 1001–2000       | 39     | 1                 | 2.1       | 50      | 2       | 2.6       | 80                | 4                  | 3.1       | 105 | 6        | 3.4       | 140 | 9   | 3.9             | 195  | 14  | 4.4             |
| 2001-3000       | 39     | 1                 | 2.1       | 50      | 2       | 2.6       | 80                | 4                  | 3.1       | 115 | 7        | 3.7       | 165 | 11  | 4.1             | 230  | 17  | 4.7             |
| 3001-4000       | 39     | 1                 | 2.1       | 50      | 2       | 2.6       | 90                | 5                  | 3.4       | 130 | 8        | 3.8       | 190 | 13  | 4.4             | 255  | 19  | 4.8             |
| 4001–5000       | 39     | 1                 | 2.1       | 50      | 2       | 2.6       | 90                | 5                  | 3.5       | 130 | 8        | 3.9       | 200 | 14  | 4.5             | 270  | 20  | 4.9             |
| 5001-7000       | 39     | 1                 | 2.1       | 65      | 3       | 3.0       | 105               | 6                  | 3.6       | 140 | 9        | 4.1       | 200 | 14  | 4.6             | 295  | 22  | 5.0             |
| 7001–10 000     | 39     | 1                 | 2.2       | 65      | 3       | 3.0       | 105               | 6                  | 3.6       | 150 | 10       | 4.2       | 210 | 15  | 4.7             | 315  | 24  | 5.2             |
| 10 001-20 000   | 39     | 1                 | 2.2       | 65      | 3       | 3.0       | 120               | 7                  | 3.7       | 150 | 10       | 4.3       | 240 | 17  | 4.8             | 340  | 26  | 5.4             |
| 20 001-50 000   | 39     | 1                 | 2.2       | 80      | 4       | 3.2       | 120               | 7                  | 3.7       | 165 | 11       | 4.4       | 260 | 19  | 5.0             | 380  | 30  | 5.7             |
| 50 001-100 000  | 39     | 1                 | 2.2       | 95      | 5       | 3.3       | 130               | 8                  | 4.0       | 180 | 12       | 4.4       | 270 | 20  | 5.1             | 380  | 30  | 5.7             |

## A2. DOUBLE SAMPLING TABLES FOR STATED VALUES OF LOT TOLERANCE PERCENT DEFECTIVE (LTPD) WITH CONSUMER RISK OF 0.10, 0.5 % LTPD, 1.0 % LTPD, 2.0 % LTPD, 5.0 % LTPD, 10.0 % LTPD

A2.1 Tables A2.1-A2.5 illustrate double sampling stated values of lot tolerance percent.



### TABLE A2.1 Double Sampling Table for Lot Tolerance Percent Defective (LTPD) = .50 %

|   |  |   |  | s Average<br>0.005 %  | 9  |  |  |  |  | s Averag<br>o 0.050 %   |                                       |  |   |   |   | Averaç<br>0.100   |   |   |
|---|--|---|--|---|--|--|--|--|--|---|---------------------------------------|--|---|---|---|---|---|---|
| Lot Size  | Trial  | 1 <sup>A</sup>  |  | Trial 2 <sup>B</sup>  |  | AOQL <sup>C</sup>  | Tria   | ป 1  |  | Trial 2   |                                       | AOQL   | Tria  | al 1  |   | Trial 2   |   | AOQL  |
|   | n <sub>1</sub>   | C <sub>1</sub>  | n <sub>2</sub>   | n <sub>1</sub> + n <sub>2</sub>   | C <sub>2</sub>                                     | in %   | n <sub>1</sub>   | C <sub>1</sub>                                       | n <sub>2</sub>   | n <sub>1</sub> + n <sub>2</sub>   | <i>C</i> <sub>2</sub>                 | in %   | n <sub>1</sub>  | C <sub>1</sub>  | n <sub>2</sub>  | n <sub>1</sub> + n <sub>2</sub>   | <i>C</i> <sub>2</sub>   | in %  |
| 1-180   | $all^D$  | 0   |  |   |  | 0  | all  | 0  |  |   |                                       | 0  | all   | 0   |   |   |   | 0   |
| 181–210   | 180  |   |  |   |  | 0.02   | 180  | 0  |  |   |                                       | 0.02   | 180   | 0   |   |   |   | 0.02  |
| 211–250   | 210  | 0   |  |   |  | 0.03   | 210  | 0  |  |   |                                       | 0.03   | 210   | 0   |   |   |   | 0.03  |
| 251-300   | 240  | 0   |  |   |  | 0.03   | 240  | 0  |  |   |                                       | 0.03   | 240   | 0   |   |   |   | 0.03  |
| 301–400   | 275  | 0   |  |   |  | 0.04   | 275  | 0  |  |   |                                       | 0.04   | 275   | 0   |   |   | • • •   | 0.04  |
| 401–450   | 290  | 0   |  |   |  | 0.04   | 290  | 0  |  |   |                                       | 0.04   | 290   | 0   |   |   |   | 0.04  |
| 451–500   | 340  | 0   | 110  | 450   | 1  | 0.04   | 340  | 0  | 110  | 450   | 1                                     | 0.04   | 340   | 0   | 110   | 450   | 1   | 0.04  |
| 501–550   | 350  | 0   | 130  | 480   | 1  | 0.05   | 350  | 0  | 130  | 480   | 1                                     | 0.05   | 350   | 0   | 130   | 480   | 1   | 0.05  |
| 551-600   | 360  | 0   | 150  | 510   | 1  | 0.05   | 360  | 0  | 150  | 510   | 1                                     | 0.05   | 360   | 0   | 150   | 510   | 1   | 0.05  |
| 601-800   | 400  | 0   | 185  | 585   | 1  | 0.06   | 400  | 0  | 185  | 585   | 1                                     | 0.06   | 400   | 0   | 185   | 585   | 1   | 0.06  |
| 801–1000  | 430  | 0   | 200  | 630   | 1  | 0.07   | 430  | 0  | 200  | 630   | 1                                     | 0.07   | 430   | 0   | 200   | 630   | 1   | 0.07  |
| 1001–2000   | 490  | 0   | 265  | 755   | 1  | 0.08   | 490  | 0  | 265  | 755   | 1                                     | 0.08   | 490   | 0   | 265   | 755   | 1   | 0.08  |
| 2001–3000   | 520  | 0   | 290  | 810   | 1  | 0.09   | 520  | 0  | 290  | 810   | 1                                     | 0.09   | 520   | 0   | 530   | 1050  | 2   | 0.10  |
| 3001–4000   | 530  | 0   | 310  | 840   | 1  | 0.09   | 530  | 0  | 570  | 1100  | 2                                     | 0.11   | 530   | 0   | 570   | 1100  | 2   | 0.11  |
| 4001-5000   | 540  | 0   | 305  | 845   | 1  | 0.09   | 540  | 0  | 580  | 1120  | 2                                     | 0.11   | 540   | 0   | 830   | 1370  | 3   | 0.12  |
| 5001-7000   | 545  | 0   | 315  | 860   | 1  | 0.10   | 545  | 0  | 615  | 1160  | 2                                     | 0.11   | 545   | 0   | 865   | 1410  | 3   | 0.1   |
| 7001–10 000   | 550  | 0   | 330  | 880   | 1  | 0.10   | 550  | 0  | 620  | 1170  | 2                                     | 0.12   | 550   | 0   | 1130  | 1680  | 4   | 0.14  |
| 10 001–20 000   | 555  | 0   | 345  | 900   | 1  | 0.10   | 555  | 0  | 925  | 1480  | 3                                     | 0.13   | 555   | 0   | 1185  | 1740  | 4   | 0.1   |
| 20 001-50 000   | 560  | 0   | 650  | 1210  | 2  | 0.12   | 560  | 0  | 940  | 1500  | 3                                     | 0.14   | 900   | 1   |   | 2300  | 6   | 0.1   |
|   |  |   |  |   |  |  |  |  |  |   |                                       |  |   |   |   |   |   |   |
| 50 001–100 000  | 560  | 0   | 650  | 1210  | 2  | 0.12   | 560  | 0  | 1210   | 1770  | \$ 4                                  | 0.15   | 905   | 1   | 1655  | 2560  | 7   | 0.17  |
|   | 560  | 0   | Proces   | s Average   | )  | 0.12   | 560  | 0  | Process  | s Averag  | e                                     | 0.15   | 905   | ı   | Process   | S Averaç  | ge  | 0.17  |
|   |  |   | Proces   | s Average<br>to 0.150 %   | )  | • //g:   | tai  | ta<br>ad   | Process  | s Averag<br>o 0.200 %   | e                                     | 91   |   | (   | Process   | Averaç<br>0 0.250   | ge<br>%   |   |
| 50 001–100 000  | Trial  | 1^  | Proces<br>0.101 t  | s Average<br>to 0.150 %<br>Trial 2 <sup>B</sup>   |  | AOQL <sup>C</sup> in %   | Tria   |  | Process<br>0.151 to  | s Averago<br>o 0.200 %<br>Trial 2   | e<br>%                                | 0.15  AOQL in %  | Tria  | )<br>al 1   | Process<br>0.201 to   | Averaç<br>0.250<br>Trial 2  | ge<br>%   | 0.17<br>_ AOQ<br>_ in %                                       |
| 50 001-100 000<br>Lot Size  | Trial  | 1 <sup>A</sup> c <sub>1</sub>   | Proces<br>0.101 t  | s Average<br>to 0.150 %   | c <sub>2</sub>                                     | AOQL <sup>C</sup> in %   | Tria   | al 1<br>C <sub>1</sub>                               | Process<br>0.151 to  | s Averag<br>o 0.200 %   | e<br>%                                | AOQL in %  | Tria  | al 1<br>c <sub>1</sub>  | Process<br>0.201 to   | Averaç<br>0 0.250   | ge<br>%<br><i>c</i> <sub>2</sub>  | _ AOC<br>in %   |
| 50 001–100 000  | Trial  | 1^  | Proces<br>0.101 t  | s Average<br>to 0.150 %<br>Trial 2 <sup>B</sup>   |  | AOQL <sup>C</sup>  | Tria   |  | Process<br>0.151 to  | s Averago<br>o 0.200 %<br>Trial 2   | e<br>%                                | AOQL   | Tria  | )<br>al 1   | Process<br>0.201 to   | Averaç<br>0.250<br>Trial 2  | ge<br>%   | AOC   |
| Lot Size  1–180 181–210   | Trial  n <sub>1</sub> all <sup>D</sup> 180   | 1 <sup>A</sup> C <sub>1</sub> 0 0   | Proces<br>0.101 t  | as Average to 0.150 %  Trial $2^B$ $n_1 + n_2$  |  | AOQL <sup>C</sup> in %   | Tria n <sub>1</sub> all 180  | c <sub>1</sub> 0 0                                   | Process<br>0.151 to  | s Average o 0.200 %  Trial 2  n <sub>1</sub> + n <sub>2</sub>   | c <sub>2</sub>                        | AOQL<br>in %<br>0<br>0.02  | Tria n <sub>1</sub> all 180   | al 1  C <sub>1</sub> 0 0  | Process<br>0.201 to<br>                                       | Averaç<br>0 0.250<br>Trial 2<br>n <sub>1</sub> + n <sub>2</sub>                                       | ge %  | _ AOC<br>in %   |
| Lot Size  1–180 181–210 211–250   | Trial  n <sub>1</sub> all <sup>D</sup> 180  210  | 1 <sup>A</sup>  | Proces<br>0.101 t  | ss Average to 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub>   |  | AOQL <sup>C</sup> in %  0 0.02 0.03  | Tria  n <sub>1</sub> all  180  210   | al 1  c <sub>1</sub> 0 0                             | Process<br>0.151 to  | s Average 0 0.200 %  Trial 2  n <sub>1</sub> + n <sub>2</sub>   |                                       | AOQL in % 0 0.02 0.03  | Tria n <sub>1</sub> all 180 210   | al 1  c <sub>1</sub> 0  0   | Process<br>0.201 to   | Trial 2 $n_1 + n_2$   | ge %  | - AOC in %  |
| Lot Size  1–180 181–210 211–250 251–300   | Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240  | 1 <sup>A</sup>  | Proces<br>0.101 t  | as Average to 0.150 %  Trial $2^B$ $n_1 + n_2$  | C <sub>2</sub>                                     | AOQL <sup>C</sup> in %  0 0.02  0.03 0.03  | Tria  n <sub>1</sub> all 180 210 240   | 0 0 0  | Process<br>0.151 to  | s Averago 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub>  |                                       | AOQL<br>in %<br>0<br>0.02<br>0.03<br>0.03  | Tria  n <sub>1</sub> all  180  210  240   | al 1  C <sub>1</sub> 0  0  0  0   | Process<br>0.201 to   | Averaç<br>0 0.250<br>Trial 2<br>n <sub>1</sub> + n <sub>2</sub>                                       | ge %  | - AOC in %  |
| Lot Size  1–180 181–210 211–250   | Trial  n <sub>1</sub> all <sup>D</sup> 180  210  | 1 <sup>A</sup>  | Proces<br>0.101 t  | ss Average to 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub>   |  | AOQL <sup>C</sup> in %  0 0.02 0.03  | Tria  n <sub>1</sub> all  180  210   | al 1  c <sub>1</sub> 0 0                             | Process<br>0.151 to  | s Average 0 0.200 %  Trial 2  n <sub>1</sub> + n <sub>2</sub>   |                                       | AOQL in % 0 0.02 0.03  | Tria n <sub>1</sub> all 180 210   | al 1  c <sub>1</sub> 0  0   | Process<br>0.201 to   | Trial 2 $n_1 + n_2$   | ge %  | AOC in 9  |
| 1-180<br>181-210<br>211-250<br>251-300<br>301-400<br>401-450  | Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275 290  |   | Proces 0.101 t   | ss Average to 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> alog/st  |  | AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04  0.04   | Tria  n <sub>1</sub> all 180  210 240 275  290   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                | Process<br>0.151 to<br>n <sub>2</sub><br>1<br>994-08<br>8-4000   | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 4 ice-   | c <sub>2</sub>                        | AOQL in % 0 0.02 0.03 0.03 0.04 0.04   | Tria  n <sub>1</sub> all  180  210  240  275  290   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Process<br>0.201 to   | Average 0.250  Trial 2  n <sub>1</sub> + n <sub>2</sub>   | ge %  c <sub>2</sub> )94-   | - AOC in %  |
| 1-180<br>181-210<br>211-250<br>251-300<br>301-400<br>401-450<br>451-500   | Trial  n <sub>1</sub> all <sup>P</sup> 180  210 240 275  290 340   |   | Proces 0.101 t   | ss Average to 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450  | c <sub>2</sub>                                     | AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04 0.04  | Tria  n <sub>1</sub> all 180  210 240 275  290 340                                       | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                | Process<br>0.151 to<br>n <sub>2</sub><br><br>994.08<br>8-4000<br>  | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 4 fcc 450  | c <sub>2</sub> 86aċ 1                 | AOQL in % 0 0.02 0.03 0.03 0.04 0.04 0.04  | Tria  n <sub>1</sub> all  180  210  240  275  290  340  | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | n <sub>2</sub>  | Average 0.250  Trial 2  450   | ge %  c <sub>2</sub> )94-   | O 0.00  |
| 1-180<br>181-210<br>211-250<br>251-300<br>301-400<br>401-450  | Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275 290  |   | Proces 0.101 t   | ss Average to 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> alog/st  |  | AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04  0.04   | Tria  n <sub>1</sub> all 180  210 240 275  290   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                | Process<br>0.151 to<br>n <sub>2</sub><br>1<br>994-08<br>8-4000   | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 4 ice-   | c <sub>2</sub>                        | AOQL in % 0 0.02 0.03 0.03 0.04 0.04   | Tria  n <sub>1</sub> all  180  210  240  275  290   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Process<br>0.201 to   | Average 0.250  Trial 2  n <sub>1</sub> + n <sub>2</sub>   | ge %  c <sub>2</sub> )94-   | O 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.                      |
| 1-180<br>181-210<br>211-250<br>251-300<br>301-400<br>401-450<br>451-500   | Trial  n <sub>1</sub> all <sup>P</sup> 180  210 240 275  290 340   |   | Proces 0.101 t   | ss Average to 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450  | c <sub>2</sub>                                     | AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04 0.04  | Tria  n <sub>1</sub> all 180 210 240 275 290 340   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                | Process<br>0.151 to<br>n <sub>2</sub><br><br>994.08<br>8-4000<br>  | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 4 fcc 450  | c <sub>2</sub> 86aċ 1                 | AOQL in % 0 0.02 0.03 0.03 0.04 0.04 0.04  | Tria  n <sub>1</sub> all  180  210  240  275  290  340  | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | n <sub>2</sub>  | Average 0.250  Trial 2  450   | ge %  c <sub>2</sub> )94-   | O 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.                      |
| 1–180<br>181–210<br>211–250<br>251–300<br>301–400<br>401–450<br>451–500<br>501–550  | Trial  n <sub>1</sub> all <sup>D</sup> 180  210  240  275  290  340  350                                   | 1 <sup>A</sup> C <sub>1</sub> 0  0  0  0  0  0  0  0  0  0                                  | n <sub>2</sub>   | ss Average to 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480  | C <sub>2</sub> andan                               | AOQL <sup>C</sup><br>in %<br>0<br>0.02<br>0.03<br>0.03<br>0.04<br>0.04<br>0.04<br>0.05                     | Tria  n <sub>1</sub> all 180 210 240 275 290 340 350                                     | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                | Process<br>0.151 to<br>0.151 to        | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480  | c <sub>2</sub> 86aċ 1                 | AOQL<br>in %<br>0<br>0.02<br>0.03<br>0.03<br>0.04<br>0.04<br>0.04<br>0.05                                    | Tria  n <sub>1</sub> all  180  210  240  275  290  340  350   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | n <sub>2</sub>  | S Average 0.250  Trial 2  450 480   | ge %  c <sub>2</sub> )94 1  | 0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0            |
| 1-180<br>181-210<br>211-250<br>251-300<br>301-400<br>401-450<br>451-500<br>501-550<br>551-600   | Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275 290 340 350 360                                    | 1 <sup>A</sup>  | Proces 0.101 t   | ss Average to 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480 510   | <br>1  | AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04  0.04 0.04 0.05   | Tria  n <sub>1</sub> all 180  210 240 275  290 340 350  360                              | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                | Process<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to  | s Average o 0.200 %  Trial 2  n <sub>1</sub> + n <sub>2</sub> 450  480  510                                       | c <sub>2</sub> 86ac 1                 | 0<br>0.02<br>0.03<br>0.03<br>0.04<br>0.04<br>0.04<br>0.05  | Tria  n <sub>1</sub> all  180  210  240  275  290  340  350  360                                    | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Process<br>0.201 to<br>n <sub>2</sub> 2/asim 110 130          | s Average 0 0.250  Trial 2    450 480  510  | c <sub>2</sub> 1 1 1  | - AOC in 5  |
| 1–180 181–210 211–250 251–300 301–400 401–450 451–500 501–550 551–600 601–800   | Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275  290 340 350  360 400                              | 1 <sup>A</sup>  | n <sub>2</sub>   | ss Average to 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450  480  510  585                                    | <br><br>anidan<br><br>1                            | AOQLC<br>in %<br>0<br>0.02<br>0.03<br>0.03<br>0.04<br>0.04<br>0.04<br>0.05<br>0.05                         | Tria  n <sub>1</sub> all 180 210 240 275 290 340 350 360 400                             | C <sub>1</sub> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Process<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>10.151 to<br>110 to<br>130 to<br>150 to<br>185                              | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630                              | c <sub>2</sub> 86äc 1 1 1 1           | AOQL<br>in %<br>0<br>0.02<br>0.03<br>0.03<br>0.04<br>0.04<br>0.04<br>0.05<br>0.05                            | Tria  n <sub>1</sub> all 180  210 240 275  290 340 350  360 400                                     | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Process<br>0.201 to<br>n <sub>2</sub> 2/astin 110 130 150 185 | s Average 0 0.250  Trial 2    450 480 510 585   |   | - AOO in 6  |
| 1-180<br>181-210<br>211-250<br>251-300<br>301-400<br>401-450<br>451-500<br>501-550<br>551-600<br>601-800<br>801-1000                                  | Trial  n <sub>1</sub> all <sup>P</sup> 180  210 240 275  290 340 350  360 400 430                          | 1 <sup>A</sup>  | Proces 0.101 to 101 to  | s Average to 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630                                | <br>1<br>1<br>1                                    | AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04  0.04 0.05  0.05 0.06 0.07                                  | 7ria  n <sub>1</sub> all 180 210 240 275 290 340 350 360 400 430                         |  | Process<br>0.151 to<br>0.200   | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480 510 585                                      | c <sub>2</sub> 86ac 1 1 1             | AOQL<br>in %<br>0<br>0.02<br>0.03<br>0.03<br>0.04<br>0.04<br>0.04<br>0.05<br>0.05<br>0.07                    | Tria  n <sub>1</sub> all  180  210  240  275  290  340  350  360  400  430                          | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0   | n <sub>2</sub>  | s Average 0 0.250  Trial 2  | c <sub>2</sub>  | - AOO in s  |
| 1-180<br>181-210<br>211-250<br>251-300<br>301-400<br>401-450<br>451-500<br>501-550<br>551-600<br>601-800<br>801-1000                                  | Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275 340 350  360 400 430  490                          | 1 <sup>A</sup>  | n <sub>2</sub>   | s Average to 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630 990                                | <br>1<br>1<br>1<br>2                               | AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04  0.04 0.05 0.05 0.06 0.07 0.09                              | Tria  n <sub>1</sub> all 180  210 240 275  290 340 350  360 400 430  490                 | C <sub>1</sub> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Process<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>110 130<br>150 185<br>200<br>500                    | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630  990                         | C <sub>2</sub> 86ai 1 1 1 2           | AOQL<br>in %<br>0<br>0.02<br>0.03<br>0.03<br>0.04<br>0.04<br>0.05<br>0.05<br>0.05<br>0.07                    | Tria  n <sub>1</sub> all  180  210  240  275  290  340  350  360  400  430  490                     | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | n <sub>2</sub>  | s Average 0 0.250  Trial 2  | 1 1 1 1 2   | - AOO in 5  |
| 1-180 181-210 211-250 251-300 301-400 401-450 451-500 501-550 551-600 601-800 801-1000 1001-2000 2001-3000 3001-4000                                  | Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275 290 340 350  360 400 430  490 520 530              | 1 <sup>A</sup>  | Proces 0.101 t  n <sub>2</sub> 110 130 150 185 200 500 530 810   | ss Average to 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630  990 1050 1340                    | C <sub>2</sub>                                     | AOQLC<br>in %<br>0<br>0.02<br>0.03<br>0.03<br>0.04<br>0.04<br>0.05<br>0.05<br>0.06<br>0.07<br>0.09<br>0.11 | Tria  n <sub>1</sub> all 180 210 240 275 290 340 350 360 400 430 490 520 530             | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                | Process<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>10.151 to<br>110<br>130<br>150<br>185<br>200<br>500<br>760<br>1030          | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630  990 1280 1560                  | 66 C2 C 86 ac 1 1 1 1 2 3 4           | AOQL in %  0 0.02  0.03 0.03 0.04  0.04 0.05  0.05 0.06 0.07  0.09 0.11 0.12                                 | Tria  n <sub>1</sub> all 180  210 240 275  290 340 350  360 400 430  490 520 840                    | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0                                    | n <sub>2</sub> 110 130 185 200 980 1160                       | s Average 0 0.250  Trial 2   n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630  990  1500  2000 | c <sub>2</sub>  | - AOO in 5 0 0.00 0.00 0.00 0.00 0.00 0.00 0.00               |
| 1–180 181–210 211–250 251–300 301–400 401–450 451–500 501–550 551–600 601–800 801–1000 1001–2000 2001–3000 3001–4000 4001–5000                        | Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275  340 350  360 400 430  490 520 530  540            | 1 <sup>A</sup>  | Process 0.101 to 101 to | s Average to 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630  990 1050 1340 1600               | C <sub>2</sub>                                     | AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04  0.04 0.05  0.05 0.06 0.07  0.09 0.11 0.13                  | Tria  n <sub>1</sub> all 180 210 240 275 290 340 350 360 400 430 490 520 530 845         | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                | Process<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>110<br>130<br>150<br>185<br>200<br>500<br>760<br>1030<br>1205               | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630  990  1280  1560  2050       | c <sub>2</sub> 86ü- 1 1 1 2 3 4 6     | AOQL in %  0 0.02  0.03 0.03 0.04  0.04 0.05  0.05 0.06 0.07  0.09 0.11 0.12 0.14                            | Trie  n <sub>1</sub> all  180  210  240  275  290  340  350  360  400  430  490  520  840  845      | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | n <sub>2</sub> 110 130 150 185 200 980 1160 1425              | s Average 0 0.250  Trial 2  | c2              1           1           1           2           4           6           7 | - AOO in 5 O O O O O O O O O O O O O O O O O O                |
| 1-180 181-210 211-250 251-300 301-400 401-450 451-500 501-550 551-600 601-800 801-1000 1001-2000 2001-3000 3001-4000                                  | Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275 290 340 350  360 400 430  490 520 530              | 1 <sup>A</sup>  | Proces 0.101 t  n <sub>2</sub> 110 130 150 185 200 500 530 810   | ss Average to 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630  990 1050 1340                    | C <sub>2</sub>                                     | AOQLC<br>in %<br>0<br>0.02<br>0.03<br>0.03<br>0.04<br>0.04<br>0.05<br>0.05<br>0.06<br>0.07<br>0.09<br>0.11 | Tria  n <sub>1</sub> all 180 210 240 275 290 340 350 360 400 430 490 520 530             | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                | Process<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>10.151 to<br>110<br>130<br>150<br>185<br>200<br>500<br>760<br>1030          | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630  990 1280 1560                  | 66 C2 C 86 ac 1 1 1 1 2 3 4           | AOQL in %  0 0.02  0.03 0.03 0.04  0.04 0.05  0.05 0.06 0.07  0.09 0.11 0.12                                 | Tria  n <sub>1</sub> all 180  210 240 275  290 340 350  360 400 430  490 520 840                    | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0                                    | n <sub>2</sub> 110 130 150 185 200 980 1160 1425 1700         | s Average 0 0.250  Trial 2   n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630  990  1500  2000 | c <sub>2</sub>  | - AOO in 6 O O O O O O O O O O O O O O O O O O                |
| 1-180 181-210 211-250 251-300 301-400 1401-450 451-500 501-550 551-600 601-800 801-1000 1001-2000 2001-3000 3001-4000 4001-5000 5001-7000 7001-10 000 | Trial  n <sub>1</sub> all <sup>P</sup> 180  210 240 275 290 340 350  360 400 430  490 520 530  540 545 880 | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | Proces 0.101 to 10 10 10 10 10 10 10 10 10 10 10 10 10   | ss Average to 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450  480  510  585 630  990 1050 1340  1600 1650 2180 | <br>1<br>1<br>1<br>1<br>2<br>2<br>3<br>4<br>4<br>6 | AOQL <sup>C</sup> in %  0 0.02  0.03 0.04  0.04 0.04 0.05  0.05 0.06 0.07  0.09 0.10 0.11  0.13 0.13 0.15  | Tria  n <sub>1</sub> all 180 210 240 275 290 340 350 360 400 430 490 520 530 845 860 880 | 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1                    | Process 0.151 to  n <sub>2</sub> 9948  8-40  110 130 150 185 200 500 760 1030 1205 1490 1770   | s Average o 0.200 % Trial 2   | C <sub>2</sub> 86ai 1 1 1 2 3 4 6 7 8 | 0.03<br>0.03<br>0.04<br>0.04<br>0.05<br>0.05<br>0.06<br>0.07<br>0.09<br>0.11<br>0.12<br>0.14<br>0.15<br>0.16 | Tria  n <sub>1</sub> all 180  210 240 275  290 340 350  360 400 430  490 520 840  845 860 1170      | 0 0 0 0 0 0 0 0 0 1 1 1 1 2   | n <sub>2</sub> 110 130 150 185 200 1160 1425 1700 2160        | S Average 2 0.250  Trial 2  | c <sub>2</sub>  | - AOO in ' 0  |
| 1-180 181-210 211-250 251-300 301-400 401-450 451-500 501-650 551-600 601-800 801-1000 1001-2000 2001-3000 3001-4000 4001-5000 5001-7000              | Trial  n <sub>1</sub> all <sup>P</sup> 180  210 240 275  340 350  360 400 430  490 520 530  540 545        | 1 <sup>A</sup>  | n <sub>2</sub>   | s Average to 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450  480  510  585 630  990 1050 1340 1600 1650        | C <sub>2</sub>                                     | AOQL on %  0 0.02  0.03 0.03 0.04  0.04 0.05  0.05 0.06 0.07  0.09 0.10 0.11 0.13 0.13                     | Tria  n <sub>1</sub> all 180 210 240 275 290 340 350 360 400 430 490 520 530 845 860     |  | Process<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>0.151 to<br>110 130<br>150 185<br>200<br>500<br>760<br>1030<br>1205<br>1490 | s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630  990  1280  1560  2050  2350 | c <sub>2</sub> 86ac 1 1 1 2 3 4 6 7   | 0<br>0.02<br>0.03<br>0.03<br>0.04<br>0.04<br>0.05<br>0.05<br>0.06<br>0.07<br>0.09<br>0.11<br>0.12<br>0.14    | Tria  n <sub>1</sub> all  180  210  240  275  290  340  350  360  400  430  490  520  840  845  860 | 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1   | n <sub>2</sub> 110 130 150 185 200 1425 1700 2160             | s Average 0 0.250  Trial 2  | c <sub>2</sub>  | O 0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0 |

<sup>&</sup>lt;sup>A</sup>Trial 1:  $n_1$ = first sample size;  $c_1$ = acceptance number for first sample.

## A3. SINGLE SAMPLING TABLES FOR STATED VALUES OF AVERAGE OUTGOING QUALITY LIMIT (AOQL) 0.1 % AOQL, 0.5 % AOQL, 1.0 % AOQL, 2.0 % AO, 5.0 % AOQL, 10.0 % AOQL

A3.1 Tables A3.1-A3.6 illustrate single sampling for stated values of average outgoing quality limit (AOQL).

 $<sup>^{</sup>B}$ Trial 2:  $n_{2}$ = second sample size;  $c_{2}$ = acceptance number for first and second samples combined.

<sup>&</sup>lt;sup>C</sup>AOQL = Average Outgoing Quality Limit.

D"all" indicates that each piece in the lot is to be inspected.

### TABLE A2.2 Double Sampling Table for Lot Tolerance Percent Defective (LTPD) = 1.0 %

|   |   |  | Process A<br>0 to 0.0  |  |                             |  |   |   | Process<br>0.011 to  |   |   |  |   |   |   | s Averag<br>o 0.20 %  |   |  |
|---|---|--|--|--|-----------------------------|--|---|---|--|---|---|--|---|---|---|---|---|--|
| Lot Size —  | Trial 1   | A  |  | Trial 2 <sup>B</sup>   |                             | AOQL <sup>C</sup>  | Tria  | al 1  |  | Trial 2   |   | AOQL   | Tria  | l 1   |   | Trial 2   |   | AOQ  |
| _   | n <sub>1</sub>  | <i>c</i> <sub>1</sub>                          | n <sub>2</sub>   | n <sub>1</sub> + n <sub>2</sub>  | <i>c</i> <sub>2</sub>       | in %   | n <sub>1</sub>  | C <sub>1</sub>                                      | n <sub>2</sub>   | n <sub>1</sub> + n <sub>2</sub>   | <i>c</i> <sub>2</sub>                     | in %   | n <sub>1</sub>  | C <sub>1</sub>  | n <sub>2</sub>  | n <sub>1</sub> + n <sub>2</sub>   | <i>c</i> <sub>2</sub>   | in %   |
| 1–120   | all <sup>D</sup>  | 0  |  |  |                             | 0  | all   | 0   |  |   |   | 0  | all   | 0   |   |   |   | 0  |
| 121–150   | 120   | 0  |  |  |                             | 0.06   | 120   | 0   |  |   |   | 0.06   | 120   | 0   |   |   |   | 0.06   |
| 151-200   | 140   | 0  |  |  |                             | 0.08   | 140   | 0   |  |   |   | 0.08   | 140   | 0   |   |   |   | 0.08   |
| 201–260   | 165   | 0  |  |  |                             | 0.10   | 165   | 0   |  |   |   | 0.10   | 165   | 0   |   |   |   | 0.10   |
| 261–300   | 180   | 0  | 75   | 255  | 1                           | 0.10   | 180   | 0   | 75   | 255   | 1   | 0.10   | 180   | 0   | 75  | 255   | 1   | 0.10   |
| 301-400   | 200   | 0  | 90   | 290  | 1                           | 0.12   | 200   | 0   | 90   | 290   | 1   | 0.12   | 200   | 0   | 90  | 290   | 1   | 0.12   |
| 401–500   | 215   | 0  | 100  | 315  | 1                           | 0.14   | 215   | 0   | 100  | 315   | 1   | 0.14   | 215   | 0   | 100   | 315   | 1   | 0.14   |
| 501–600   | 225   | 0  | 115  | 340  | 1                           | 0.15   | 225   | 0   | 115  | 340   | 1   | 0.15   | 225   | 0   | 115   | 340   | 1   | 0.15   |
| 601–800   | 235   | 0  | 125  | 360  | 1                           | 0.16   | 235   | 0   | 125  | 360   | 1   | 0.16   | 235   | 0   | 125   | 360   | 1   | 0.16   |
| 801–1000  | 245   | 0  | 135  | 380  | 1                           | 0.17   | 245   | 0   | 135  | 380   | 1   | 0.17   | 245   | 0   | 250   | 495   | 2   | 0.19   |
| 1001–2000   | 265   | 0  | 155  | 420  | 1                           | 0.18   | 265   | 0   | 155  | 420   | 1   | 0.18   | 265   | 0   | 285   | 550   | 2   | 0.21   |
| 2001–2000   | 205<br>270  | 0  | 160  | 420  | 1                           | 0.18   | 270   | 0   | 300  | 420<br>570  | 2   | 0.18   | 200<br>270  | 0   | 420   | 690   | 3   | 0.21   |
| 3001–4000   | 275   | 0  | 160  | 435  | 1                           | 0.19   | 275   | 0   | 305  | 580   | 2   | 0.22   | 275   | 0   | 435   | 710   | 3   | 0.25   |
| 3001-4000   | 275   | U  | 100  | 433  | '                           | 0.19   | 215   | U   | 303  | 300   | 2   | 0.22   | 2/5   | U   | 433   | 710   | 3   | 0.20   |
| 4001-5000   | 275   | 0  | 165  | 440  | 1                           | 0.19   | 275   | 0   | 310  | 585   | 2   | 0.23   | 275   | 0   | 565   | 840   | 4   | 0.28   |
| 5001-7000   | 275   | 0  | 170  | 445  | 1                           | 0.20   | 275   | 0   | 315  | 590   | 2   | 0.23   | 275   | 0   | 580   | 855   | 4   | 0.29   |
| 7001–10 000   | 280   | 0  | 320  | 600  | 2                           | 0.24   | 280   | 0   | 460  | 740   | 3   | 0.26   | 280   | 0   | 590   | 870   | 4   | 0.30   |
| 10 001–20 000   | 280   | 0  | 325  | 605  | 2                           | 0.24   | 280   | 0   | 465  | 745   | 3   | 0.27   | 450   | 1   | 700   | 1150  | 6   | 0.33   |
| 20 001-50 000   | 280   | 0  | 325  | 605  | 2                           | 0.25   | 280   | 0   | 605  | 885   | 4   | 0.30   | 450   | 1   | 830   | 1280  | 7   | 0.36   |
| 50 001-100 000  | 280   | 0  | 325  | 605  | 2                           | 0.25   | 280   | 0   | 605  | 885   | 4   | 0.30   | 450   | 1   | 960   | 1410  | 8   | 0.38   |
|   |   |  | Process A  |  | Lei                         |  | lal   |   | Process  | Averag<br>0.40 %  |   |  |   |   |   | Average<br>0 0.50 %   |   |  |
| Lot Size —  | Trial 1   | A  | 0.21 10 1  | Trial 2 <sup>B</sup>   | 1/-                         | 4  | Tria  | al-1  | 0.51 10  | Trial 2   |   |  | Tria  | 1 1   | 0.41 0  | Trial 2   | '   |  |
| _   | n <sub>1</sub>  | <i>C</i> <sub>1</sub>                          | $n_2$ $n_1$ +  | <del>U 0 .</del>   |                             | AOQL <sup>C</sup>  | $n_1$   | <i>c</i> <sub>1</sub>                               | $n_2$  | $n_1 + n_2$   | $c_2$                                     | AOQL in %  | $n_1$   | c <sub>1</sub>  | n <sub>2</sub>  | $n_1 + n_2$   | C-  | _ AOQ<br>in %  |
| 1–120   | all <sup>D</sup>  | 0  |  | 112 02   |                             | 0  |   | 0   | 112  | 111 112   | 02  | 0  | all   | 0   |   |   |   | 0  |
| 1-120   |   |  |  |  | CII                         |  |   |   |  | 711.0   |   | U  | all   | U   |   |   |   | U  |
|   | all   | U  |  |  |                             | me   | all   |   | rev  |   |   |  |   |   |   |   |   |  |
| 121–150   | 120   | 0  |  | <b>D</b> O   | CU                          | 0.06   | 120   | 0   | rev  | ) 1E  | <b>YY</b>                                 | 0.06   | 120   | 0   |   |   |   | 0.06   |
| 121–150<br>151–200  |   |  |  | <b>リ</b> ()<br>  |                             |  |   |   | rev  | ) 1 <del>C</del>  |   | 0.06<br>0.08   |   | 0   |   |   |   |  |
|   | 120   | 0  |  | DO:  | <br>                        | 0.06   | 120   | 0   | rev  | <br>  | • • • • • • • • • • • • • • • • • • •     |  | 120   |   |   |   |   | 0.08   |
| 151–200   | 120<br>140  | 0  |  | 255  |                             | 0.06<br>0.08   | 120<br>140  | 0   | 08<br>75   |   |   | 0.08   | 120<br>140  | 0   |   |   |   | 0.08   |
| 151–200<br>201–260  | 120<br>140<br>165   | 0<br>0<br>0                                    |  |  |                             | 0.06<br>0.08<br>0.10   | 120<br>140<br>165   | 0<br>0<br>0<br>0                                    | 08<br>08<br>00-90  |   | • • •                                     | 0.08<br>0.10   | 120<br>140<br>165   | 0   |   |   |   | 0.08<br>0.10<br>0.10   |
| 151–200<br>201–260<br>261–300   | 120<br>140<br>165   | 0<br>0<br>0                                    |  | 255  |                             | 0.06<br>0.08<br>0.10   | 120<br>140<br>165   | 0 0 0   |  | 255   | <br>a <mark>1</mark> 1                    | 0.08<br>0.10<br>0.10   | 120<br>140<br>165   | 0 0   | <br><br>  | <br><br>  | <br><br>4 <b>h</b> s  | 0.08<br>0.10<br>0.10<br>0.12   |
| 151–200<br>201–260<br>htt <sup>261–300</sup><br>301–400   | 120<br>140<br>165<br>180<br>200   | 0 0 0  | 75<br>90   | 255<br>290   | ds/sis                      | 0.06<br>0.08<br>0.10<br>0.10<br>0.12   | 120<br>140<br>165<br>180<br>200   | 0 0 0 94-0  | 90   | 255<br>290  | <br>aq-1                                  | 0.08<br>0.10<br>0.10<br>0.12   | 120<br>140<br>165<br>180<br>200   | 0<br>0<br>4 0   | 75<br>90  | 255<br>290  | 4- <b>þ</b> 8   | 0.06<br>0.08<br>0.10<br>0.10<br>0.12<br>0.14   |
| 151–200<br>201–260<br>htt 261–300<br>301–400<br>401–500   | 120<br>140<br>165<br>180<br>200<br>215  | 0 0 0  | 75<br>90<br>100  | 255<br>290<br>315  | ds/sis                      | 0.06<br>0.08<br>0.10<br>0.10<br>0.12<br>0.14   | 120<br>140<br>165<br>180<br>200<br>215  | 0             | 90<br>100  | 255<br>290<br>315   | a-1<br>1                                  | 0.08<br>0.10<br>0.10<br>0.12<br>0.14   | 120<br>140<br>165<br>180<br>200<br>215  | 0<br>0<br>4<br>0<br>0   | 75<br>90<br>100   | 255<br>290<br>315   | 4-¦08   | 0.08<br>0.10<br>0.12<br>0.12<br>0.14   |
| 151–200<br>201–260<br>htt 301–400<br>401–500<br>501–600   | 120<br>140<br>165<br>180<br>200<br>215  | 0 0 0 0 0 0 0                                  | 75<br>90<br>100  | 255<br>290<br>315<br>340   | ds/ <mark>sis</mark><br>1   | 0.06<br>0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.15   | 120<br>140<br>165<br>180<br>200<br>215  | 0<br>0<br>0<br>0<br>94-4<br>0<br>0                  | 90<br>100<br>115   | 255<br>290<br>315   | a-1<br>1                                  | 0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.15   | 120<br>140<br>165<br>180<br>200<br>215  | 0<br>0<br>0<br>4<br>0<br>0<br>0   | 75<br>90<br>100<br>205  | 255<br>290<br>315   | <br><br>4-1)8<br>1  | 0.08<br>0.10<br>0.12<br>0.12<br>0.14<br>0.16<br>0.18                                 |
| 151–200<br>201–260<br>201–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000   | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245   | 0 0 0 0 0 0 0                                  | 75<br>90<br>100<br>115<br>230<br>250   | 255<br>290<br>315<br>340<br>465  | ds/1sis<br>1<br>1<br>2      | 0.06<br>0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19   | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245   | 0<br>0<br>0<br>0<br>94-4<br>0<br>0<br>0             | 90<br>100<br>115<br>230<br>250   | 255<br>290<br>315<br>340<br>465<br>495  | a 1 - 1 1 1 2                             | 0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19   | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245   | 0<br>0<br>0<br>0<br>0<br>0  | 75<br>90<br>100<br>205<br>230<br>250  | 255<br>290<br>315<br>430<br>465<br>495  | 4-1)8<br>1<br>2<br>2  | 0.08<br>0.10<br>0.12<br>0.12<br>0.14<br>0.18<br>0.18                                 |
| 151–200<br>201–260<br>https://doi.org/10.000<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000  | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265                                    |  | 75<br>90<br>100<br>115<br>230<br>250   | 255<br>290<br>315<br>340<br>465<br>495<br>670  | 1 1 2 2 3                   | 0.06<br>0.08<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19   | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265                                    |   | 90<br>100<br>115<br>230<br>250<br>515                                      | 255<br>290<br>315<br>340<br>465<br>495  | 1-1<br>1<br>1<br>2<br>2                   | 0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19   | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245   | 0<br>0<br>0<br>0<br>0<br>0<br>0   | 75<br>90<br>100<br>205<br>230<br>250<br>515                                       | 255<br>290<br>315<br>430<br>465<br>495  | 4-1)<br>1<br>2<br>2<br>2<br>4   | 0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.16<br>0.18<br>0.19                         |
| 151–200<br>201–260<br>201–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000   | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245   | 0 0 0 0 0 0 0 0                                | 75<br>90<br>100<br>115<br>230<br>250   | 255<br>290<br>315<br>340<br>465<br>495   | ds/1sis<br>1<br>1<br>2<br>2 | 0.06<br>0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19   | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245   | 0 0 0 0 0 0 0 0 0                                   | 90<br>100<br>115<br>230<br>250<br>515                                      | 255<br>290<br>315<br>340<br>465<br>495  | 1<br>1<br>1<br>2<br>2                     | 0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19   | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245   | 0<br>0<br>0<br>0<br>0<br>0<br>0   | 75<br>90<br>100<br>205<br>230<br>250  | 255<br>290<br>315<br>430<br>465<br>495  | <br><br>4-1)8<br>1<br>2<br>2<br>2                                     | 0.08<br>0.10<br>0.10<br>0.12<br>0.14   |
| 151–200<br>201–260<br>261–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000<br>1001–2000<br>2001–3000<br>3001–4000  | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>270<br>435                      |  | 75<br>90<br>100<br>115<br>230<br>250<br>405<br>545<br>645                      | 255<br>290<br>315<br>340<br>465<br>495<br>670<br>815<br>1080                         | 1 1 2 2 3 4 6               | 0.06<br>0.08<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19<br>0.23<br>0.26<br>0.29                         | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>430<br>435                      | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0           | 90<br>100<br>115<br>230<br>250<br>515<br>620<br>865                        | 255<br>290<br>315<br>340<br>465<br>495<br>780<br>1050<br>1300                         | 1 1 2 2 4 6 8                             | 0.08<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19<br>0.24<br>0.28<br>0.30                                 | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>430<br>580                      | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0  | 75<br>90<br>100<br>205<br>230<br>250<br>515<br>830<br>940                         | 255<br>290<br>315<br>430<br>465<br>495<br>780<br>1260<br>1520                         | 4-1<br>1<br>2<br>2<br>2<br>4<br>8<br>10                               | 0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.18<br>0.19<br>0.24<br>0.30<br>0.33         |
| 151–200<br>201–260<br>261–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000<br>1001–2000<br>2001–3000<br>3001–4000<br>4001–5000                             | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>270<br>435                      |  | 75<br>90<br>100<br>115<br>230<br>250<br>405<br>545<br>645                      | 255<br>290<br>315<br>340<br>465<br>495<br>670<br>815<br>1080                         | 1 1 1 2 2 3 4 6 6 6         | 0.06<br>0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19<br>0.23<br>0.26<br>0.29                 | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>430<br>435                      | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0           | 90<br>100<br>115<br>230<br>250<br>515<br>620<br>865                        | 255<br>290<br>315<br>340<br>465<br>495<br>780<br>1050<br>1300                         | 1 1 1 2 2 4 6 8 9                         | 0.08<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19<br>0.24<br>0.28<br>0.30                                 | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>430<br>580                      | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0   | 75<br>90<br>100<br>205<br>230<br>250<br>515<br>830<br>940                         | 255<br>290<br>315<br>430<br>465<br>495<br>780<br>1260<br>1520                         | 4-1)8<br>1<br>2<br>2<br>2<br>4<br>8<br>10                             | 0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.18<br>0.19<br>0.24<br>0.30<br>0.33         |
| 151–200<br>201–260<br>261–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000<br>1001–2000<br>2001–3000<br>3001–4000  | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>270<br>435                      |  | 75<br>90<br>100<br>115<br>230<br>250<br>405<br>545<br>645                      | 255<br>290<br>315<br>340<br>465<br>495<br>670<br>815<br>1080                         | 1 1 2 2 3 4 6               | 0.06<br>0.08<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19<br>0.23<br>0.26<br>0.29                         | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>430<br>435                      | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0           | 90<br>100<br>115<br>230<br>250<br>515<br>620<br>865<br>1000<br>990         | 255<br>290<br>315<br>340<br>465<br>495<br>780<br>1050<br>1300                         | 1 1 2 2 4 6 8                             | 0.08<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19<br>0.24<br>0.28<br>0.30                                 | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>430<br>580                      | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0  | 75<br>90<br>100<br>205<br>230<br>250<br>515<br>830<br>940                         | 255<br>290<br>315<br>430<br>465<br>495<br>780<br>1260<br>1520                         | 4-1<br>1<br>2<br>2<br>2<br>4<br>8<br>10                               | 0.08<br>0.10<br>0.11<br>0.12<br>0.14<br>0.18<br>0.19<br>0.24<br>0.30<br>0.33         |
| 151–200<br>201–260<br>261–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000<br>1001–2000<br>2001–3000<br>3001–4000<br>4001–5000<br>5001–7000<br>7001–10 000 | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>270<br>435<br>440<br>445<br>450 | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | 75<br>90<br>100<br>115<br>230<br>250<br>405<br>545<br>645<br>660<br>785<br>920 | 255<br>290<br>315<br>340<br>465<br>495<br>670<br>815<br>1080<br>1100<br>1230<br>1370 | 1 1 2 2 3 4 6 6 7 8         | 0.06<br>0.08<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19<br>0.23<br>0.26<br>0.29<br>0.30<br>0.33<br>0.35 | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>430<br>435<br>440<br>590<br>600 | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | 90<br>100<br>115<br>230<br>250<br>515<br>620<br>865<br>1000<br>990<br>1240 | 255<br>290<br>315<br>340<br>465<br>495<br>780<br>1050<br>1300<br>1440<br>1580<br>1840 | 1 1 1 2 2 4 6 8 9 10 12                   | 0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19<br>0.24<br>0.28<br>0.30<br>0.33<br>0.36<br>0.39 | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>430<br>580<br>585<br>730<br>870 | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | 75<br>90<br>100<br>205<br>230<br>250<br>515<br>830<br>940<br>1075<br>1190<br>1540 | 255<br>290<br>315<br>430<br>465<br>495<br>780<br>1260<br>1520<br>1660<br>1920<br>2410 | <br>1<br>1<br>1<br>2<br>2<br>2<br>2<br>4<br>8<br>10<br>11<br>13<br>17 | 0.08<br>0.10<br>0.10<br>0.12<br>0.14<br>0.18<br>0.19<br>0.22<br>0.30<br>0.33<br>0.34 |
| 151–200<br>201–260<br>261–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000<br>1001–2000<br>2001–3000<br>3001–4000<br>4001–5000<br>5001–7000                | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>270<br>435<br>440<br>445        |  | 75<br>90<br>100<br>115<br>230<br>250<br>405<br>545<br>645                      | 255<br>290<br>315<br>340<br>465<br>495<br>670<br>815<br>1080<br>1100<br>1230         | 1 1 2 2 3 4 6 6 7           | 0.06<br>0.08<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19<br>0.23<br>0.26<br>0.29<br>0.30<br>0.33         | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>430<br>435<br>440<br>590        | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0      | 90<br>100<br>115<br>230<br>250<br>515<br>620<br>865<br>1000<br>990<br>1240 | 255<br>290<br>315<br>340<br>465<br>495<br>780<br>1050<br>1300<br>1440<br>1580         | 1<br>1<br>1<br>1<br>2<br>2<br>4<br>6<br>8 | 0.08<br>0.10<br>0.12<br>0.14<br>0.15<br>0.18<br>0.19<br>0.24<br>0.28<br>0.30                                 | 120<br>140<br>165<br>180<br>200<br>215<br>225<br>235<br>245<br>265<br>430<br>580<br>585<br>730        | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>1<br>2<br>2<br>3                          | 75<br>90<br>100<br>205<br>230<br>250<br>515<br>830<br>940<br>1075<br>1190         | 255<br>290<br>315<br>430<br>465<br>495<br>780<br>1260<br>1520                         | 4-1<br>1<br>2<br>2<br>2<br>4<br>8<br>10<br>11<br>13                   | 0.08<br>0.10<br>0.12<br>0.14<br>0.18<br>0.18<br>0.24<br>0.30                         |

<sup>&</sup>lt;sup>A</sup>Trial 1:  $n_1$ = first sample size;  $c_1$ = acceptance number for first sample.

<sup>B</sup>Trial 2:  $n_2$ = second sample size;  $c_2$ = acceptance number for first and second samples combined.

<sup>C</sup>AOQL = Average Outgoing Quality Limit.

<sup>Da</sup> all' indicates that each piece in the lot is to be inspected.

### TABLE A2.3 Double Sampling Table for Lot Tolerance Percent Defective (LTPD) = 2.0 %

|   |   |   | Process A<br>0 to 0.  | -  |  |   |  | ı                                     |   | Averag<br>0.20 %  |  |  |  |   | ocess Av<br>.21 to 0.4  | _   |   |  |
|---|---|---|---|--|--|---|--|---------------------------------------|---|---|--|--|--|---|---|---|---|--|
| Lot Size  | Trial   | 1 <sup>A</sup>  |   | Trial 2 <sup>B</sup>   |  | _AOQL <sup>C</sup>  | Tria   | al 1                                  |   | Trial 2   |  | AOQL   | Trial  | 1   | Т   | rial 2  |   | AOC  |
|   | n <sub>1</sub>  | <i>C</i> <sub>1</sub>                                 | $n_2$   | n <sub>1</sub> + n <sub>2</sub>  | $c_2$  | in %  | $n_1$  | <i>C</i> <sub>1</sub>                 | $n_2$   | n <sub>1</sub> + n <sub>2</sub>   | $c_2$  | in %   | n <sub>1</sub>   | C <sub>1</sub>  | n <sub>2</sub> n  | <sub>1</sub> + n <sub>2</sub>   | <i>c</i> <sub>2</sub>                           | in <sup>9</sup>                            |
| 1–75  | $all^D$   | 0   |   |  |  | 0   | all  | 0                                     |   |   |  | 0  | all  | 0   |   |   |   | 0  |
| 76–100  | 70  | 0   |   |  |  | 0.16  | 70   | 0                                     |   |   |  | 0.16   | 70   | 0   |   |   |   | 0.1  |
| 101–200   | 85  | 0   |   |  |  | 0.25  | 85   | 0                                     |   |   |  | 0.25   | 85   | 0   |   |   |   | 0.2  |
| 201–300   | 115   | 0   | 50  | 165  | 1  | 0.29  | 115  | 0                                     | 50  | 165   | 1  | 0.29   | 115  | 0   | 50  | 165   | 1   | 0.2  |
| 301-400   | 120   | 0   | 60  | 180  | 1  | 0.32  | 120  | 0                                     | 60  | 180   | 1  | 0.32   | 120  | 0   | 60  | 180   | 1   | 0.3  |
| 401–500   | 125   | 0   | 65  | 190  | 1  | 0.33  | 125  | 0                                     | 65  | 190   | 1  | 0.33   | 125  | 0   | 120   | 245   | 2   | 0.3  |
| 501–600   | 125   | 0   | 70  | 195  | 1  | 0.34  | 125  | 0                                     | 70  | 195   | 1  | 0.34   | 125  | 0   | 130   | 255   | 2   | 0.   |
| 601–800   | 130   | 0   | 75  | 205  | 1  | 0.35  | 130  | 0                                     | 75  | 205   | 1  | 0.35   | 130  | 0   | 125   | 265   | 2   | 0.   |
|   |   | 0   |   | 210  |  |   |  | 0                                     | 75<br>140   |   |  |  |  | 0   |   | 275   |   |  |
| 801–1000  | 135   | U   | 75  | 210  | 1  | 0.36  | 135  | U                                     | 140   | 275   | 2  | 0.42   | 135  | U   | 140   | 2/5   | 2   | 0.   |
| 1001-2000   | 135   | 0   | 85  | 220  | 1  | 0.38  | 135  | 0                                     | 155   | 290   | 2  | 0.45   | 135  | 0   | 220   | 355   | 3   | 0.   |
| 2001-3000   | 140   | 0   | 85  | 225  | 1  | 0.39  | 140  | 0                                     | 155   | 295   | 2  | 0.46   | 140  | 0   | 285   | 425   | 4   | 0.   |
| 3001–4000   | 140   | 0   | 85  | 225  | 1  | 0.40  | 140  | 0                                     | 225   | 365   | 3  | 0.52   | 140  | 0   | 290   | 430   | 4   | 0.   |
| 4001-5000   | 140   | 0   | 160   | 300  | 2  | 0.47  | 140  | 0                                     | 230   | 370   | 3  | 0.53   | 140  | 0   | 360   | 500   | 5   | 0.   |
| 5001-7000   | 140   | 0   | 160   | 300  | 2  | 0.48  | 140  | 0                                     | 230   | 370   | 3  | 0.54   | 140  | 0   | 365   | 505   | 5   | 0.   |
| 7001–10 000   | 140   | 0   | 160   | 300  | 2  | 0.48  | 140  | 0                                     | 235   | 375   | 3  | 0.54   | 225  | 1   | 350   | 575   | 6   | 0.   |
| 10 001–20 000   | 140   | 0   | 165   | 305  | 2  | 0.49  | 140  | 0                                     | 235   | 375   | 3  | 0.54   | 225  | 1   | 415   | 640   | 7   | 0.   |
| 20 001–50 000   | 140   | Ö   | 165   | 305  | 2  | 0.49  | 140  | 0                                     | 305   | 445   | 4  | 0.59   | 225  | 1   | 480   | 705   | 8   | 0.   |
| 50 001–100 000  | 140   | 0   | 165   | 305  | 2  | 0.49  | 140  | Ö                                     | 305   | 445   | 4  | 0.60   | 225  | 1   | 545   | 770   | 9   | 0.   |
|   |   |   |   |  |  |   |  |                                       |   |   |  |  |  |   |   |   |   |  |
|   |   |   | Process A   |  |  |   |  | I                                     |   | Averag  |  |  |  |   | cess Av   |   |   |  |
| Lot Size  |   |   | Process A<br>0.41 to 0  | 0.60 %   |  | eh S  | Sta  | n                                     |   | 0.80 %  |  |  | <b></b>  | 0.  | .81 to 1.0  | 00 %  |   |  |
| Lot Size  | Trial   | 1 <sup>A</sup>  | 0.41 to (   | 0.60 %<br>Trial 2 <sup>B</sup>   |  | _AOQL <sup>C</sup>  | Tria   | al 1                                  | 0.61 to   | 0.80 %<br>Trial 2   | S  | AOQL   | Trial  | 1   | .81 to 1.0  | 00 %<br>rial 2  |   | AO   |
|   | n   | 1 <sup>A</sup> C <sub>1</sub>                         | 0.41 to (   | 0.60 %  Trial $2^{B}$ + $n_{2}$ $c_{2}$  | <b>z•/</b>                                     | in %  | n <sub>1</sub>   | al 1                                  |   | 0.80 %  Trial 2 $n_1 + n_2$   | <i>C</i> <sub>2</sub>  | in %   |  | 1   | .81 to 1.0  | 00 %<br>rial 2  | <i>C</i> <sub>2</sub>                           | in   |
| 1–75  | $n_1$ all <sup>D</sup>  | 1 <sup>A</sup>  | 0.41 to (   | 0.60 %  Trial $2^{B}$ $+ n_{2} c_{2}$  | 3./  | in %  | n <sub>1</sub>   | al 1                                  | 0.61 to   | 0.80 %<br>Trial 2   | S  | in %   | $n_1$  | 0.<br>1   | 81 to 1.0   | 00 %<br>rial 2<br>1+ n <sub>2</sub>   |   | in<br>0                                    |
| 1–75<br>76–100  | n <sub>1</sub> all <sup>D</sup> 70  | 1 <sup>A</sup>  | 0.41 to (   | $\begin{array}{ccc} 0.60 \% \\ \text{Trial } 2^B \\ + n_2 & c_2 \\ & \dots \\ \end{array}$   | <b>z•/</b>                                     | in %<br>0<br>0.16   | n <sub>1</sub> all 70  | al 1  c <sub>1</sub> 0 0              | 0.61 to   | 0.80 %  Trial 2 $n_1 + n_2$   | <i>C</i> <sub>2</sub>  | in %<br>0<br>0.16  | n <sub>1</sub> all 70  | 0.<br>1   | 81 to 1.0<br>T  | 00 %<br>rial 2<br>1+ n <sub>2</sub>   |   | 0<br>0.                                    |
| 1–75  | $n_1$ all <sup>D</sup>  | 1 <sup>A</sup>  | 0.41 to (   | 0.60 %  Trial $2^{B}$ $+ n_{2} c_{2}$  | 3./  | in %  | n <sub>1</sub>   | al 1                                  | 0.61 to   | 0.80 %  Trial 2 $n_1 + n_2$   | <i>C</i> <sub>2</sub>  | in %   | $n_1$  | 0.<br>1   | 81 to 1.0   | 00 %<br>rial 2<br>1+ n <sub>2</sub>   |   | 0<br>0.                                    |
| 1–75<br>76–100  | n <sub>1</sub> all <sup>D</sup> 70  | 1 <sup>A</sup>  | 0.41 to (   | $\begin{array}{ccc} 0.60 \% \\ \text{Trial } 2^B \\ + n_2 & c_2 \\ & \dots \\ \end{array}$   | 3./  | in %<br>0<br>0.16   | n <sub>1</sub> all 70  | al 1  c <sub>1</sub> 0 0              | 0.61 to   | 0.80 %  Trial 2 $n_1 + n_2$   | <i>C</i> <sub>2</sub>  | in %<br>0<br>0.16  | n <sub>1</sub> all 70  | 0.<br>1   | 81 to 1.0<br>T  | 00 %<br>rial 2<br>1+ n <sub>2</sub>   |   | in   |
| 1–75<br>76–100<br>101–200   | n <sub>1</sub> all <sup>D</sup> 70 85   | 1 <sup>A</sup> c <sub>1</sub> 0 0 0                   | 0.41 to (   | $\begin{array}{c} 0.60 \% \\ \text{Trial } 2^B \\ + n_2  c_2 \\ & \dots \\ & \dots \\ \end{array}$   | S:/  | in %<br>0<br>0.16<br>0.25   | n <sub>1</sub> all 70 85   | al 1  c <sub>1</sub> 0  0  0          | 0.61 to   | 0.80 % Trial 2  n <sub>1</sub> + n <sub>2</sub>   |  | in %<br>0<br>0.16<br>0.25  | n <sub>1</sub> all 70 85   | 0.  1  c <sub>1</sub> 0  0  0  0  | 81 to 1.0   | 00 %<br>rial 2<br>1+ n <sub>2</sub>   |   | 0<br>0.<br>0.                              |
| 1–75<br>76–100<br>101–200<br>201–300  | n <sub>1</sub> all <sup>D</sup> 70 85   | 1 <sup>A</sup>  | 0.41 to 0   | $0.60\%$ Trial $2^{B}$ $+ n_{2} c_{2}$ 165   |  | in % 0 0.16 0.25 0.29   | n <sub>1</sub> all 70 85   | al 1  C <sub>1</sub> 0  0  0  0       | 0.61 to   | 0.80 %  Trial 2 $n_1 + n_2$ 165   | <i>c</i> <sub>2</sub>  | in % 0 0.16 0.25 0.29  | n <sub>1</sub> all 70 85   | 0.  1  c <sub>1</sub> 0  0  0  0  0   | .81 to 1.0<br>T<br>n <sub>2</sub> n   | oo % rial 2 1+ n2 165   | 1   | 0<br>0.<br>0.<br>0.                        |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500  | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125                                 | 1 <sup>A</sup> C <sub>1</sub> 0 0 0 0 0 0             | 0.41 to 0   | 0.60 %  Trial $2^{B}$ + $n_{2}$ $c_{2}$ 165 235 245  | 1 2 2  | in %  0 0.16 0.25  0.29 0.34 0.37   | n <sub>1</sub> all 70 85 115 120 125                                 | al 1  c <sub>1</sub> 0  0  0  0  0    | 0.61 to   | Trial 2 $n_1 + n_2$ $\dots$ 165 $235$ $245$   | c <sub>2</sub> 1 2 2   | in % 0 0.16 0.25 0.29 0.34 0.37  | n <sub>1</sub> all 70 85 115 120 125                                     | 0.  1  0 0 0 0 0 0 0 0  | 81 to 1.0  T  n <sub>2</sub> n   50 115 120   | 00 % rial 2  1+ n <sub>2</sub> 165 235 245                                    | 1<br>2<br>2                                     | 0<br>0.<br>0.<br>0.                        |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500<br>501–600   | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125                                 | 1 <sup>A</sup> C <sub>1</sub> 0 0 0 0 0 0 0           | 0.41 to 0  n 2 n1   50 115 120                                  | 0.60 %  Trial $2^{B}$ + $n_{2}$ $c_{2}$ 165 235 245  | 1 2 2  | in %  0 0.16 0.25  0.29 0.34 0.37   | n <sub>1</sub> all 70 85 115 120 125                                 | al 1  c <sub>1</sub> 0  0  0  0  0  0 | 0.61 to  n <sub>2</sub> 50 115 120  | $\begin{array}{c} 0.80 \% \\ \hline \text{Trial 2} \\ \hline \\ n_1 + n_2 \\ \hline \\ \vdots \\ \hline \\ 165 \\ 235 \\ 245 \\ \hline \\ 310 \\ \end{array}$ | $c_2$ $\vdots$ $1$ $2$ $2$   | in % 0 0.16 0.25 0.29 0.34 0.37 0.41   | n <sub>1</sub> all 70 85 115 120 125                                     | 0.<br>1<br>0<br>0<br>0<br>0<br>0<br>0   | 81 to 1.0  T  n <sub>2</sub> n  50  115  120  | nrial 2  1+ n <sub>2</sub> 165  235  245                                      | 1<br>2<br>2                                     | 0<br>0.<br>0.<br>0.<br>0.                  |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500  | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125                                 | 1 <sup>A</sup> C <sub>1</sub> 0 0 0 0 0 0             | 0.41 to 0   | 0.60 %  Trial $2^{B}$ + $n_{2}$ $c_{2}$ 165 235 245  | 1 2 2  | in %  0 0.16 0.25  0.29 0.34 0.37   | n <sub>1</sub> all 70 85 115 120 125                                 | al 1  c <sub>1</sub> 0  0  0  0  0    | 0.61 to   | Trial 2 $n_1 + n_2$ $\dots$ 165 $235$ $245$   | c <sub>2</sub> 1 2 2   | in % 0 0.16 0.25 0.29 0.34 0.37  | n <sub>1</sub> all 70 85 115 120 125                                     | 0.  1  0 0 0 0 0 0 0 0  | 81 to 1.0  T  n <sub>2</sub> n   50 115 120   | 00 % rial 2  1+ n <sub>2</sub> 165 235 245                                    | 1<br>2<br>2                                     | 0.<br>0.<br>0.<br>0.<br>0.                 |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000  | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 125 130 135                     | 1 <sup>A</sup> C <sub>1</sub> 0 0 0 0 0 h. 0 0        | 0.41 to 0  n <sub>2</sub> n <sub>1</sub> 50  115  120  130  200 | 0.60 %  Trial 2 <sup>8</sup> + n <sub>2</sub> c <sub>2</sub> 165 235 245  255 325 335  | 1<br>2<br>2<br>2<br>3                          | in %  0 0.16 0.25  0.29 0.34 0.37  0.39 0.44 0.46                                 | n <sub>1</sub> all 70 85 115 120 125 130 135                         | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0.61 to  n <sub>2</sub> 50  115  120  185  250  255                               | 0 0.80 %  Trial 2  n <sub>1</sub> + n <sub>2</sub> 165 235 245  310 380 390   | c <sub>2</sub> 1 2 2 3 4 4   | 0 0.16 0.25 0.29 0.34 0.37 0.41 0.45 0.48                                    | n <sub>1</sub> all 70 85 115 120 125 125 126 210                         | 0.<br>1<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0                                 | 81 to 1.0  T  n <sub>2</sub> n   50  115  120  185  250  290                          | 00 % rial 2 1+ n2 165 235 245 310 380 500                                     | 1<br>2<br>2<br>3<br>4<br>6                      | 0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.     |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000  | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 125 135 135                     | 1 <sup>A</sup> 0 0 0 0 0 0 0 0 0 0 0 0 0 0            | 0.41 to 0  n 2 n1   50 115 120 130 200 285                      | 0.60 %  Trial 2 <sup>8</sup> + n <sub>2</sub> c <sub>2</sub> 165 235 245  255 325 335  420   | 1 2 2 2 2 3 3 4                                | in %  0 0.16 0.25  0.29 0.34 0.37  0.39 0.44 0.46  0.54                           | n <sub>1</sub> all 70 85 115 120 125 130 135                         | 0 0 0 0 0 0 0 0 1                     | 0.61 to  n <sub>2</sub> 50  115  120  185  255  375                               | 0 0.80 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 165 235 245  310 380 390 595  | c <sub>2</sub> 1 2 2 3 4 4   | in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.48  0.62                      | n <sub>1</sub> all 70 85 115 120 125 125 130 210 220                     | 0.<br>1<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>1<br>1                       | 81 to 1.0  T  n <sub>2</sub> n   50 115 120  185 250 290 485                          | 00 % rial 2 1+ n2 165 235 245 310 380 500 705                                 | 1<br>2<br>2<br>3<br>4<br>6                      | in 0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0 |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000<br>1001–2000<br>2001–3000  | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 125 135 135 225                 | 1 <sup>4</sup> 0 0 0 0 0 0 0 0 0 0 1                  | 0.41 to 0  n 2 n1   50 115 120 130 285 200 285 385              | 0.60 %  Trial 2 <sup>8</sup> + n <sub>2</sub> c <sub>2</sub> 165 235 245  255 325 335  420 610   | 1 2 2 2 3 3 4 7                                | in %  0 0.16 0.25  0.29 0.34 0.37  0.39 0.44 0.46  0.54 0.65                      | n <sub>1</sub> all 70 85 115 120 125 130 135 220 295                 | 0 0 0 0 0 0 0 0 0 1 2                 | 0.61 to  n <sub>2</sub> 50  115  120  185  250  255  375  435                     | 0 0.80 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 165 235 245  310 380 390  595 730   | c <sub>2</sub> 1 2 2 3 4 7 9   | in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.48  0.62 0.69                 | n <sub>1</sub> all 70 85 115 120 125 125 120 210 220 360                 | $ \begin{array}{c} 0. \\ \hline 1 \\ c_1 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{array} $ | 81 to 1.0  T  n <sub>2</sub> n   50 115 120 185 250 290 485 535                       | nial 2  rial 2  165 235 245  310 380 500  705 895                             | 1<br>2<br>2<br>3<br>4<br>6                      | in 0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0 |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000  | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 125 135 135                     | 1 <sup>A</sup> 0 0 0 0 0 0 0 0 0 0 0 0 0 0            | 0.41 to 0  n 2 n1   50 115 120 130 200 285                      | 0.60 %  Trial 2 <sup>8</sup> + n <sub>2</sub> c <sub>2</sub> 165 235 245  255 325 335  420   | 1 2 2 2 2 3 3 4                                | in %  0 0.16 0.25  0.29 0.34 0.37  0.39 0.44 0.46  0.54                           | n <sub>1</sub> all 70 85 115 120 125 130 135                         | 0 0 0 0 0 0 0 0 1                     | 0.61 to  n <sub>2</sub> 50  115  120  185  255  375                               | 0 0.80 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 165 235 245  310 380 390 595  | c <sub>2</sub> 1 2 2 3 4 4   | in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.48  0.62                      | n <sub>1</sub> all 70 85 115 120 125 125 130 210 220                     | 0.<br>1<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>1<br>1                       | 81 to 1.0  T  n <sub>2</sub> n   50 115 120  185 250 290 485                          | 00 % rial 2 1+ n2 165 235 245 310 380 500 705                                 | 1<br>2<br>2<br>3<br>4<br>6                      | in 0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0 |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000<br>1001–2000<br>2001–3000<br>3001–4000<br>4001–5000              | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 125 135 225 225                 | 1 <sup>A</sup> 0 0 0 0 0 0 0 1 1                      | 0.41 to 0  n 2 n1   50 115 120  130 285 385 455 460             | $\begin{array}{c c} 0.60 \ \% \\ \hline \text{Trial } 2^B \\ + n_2 & c_2 \\ \hline & \ddots \\ \hline & 165 \\ 235 \\ 245 \\ \hline & 255 \\ 325 \\ 325 \\ 335 \\ \hline & 420 \\ 610 \\ 680 \\ \hline & 685 \\ \end{array}$ | 1<br>2<br>2<br>2<br>3<br>3<br>4<br>7<br>8      | in %  0 0.16 0.25  0.29 0.34 0.37  0.39 0.44 0.46  0.54 0.65 0.69  0.70           | n <sub>1</sub> all 70 85 115 120 125 125 130 135 220 295 295 300     | 0 0 0 0 0 1 2 2 2                     | 0.61 to  n <sub>2</sub> 50  115  120  255  375  435  555  620                     | 0 0.80 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 165 235 245  310 380 390  595 730 850 920   | c <sub>2</sub> 1 2 2 3 4 7 9 11 12   | 0 0.16 0.25 0.29 0.34 0.37 0.41 0.45 0.62 0.69 0.74 0.77                     | n <sub>1</sub> all 70 85 115 120 125 125 126 210 220 360 365 435         | 0.1<br>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                                    | 81 to 1.0  T  n <sub>2</sub> n   50  115  120  185  250  290  485  535  715           | 00 % rial 2 1+ n2 165 235 245 310 380 500 705 895 1080 1210                   | <br>1<br>2<br>2<br>3<br>4<br>6<br>9<br>12<br>15 | in 0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0 |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000<br>1001–2000<br>2001–3000<br>3001–4000<br>4001–5000<br>5001–7000 | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 125 135 225 225 225 300         | 1 <sup>A</sup> 0 0 0 0 0 0 0 1 1 1 2                  | 0.41 to 0  n 2 n1   50 115 120  130 285 385 455  460 450        | 0.60 %  Trial 2 <sup>8</sup> + n <sub>2</sub> c <sub>2</sub> 165 235 245 255 325 335 420 610 680 685 750   | 1<br>2<br>2<br>2<br>3<br>3<br>4<br>7<br>8<br>9 | in %  0 0.16 0.25  0.29 0.34 0.37  0.39 0.44 0.46  0.54 0.65 0.69  0.70 0.74      | n <sub>1</sub> all 70 85 115 120 125 130 135 220 295 295 300 370     | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0.61 to  n <sub>2</sub> 50  115  120  185  255  376  435  555  620  680           | 0 0.80 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 165 235 245  310 380 390  595 730 850  920 1050   | c <sub>2</sub> 1 2 2 3 4 4 7 9 11 12 14  | in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.48  0.62 0.69 0.74  0.77 0.82 | n <sub>1</sub> all 70 85 115 120 125 130 210 220 360 365 435 505         | 0.1<br>0 0 0 0 0 0 0 0 0 0 1 1 1 3 3 3 4 5                                      | 81 to 1.0  T  n <sub>2</sub> n   50  115  120  185  250  290  485  535  715  775  935 | 00 % rial 2 1+ n2 165 235 245 310 380 500 705 895 1080 1210 1440              | 1 2 2 3 4 6 9 12 15 17 21                       | in 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000<br>1001–2000<br>2001–3000<br>3001–4000<br>4001–5000              | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 125 135 225 225                 | 1 <sup>A</sup> 0 0 0 0 0 0 0 1 1                      | 0.41 to 0  n 2 n1   50 115 120  130 285 385 455 460             | $\begin{array}{c c} 0.60 \ \% \\ \hline \text{Trial } 2^B \\ + n_2 & c_2 \\ \hline & \ddots \\ \hline & 165 \\ 235 \\ 245 \\ \hline & 255 \\ 325 \\ 325 \\ 335 \\ \hline & 420 \\ 610 \\ 680 \\ \hline & 685 \\ \end{array}$ | 1<br>2<br>2<br>2<br>3<br>3<br>4<br>7<br>8      | in %  0 0.16 0.25  0.29 0.34 0.37  0.39 0.44 0.46  0.54 0.65 0.69  0.70           | n <sub>1</sub> all 70 85 115 120 125 125 130 135 220 295 295 300     | 0 0 0 0 0 1 2 2 2                     | 0.61 to  n <sub>2</sub> 50  115  120  255  375  435  555  620                     | 0 0.80 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 165 235 245  310 380 390  595 730 850 920   | c <sub>2</sub> 1 2 2 3 4 7 9 11 12   | 0 0.16 0.25 0.29 0.34 0.37 0.41 0.45 0.62 0.69 0.74 0.77                     | n <sub>1</sub> all 70 85 115 120 125 125 126 210 220 360 365 435         | 0.1<br>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                                    | 81 to 1.0  T  n <sub>2</sub> n   50  115  120  185  250  290  485  535  715           | 00 % rial 2 1+ n2 165 235 245 310 380 500 705 895 1080 1210                   | 1 2 2 3 4 6 9 12 15 17 21                       | in 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |
| 1–75<br>76–100<br>101–200<br>201–300<br>301–400<br>401–500<br>501–600<br>601–800<br>801–1000<br>1001–2000<br>2001–3000<br>3001–4000<br>4001–5000<br>5001–7000 | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 125 135 225 225 225 300         | 1 <sup>A</sup> 0 0 0 0 0 0 0 1 1 1 2                  | 0.41 to 0  n 2 n1   50 115 120  130 285 385 455  460 450        | 0.60 %  Trial 2 <sup>8</sup> + n <sub>2</sub> c <sub>2</sub> 165 235 245 255 325 335 420 610 680 685 750   | 1<br>2<br>2<br>2<br>3<br>3<br>4<br>7<br>8<br>9 | in %  0 0.16 0.25  0.29 0.34 0.37  0.39 0.44 0.46  0.54 0.65 0.69  0.70 0.74      | n <sub>1</sub> all 70 85 115 120 125 130 135 220 295 295 300 370     | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0.61 to  n <sub>2</sub> 50  115  120  185  255  376  435  555  620  680           | 0 0.80 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 165 235 245  310 380 390  595 730 850  920 1050   | c <sub>2</sub> 1 2 2 3 4 4 7 9 11 12 14  | in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.48  0.62 0.69 0.74  0.77 0.82 | n <sub>1</sub> all 70 85 115 120 125 130 210 220 360 365 435 505         | 0.1<br>0 0 0 0 0 0 0 0 0 0 1 1 1 3 3 3 4 5                                      | 81 to 1.0  T  n <sub>2</sub> n   50  115  120  185  250  290  485  535  715  775  935 | 00 % rial 2 1+ n2 165 235 245 310 380 500 705 895 1080 1210 1440              | 1 2 2 3 4 6 9 12 15 17 21 24                    | in 0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0 |
| 1–75 76–100 101–200 201–300 301–400 401–500 501–600 601–800 801–1000 1001–2000 2001–3000 3001–4000 4001–5000 5001–7000 7001–10 000                            | n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 125 135 135 225 225 225 300 300 | 1 <sup>A</sup> C <sub>1</sub> 0 0 0 0 0 0 0 1 1 1 2 2 | 0.41 to 0  n 2 n1   50 115 120 130 285 385 455 460 450 520      | 0.60 %  Trial 2 <sup>8</sup> + n <sub>2</sub> c <sub>2</sub> 165 235 245 255 325 335 420 610 680 685 750 820   | 1 2 2 2 3 3 3 4 7 8 8 9 10                     | in %  0 0.16 0.25  0.29 0.34 0.37  0.39 0.44 0.46  0.54 0.65 0.69  0.70 0.74 0.77 | n <sub>1</sub> all 70 85 115 120 125 130 135 220 295 295 300 370 375 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0.61 to  n <sub>2</sub> 50  115  120  185  255  375  435  555  620  680  735  935 | 0 0.80 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 165 235 245  310 380 390  595 730 850  920 1050 1110  | c <sub>2</sub> 1       2       2       3       4       7       9       11       12       14       15 | 0 0.16 0.25 0.29 0.34 0.37 0.41 0.45 0.48 0.62 0.69 0.74 0.77 0.82 0.85      | n <sub>1</sub> all 70 85 115 120 125 125 130 210 220 360 365 435 505 575 | $ \begin{array}{c} 0 \\ 1 \\ c_1 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{array} $         | 81 to 1.0  T  T  T  T  T  R  T  T  R  T  T  T  T                                      | nial 2  rial 2  1+ n2  165 235 245  310 380 500  705 895 1080  1210 1440 1630 | 1 2 2 3 4 6 9 12 15 17 21 24 28                 | 0<br>0.<br>0.                              |

<sup>&</sup>lt;sup>A</sup>Trial 1:  $n_1$ = first sample size;  $c_1$ = acceptance number for first sample.

<sup>B</sup>Trial 2:  $n_2$ = second sample size;  $c_2$ = acceptance number for first and second samples combined.

<sup>C</sup>AOQL = Average Outgoing Quality Limit.

<sup>D\*\*</sup>  $all^*$  indicates that each piece in the lot is to be inspected.