

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

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#### 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:

E 178 Practice for Dealing with Outlying Observations<sup>6</sup> E 456 Terminology Relating to Quality and Statistics<sup>6</sup>

#### 3. Terminology

3.1 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.

- <sup>1</sup> This practice is under the jurisdiction of ASTM Committee E-11 on Quality and Statistics and is the direct responsibility of Subcommittee E11.10 on Sampling and Data Analysis.
  - Current edition approved Nov. 10, 1998. Published January 1999.
- <sup>2</sup> Available from John Wiley and Sons, Inc., 605 Third Ave., New York, NY 10158.
- <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>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>5</sup> Schilling, E.G., "Acceptance Sampling in Quality Control," Marcel Dekker
- Schilling, E.G., "Acceptance Sampling in Quality Control," Marcel Dekker Inc., NY, 1982, pp. 372–399.
  - <sup>6</sup> Annual Book of ASTM Standards, Vol 14.02.

- 3.2 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 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.
- 3.4 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.
- 3.5 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.
- 3.6 *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.
  - 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 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 to 0.00	0		ess Ave 6 to 0.0	0		ess Av to 0.	0		ess Ave 1 to 0.1	0			verage 200 %			verage .250 %
Lot Size	n	С	AOQL %	n	С	AOQL %	n	С	AOQL %	n	С	AOQL %	n	С	AOQL	n	С	AOQI %
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
0 001–100 000	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.

		ess Av to 0.01	0		ess Avo			ess Ave 1 to 0.2	0		cess Ave 21 to 0.3	0			/erage 40 %			verage .50 %
Lot Size	n	С	AOQL %	n	С	AOQL %	n TIM I	c =100	AOQL %	n	С	AOQL %	n	С	AOQL	n	С	AOQL %
1–120	all	0	0	all	0	0	all	0	0	all	0	0	all	0	0	all	0	0
121-150 Stall	120 S.	100	0.06	120	daod	0.06	120	130-	0.06	120	bc0-	0.06	120	70	0.06	120	90	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 Avo o 0.02	0		ess Ave 3 to 0.20	0		ess Av 1 to 0.	verage 40 %		cess Av 11 to 0.	0	Proce 0.61	ss Ave	0		ess Av 1 to 1.	verage 00 %
Lot Size	n	С	AOQL %	n	С	AOQL %	n	С	AOQL %	n	С	AOQL %	n	С	AOQL %	n	С	AOQL %
1–75	all	0	0	all	0	0	all	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	85	0	0.25	85	0	0.25	85	0	0.25	85	0	0.25	85	0	0.25	85	0	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 inspected.

L -4 C'		ess A to 0.0	verage 5 %		ess Ave 6 to 0.50	0		cess Av 51 to 1.0	0		cess Ave	0			verage .00 %			verage .50 %
Lot Size —	n	С	AOQL %	n	C	AOQL %	n	c	AOQL %	n	c	AOQL %	n	С	AOQL %	n	С	AOQL %
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	E109	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 / Stanc	40 S	1001.	0.74	40 11	daods	0.74	40	130-	0.74	40 -	bc10 -	0.74	140	0	0.74	40	90	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

NOTICE: This standard has either been superceded and replaced by a new version or discontinued. Contact ASTM International (www.astm.org) for the latest information.

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#### 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.

L -4 C:		cess Av to 0.10	0		cess Ave	0		ess Av 1 to 2.0	0		cess Ave 01 to 3.0	0			verage .00 %			verage .00 %
Lot Size	n	С	AOQL %	n	С	AOQL %	n	С	AOQL %	n	С	AOQL %	n	С	AOQL %	n	С	AOQL %
1–20	all	0	0	all	0	0	all	0	0	all	0	0	all	0	0	all	0	0
21–50	17	0	1.3	17	0	1.3	17	0	1.3	17	0	1.3	17	0	1.3	17	0	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

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

				s Average 0.005 %	9					s Averag o 0.050 %					Process 0.051 to			
Lot Size	Trial	1 <sup>A</sup>		Trial 2 <sup>B</sup>		AOQL <sup>C</sup>	Tria	al 1		Trial 2		AOQL	Tria	al 1		Trial 2		AOQL
_	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>	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>	$c_2$	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	0.12
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	0.15
20 001–50 000	560	0	650	1210	2	0.12	560	0	940	1500	3	0.14	900	1		2300	6	0.16
				4040	2	0.12	560	0	1210	1770	4	0.15	905	1	1655	2560	7	0.17
50 001–100 000	560	0	650	1210	2	0.12	300	U	1210	1770	4	0.13	300		1000	2300	'	0.17
50 001–100 000	560	0	Proces	s Average	)	0.12	300		Proces	s Average	e	• >	303	F	Process	Averag	ge	0.17
50 001–100 000 Lot Size			Proces	s Average o 0.150 %	)	·//s1	ar	ıd	Proces	s Average o 0.200 %	e	.ai		l (		Averag 0.250	ge	
	Trial	1 <sup>A</sup>	Proces 0.101 t	s Average o 0.150 % Trial 2 <sup>B</sup>	e OS	_ AOQL <sup>C</sup> in %	Tria	al 1	Proces 0.151 to	s Average o 0.200 %	e 6 <b>ch</b>	• >	Tria	i (	Process 0.201 to	Averag 0.250 Trial 2	ge %	AOQL
Lot Size -	Trial	1 <sup>A</sup> c <sub>1</sub>	Proces 0.101 t	s Average o 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub>	c <sub>2</sub>	_ AOQL <sup>C</sup> in %	Tria	al 1	Proces	s Average o 0.200 %	c <sub>2</sub>	AOQL in %	Tria	al 1 c <sub>1</sub>	Process 0.201 to n <sub>2</sub>	Averag 0.250 Trial 2 n <sub>1</sub> + n <sub>2</sub>	ge % c <sub>2</sub>	_ AOQl in %
Lot Size - - 1–180	Trial $n_1$ all $D$	$\begin{array}{c} 1^A \\ \hline c_1 \\ \hline 0 \end{array}$	Proces 0.101 t	s Average o 0.150 % Trial $2^B$ $n_1 + n_2$	c <sub>2</sub>	AOQL <sup>C</sup> in %	Tria $n_1$ all	al 1  c <sub>1</sub> 0	Process 0.151 to n <sub>2</sub>	S Average 0 0.200 %  Trial 2  n <sub>1</sub> + n <sub>2</sub>	c <sub>2</sub>	AOQL in %	$\frac{\text{Tria}}{n_1}$ all	I (	Process 0.201 to n <sub>2</sub>	Averaç 0.250 Trial 2 n <sub>1</sub> + n <sub>2</sub>	ge % 	AOQI in %
Lot Size -	Trial	1 <sup>A</sup> c <sub>1</sub>	Proces 0.101 t	s Average o 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub>	c <sub>2</sub>	_ AOQL <sup>C</sup> in %	Tria	al 1	Proces 0.151 to	s Average o 0.200 %	c <sub>2</sub>	AOQL in %	Tria	al 1 c <sub>1</sub>	Process 0.201 to n <sub>2</sub>	Averag 0.250 Trial 2 n <sub>1</sub> + n <sub>2</sub>	ge % c <sub>2</sub>	_ AOQI 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 0.101 t	s Average o 0.150 % Trial $2^B$ $n_1 + n_2$	c <sub>2</sub>	AOQL <sup>C</sup> in %	Tria  n <sub>1</sub> all 180 210	al 1  c <sub>1</sub> 0 0	Process 0.151 to n <sub>2</sub>	S Average 0 0.200 %  Trial 2  n <sub>1</sub> + n <sub>2</sub>	c <sub>2</sub>	AOQL in %	Tria  n <sub>1</sub> all  180  210	(a) 1	Process 0.201 to n <sub>2</sub>	Averaç 0.250 Trial 2 n <sub>1</sub> + n <sub>2</sub>	ge % 	AOQI in % 0 0.02
Lot Size - - 1–180 181–210	Trial  n <sub>1</sub> all <sup>D</sup> 180	1 <sup>A</sup>	Proces 0.101 to	s Average o 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub>	c <sub>2</sub>	AOQL <sup>C</sup> in %	Tria  n <sub>1</sub> all  180	al 1  c <sub>1</sub> 0 0	Process 0.151 to 0.15	s Average 0 0.200 % Trial 2	c <sub>2</sub>	AOQL in %	Tria  n <sub>1</sub> all  180	al 1  C <sub>1</sub> 0	n <sub>2</sub>	Average 0.250  Trial 2  n <sub>1</sub> + n <sub>2</sub>	ge % 	AOQI in % 0 0.02
Lot Size - 1-180 181-210 211-250	Trial  n <sub>1</sub> all <sup>D</sup> 180  210	1 <sup>A</sup>	Proces 0.101 to	s Average o 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub>	c <sub>2</sub>	AOQL <sup>C</sup> in %	Tria  n <sub>1</sub> all 180 210	al 1  c <sub>1</sub> 0 0	Proces 0.151 to 1.151	S Average 0 0.200 %  Trial 2  n <sub>1</sub> + n <sub>2</sub>	c <sub>2</sub>	AOQL in % 0 0.02 0.03	Tria  n <sub>1</sub> all  180  210	(a) 1	n <sub>2</sub>	Averaç 0.250 Trial 2 n <sub>1</sub> + n <sub>2</sub>	c <sub>2</sub>	AOQI in % 0 0.02
1–180 181–210 211–250 251–300 301–400 /stand	Trial  n <sub>1</sub> all <sup>D</sup> 180 210 240 275 290	1 <sup>A</sup>	Proces 0.101 t	s Average o 0.150 % Trial 2 <sup>B</sup>		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	al 1  c <sub>1</sub> 0  0  0  0  0  0  0  0 0	Process 0.151 to 0.15	s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 4b.58	c <sub>2</sub>	AOQL in % 0 0.02 0.03 0.03 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 0.201 to	Average 0.250  Trial 2  n <sub>1</sub> + n <sub>2</sub>	c <sub>2</sub>	AOQi in % 0 0.02 0.03 0.03 0.04
1–180 181–210 211–250 251–300 301–400	Trial  n <sub>1</sub> all <sup>D</sup> 180 210 240 275	1 <sup>A</sup> C <sub>1</sub> 0  0  0  10	Proces 0.101 to	s Average o 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> alog/sta	c <sub>2</sub>	AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04	Tria  n <sub>1</sub> all 180 210 240 275	al 1  c <sub>1</sub> 0 0 0 4 0 0 0	Proces 0.151 to 0.151 to 0.151 to	s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 4	c <sub>2</sub> bc 1	AOQL in % 0 0.02 0.03 0.03 0.04	Tria  n <sub>1</sub> all  180  210  240  275	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Process 0.201 to	Average 0.250  Trial 2	c <sub>2</sub>	AOQi in % 0 0.02 0.03 0.03 0.04
1–180 181–210 211–250 251–300 301–400 /stand	Trial  n <sub>1</sub> all <sup>D</sup> 180 210 240 275 290	1 <sup>A</sup>	Proces 0.101 t	s Average o 0.150 % Trial 2 <sup>B</sup>		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	al 1  c <sub>1</sub> 0  0  0  0  0  0  0  0 0	Process 0.151 to 0.15	s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 4b.58	c <sub>2</sub>	AOQL in % 0 0.02 0.03 0.03 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 0.201 to	Average 0.250  Trial 2  n <sub>1</sub> + n <sub>2</sub>	c <sub>2</sub>	AOQI in % 0 0.02 0.03 0.03 0.04 0.04
1-180 181-210 211-250 251-300 301-400 401-450 451-500 501-550	Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275  290 340 350	1 <sup>A</sup>	n <sub>2</sub>	s Average o 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480	 1	AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04 0.04 0.05	Tria  n <sub>1</sub> all 180 210 240 275 290 340 350	al 1  c <sub>1</sub> 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Proces 0.151 to 0.151 to 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	s Average o 0.200 % Trial 2	c <sub>2</sub> be 5 - 0	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  350	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  n <sub>1</sub> + n <sub>2</sub> e 110  450  480	c <sub>2</sub> 49 1	AOQ in % 0 0.02 0.03 0.03 0.04 0.04 0.05
1–180 181–210 211–250 251–300 301–400 401–450 451–500 501–550	Trial  n <sub>1</sub> all <sup>D</sup> 180 210 240 275 290 340 350 360	1 <sup>A</sup>	Proces 0.101 to 1.01 t	s Average o 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450  480  510	 1 1	AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04  0.04 0.04 0.05 0.05	Tria  n <sub>1</sub> all 180 210 240 275 290 340 350 360	al 1  c <sub>1</sub> 0 0 0 10 0 40 0 0 0 0 0 0	Process 0.151 to 0.151 to 0.151 to	s Average o 0.200 % Trial 2	c <sub>2</sub> bc 1	AOQL in % 0 0.02 0.03 0.04 0.04 0.05 0.05	Tria  n <sub>1</sub> all  180  210  240  275  290  340  350  360	0 0 0 0 0 0 0 0	n <sub>2</sub>	Average 0.250 Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480 510	c <sub>2</sub>	AOQi in % 0 0.02 0.03 0.03 0.04 0.04 0.05
1-180 181-210 211-250 251-300 301-400 401-450 451-500 501-550	Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275  290 340 350	1 <sup>A</sup>	n <sub>2</sub>	s Average o 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480	 1	AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04 0.04 0.05	Tria  n <sub>1</sub> all 180 210 240 275 290 340 350	al 1  c <sub>1</sub> 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Proces 0.151 to 0.151 to 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	s Average o 0.200 % Trial 2	c <sub>2</sub> bc f3 - 4	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  350	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  n <sub>1</sub> + n <sub>2</sub> e 110  450  480	c <sub>2</sub>	AOQI in % 0 0.02 0.03 0.03
1–180 181–210 211–250 251–300 301–400 401–450 451–500 501–550 551–600 601–800 801–1000	Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275  290 340 350  360 400 430	1 <sup>A</sup>	n <sub>2</sub>	s Average o 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630	C <sub>2</sub> 1 1 1 1 1	AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04  0.04 0.04 0.05  0.05 0.06 0.07	Tria  n <sub>1</sub> all 180 210 240 275 290 340 350 360 400 430	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Process 0.151 to 0.15	s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630	22 be 5 - 0	AOQL in %  0 0.02  0.03 0.03 0.04  0.04 0.04 0.05  0.05 0.05 0.06 0.07	Tria  n <sub>1</sub> all  180  210  240  275  290  340  350  360  400  430	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  n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630	c <sub>2</sub> 1 1 1 1 1 1	AOQ in % 0 0.02 0.03 0.03 0.04 0.04 0.05 0.05 0.05
1-180 181-210 211-250 251-300 301-400 / Stand 401-450 451-500 501-550 551-600 601-800 801-1000	Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275  290 340 350  360 400 430  490	1 <sup>A</sup>	n <sub>2</sub> 110 130 150 185 200 500	s Average o 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630 990	  1 1 1 1 2	AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04  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	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Process 0.151 to 120 150 185 200 500	s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630 990	C2 bc 1 1 1 1 1 2	AOQL in %  0 0.02  0.03 0.03 0.04  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	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  n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630  990	c <sub>2</sub> 1 1 1 1 2	AOQI in % 0 0.02 0.03 0.03 0.04 0.04 0.05 0.05 0.06 0.07
1–180 181–210 211–250 251–300 301–400 401–450 451–500 501–550 551–600 601–800 801–1000	Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275  290 340 350  360 400 430	1 <sup>A</sup>	n <sub>2</sub>	s Average o 0.150 % Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630	C <sub>2</sub> 1 1 1 1 1	AOQL <sup>C</sup> in %  0 0.02  0.03 0.03 0.04  0.04 0.04 0.05  0.05 0.06 0.07	Tria  n <sub>1</sub> all 180 210 240 275 290 340 350 360 400 430	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Process 0.151 to 0.15	s Average o 0.200 % Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630	22 be 5 - 0	AOQL in %  0 0.02  0.03 0.03 0.04  0.04 0.04 0.05  0.05 0.05 0.06 0.07	Tria  n <sub>1</sub> all  180  210  240  275  290  340  350  360  400  430	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	n <sub>2</sub> 110 130 150 185 200 500 980	Average 0.250  Trial 2  n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630	c <sub>2</sub> 1 1 1 1 1 1	AOQ(in % 0 0.02 0.03 0.03 0.04 0.04 0.05 0.06 0.07 0.09 0.11
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	0 0 0 0 0 0 0 0 0 0	n <sub>2</sub>	s Average o 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630  990  1050  1340	  1 1 1 1 2 3	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 0.10 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 0.151 to 0.151 to 0.151 to 0.151 to 0.151 to 110 130 150 185 200 500 760 1030	s Average o 0.200 % Trial 2	C <sub>2</sub> below 1 1 1 1 1 2 3 4	AOQL in %  0 0.02  0.03 0.04  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 0 0 0 0 0 0 0 1	n <sub>2</sub>	Average 0.250  Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630  990 1500 2000	c <sub>2</sub> 1 1 1 2 4 6	0 0.022 0.033 0.033 0.044 0.044 0.055 0.066 0.07
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> 180 210 240 275 290 340 350 360 400 430 490 520 530 540	1 <sup>A</sup>	Proces 0.101 to 10.101 to	s Average o 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> 1 1 1 1 2 2 3 4	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 0.10 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 1	Process 0.151 to 1205	s Average o 0.200 % Trial 2	C2 1 1 1 1 1 2 3 4 4 6	AOQL in %  0 0.02  0.03 0.04  0.04 0.04 0.05  0.05 0.06 0.07  0.09 0.11 0.12  0.14	Tria  n <sub>1</sub> all 180  210 240 275  290 340 350  360 400 430  490 520 840  845	0 0 0 0 0 0 0 0 1 1 1	Process 0.201 to n <sub>2</sub>	Average 0.250  Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630  990 1500 2000 2270	c <sub>2</sub> 1 1 1 2 4 6 7	AOQ 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
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	0 0 0 0 0 0 0 0 0 0	n <sub>2</sub>	s Average o 0.150 %  Trial 2 <sup>B</sup> n <sub>1</sub> + n <sub>2</sub> 450  480  510  585  630  990  1050  1340	  1 1 1 1 2 3	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 0.10 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 0.151 to 0.151 to 0.151 to 0.151 to 0.151 to 110 130 150 185 200 500 760 1030	s Average o 0.200 % Trial 2	C <sub>2</sub> below 1 1 1 1 1 2 3 4	AOQL in %  0 0.02  0.03 0.04  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 0 0 0 0 0 0 0 1	Process 0.201 to 1.201 to 1.20	Average 0.250  Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480  510 585 630  990 1500 2000	c <sub>2</sub> 1 1 1 2 4 6	AOQi 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
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 5001–7000 7001–10 000	Trial  n <sub>1</sub> all <sup>D</sup> 180  210 240 275  290 340 350  360 400 430  490 520 530  540 545 880	1 <sup>A</sup>	n <sub>2</sub>	s Average o 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	$c_2$ 1 1 1 2 2 3 4 4 6	AOQL <sup>c</sup> in %  0 0.02  0.03 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 1 1 1 1	Process 0.151 to 0.151 to 0.151 to 0.151 to 0.151 to 0.151 to 110 130 150 185 200 500 760 1030 1205 1490 1770	s Average of 0.200 % Trial 2	c <sub>2</sub> 1 1 1 1 2 3 4 6 7 8	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  0.15  0.16	Tria  n <sub>1</sub> all  180  210  240  275  290  340  350  360  400  430  490  520  840  845  860  1170	I   C   C   C   C   C   C   C   C   C	n <sub>2</sub> 110 130 150 185 200 500 980 1160 1425 1700 2160	Average 0.250 Trial 2  n <sub>1</sub> + n <sub>2</sub> 450 480 510 585 630 990 1500 2000 2270 2560 3330	c <sub>2</sub> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- AOQ in % 0 0.02 0.03 0.03 0.04 0.04 0.05 0.05 0.01 0.11 0.13 0.14 0.16 0.17
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 5001–7000	Trial  n <sub>1</sub> all <sup>D</sup> 180 210 240 275 290 340 350 360 400 430 490 520 530 540 545	1 <sup>A</sup>	n <sub>2</sub> 110 130 150 185 200 500 530 810 1060 1105	s Average o 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> 1 1 1 1 2 2 3 4 4	AOQL <sup>C</sup> in %  0 0.02  0.03 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	Tria  n <sub>1</sub> all 180 210 240 275 290 340 350 360 400 430 490 520 530 845 860	0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1	Process 0.151 to 120 151 to 120 151 150 185 200 1030 1205 1490	s Average 0 0.200 %  Trial 2  11 1 1 2  11 1 1 2  11 1 1 3 3 4 5 6 3 6 3 0 1280 1560 2350	22 be 5 - 4 1 1 1 2 3 4 6 7	AOQL in %  0 0.02  0.03 0.03 0.04  0.04 0.04 0.05  0.05 0.06 0.07  0.09 0.11 0.12  0.14 0.15	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 0 0 0 0 0 0 0 0 0	Process 0.201 to 201 to	Average 0.250  Trial 2  n <sub>1</sub> + n <sub>2</sub> 450  480  510  585 630  990 1500 2000  2270 2560	c <sub>2</sub> 1 1 1 2 4 6 7 8	AOQI in % 0 0.02 0.03 0.03 0.04 0.04 0.04 0.05 0.05 0.06 0.07

<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.



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

			Process A							Average 0.10 %						s Average o 0.20 %	Э	
Lot Size	Trial	I 1 <sup>A</sup>		Trial 2 <sup>B</sup>		AOQL <sup>C</sup>	Tria	l 1		Trial 2		AOQL	Tria	l 1		Trial 2		AO
	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>	<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>	$c_2$	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				0.0
151-200	140	0				0.08	140	0				0.08	140	0				0.0
201–260	165	0				0.10	165	0				0.10	165	0				0.
261–300	180	0	75	255	1	0.10	180	0	75	255	1	0.10	180	0	75	255	1	0.
301–400	200	0	90	290	1	0.12	200	0	90	290	1	0.12	200	0	90	290	1	0.
					1						1			0			1	
401–500	215	0	100	315	'	0.14	215	0	100	315	1	0.14	215	U	100	315	'	0.
501-600	225	0	115	340	1	0.15	225	0	115	340	1	0.15	225	0	115	340	1	0.
601-800	235	0	125	360	1	0.16	235	0	125	360	1	0.16	235	0	125	360	1	0.
801–1000	245	0	135	380	1	0.17	245	0	135	380	1	0.17	245	0	250	495	2	0.
1001–2000	265	0	155	420	1	0.18	265	0	155	420	1	0.18	265	0	285	550	2	0.
2001-3000	270	0	160	430	1	0.19	270	0	300	570	2	0.22	270	0	420	690	3	0.
3001–4000	275	0	160	435	1	0.19	275	0	305	580	2	0.22	275	0	435	710	3	0
1004 5000	075	•	405	4.40		0.40	075		040	505		0.00	075		505	0.40		
4001–5000	275	0	165	440	1	0.19	275	0	310	585	2	0.23	275	0	565	840	4	0
5001-7000	275	0	170	445	1	0.20	275	0	315	590	2	0.23	275	0	580	855	4	0
7001–10 000	280	0	320	600	2	0.24	280	0	460	740	3	0.26	280	0	590	870	4	0
10 001–20 000	280	0	325	605	2	0.24	280	0	465	745	3	0.27	450	1	700	1150	6	0
20 001-50 000	280	0	325	605	2	0.25	280	0	605	885	4	0.30	450	1	830	1280	7	0
50 001–100 000	280	0	325	605	2	0.25	280	0	605	885	4	0.30	450	1	960	1410	8	0
			Process / 0.21 to		I		ota			Average 0.40 %						s Average to 0.50 %	)	
Lot Size	Trial	1 1 A	0.21 10	Trial 2 <sup>B</sup>	• / /	ota	n Tie		0.51 10				Trio	1.4	0.411			
			<del>LIII</del>		•//	AOQL <sup>C</sup> in %	Tria			Trial 2	<u>EL</u>	AOQL in %	Tria			Trial 2		AC in
		$c_1$	<i>II</i> <sub>2</sub> <i>II</i> <sub>1</sub>	$+ n_2 c_2$		,0	$n_1$	$c_1$	$n_2$	$n_1 + n_2$	$c_2$	, ,	n <sub>1</sub>	<i>C</i> <sub>1</sub>	112	$n_1 + n_2$		
4 400	n <sub>1</sub>						a = 0 4	_										0
1–120	all <sup>D</sup>	0		<b>D</b> .0	Cl	0	all	0	re	V-I		7 0	all	0				
1–120 121–150		0		10.0	Cl	0.06	120	0	re		 577	0.06	all 120	0				0
	all <sup>D</sup>	0																
121–150	all <sup>D</sup>	0				0.06	120	0				0.06	120	0				0
121–150 151–200 201–260	all <sup>D</sup> 120 140 165	0 0 0 0				0.06 0.08	120 140 165	0			 	0.06 0.08	120 140 165	0				0
121–150 151–200 201–260 261–300 stand	all <sup>D</sup> 120 140 165	0 0 0 0	  cata <b>75</b>		rds/s	0.06 0.08 0.10	120 140 165	0 0 0 9 0 4	- <u>98</u> 7(754	255	  b <b>1</b> f5	0.06 0.08 0.10	120 140 165	0 0 0	  9/ <sub>2</sub> 75	  m_255)	  941-9	0 0 80
121–150 151–200 201–260	all <sup>D</sup> 120 140 165	0 0 0 0				0.06 0.08 0.10	120 140 165	0 0 0 904	<u>-98</u>			0.06 0.08 0.10	120 140 165	0 0 0				0 0 80 0
121–150 151–200 201–260 261–300 301–400 401–500	all <sup>D</sup> 120 140 165 ar(1801e) 200 215	0 0 0 0 0	  2012 75 90 100	255 290 315	  ards/s	0.06 0.08 0.10 0.10 0.12 0.14	120 140 165 180 200 215	0 0 9 9 4 1 0 9 0	-98··· 07(754 90 100	255_  290 315	615 1	0.06 0.08 0.10 0.10 0.12 0.14	120 140 165 180 200 215	0 0 0	75 90 100	255 290 315	  941.9 1 1	0 0 80 0 0
121–150 151–200 201–260 261–300 301–400 401–500 501–600	all <sup>D</sup> 120 140 165 ar 180 te 200 215 225	0 0 0 0 0	  75 90 100	255 290 315	nrds/s/1 1 1	0.06 0.08 0.10 0.10 0.12 0.14 0.15	120 140 165 180 200 215	0 0 0 9 9 4 1 0 0 0 0 0	 -98·· -97 (754 90 100 115	255_  290 315	  bdf5 1 1	0.06 0.08 0.10 0.10 0.12 0.14	120 140 165 180 200 215	0 0 0 0	75 90 100 205	255 290 315 430	  941.9 1 1	0 0 80 0 0
121–150 151–200 201–260 261–300 301–400 401–500 501–600 601–800	all <sup>D</sup> 120 140 165  arc1801e 200 215 225 235	0 0 0 0 0 0 0	75 90 100 115 230	255 290 315 340 465	  urds/s 1 1 1	0.06 0.08 0.10 0.10 0.12 0.14 0.15 0.18	120 140 165 180 200 215 225 235	0 0 0 9 9 4 1 0 0 0 0 0 0	 98··· 97 (754 90 100 115 230	255 290 315 340 465	  b1f5 1 1 1	0.06 0.08 0.10 0.10 0.12 0.14 0.15 0.18	120 140 165 180 200 215 225 235	0 0 0 0	75 90 100 205 230	25590 290 315 430 465	)41.9 1 1 2 2	0 0 0 0 0 0
121–150 151–200 201–260 261–300 301–400 401–500 501–600	all <sup>D</sup> 120 140 165 ar 180 te 200 215 225	0 0 0 0 0	  75 90 100	255 290 315	nrds/s/1 1 1	0.06 0.08 0.10 0.10 0.12 0.14 0.15	120 140 165 180 200 215	0 0 0 9 9 4 1 0 0 0 0 0	 -98·· -97 (754 90 100 115	255_  290 315	  bdf5 1 1	0.06 0.08 0.10 0.10 0.12 0.14	120 140 165 180 200 215	0 0 0 0	75 90 100 205	255 290 315 430	  941.9 1 1	0 0 0 0 0 0
121–150 151–200 201–260 261–300 301–400 401–500 501–600 601–800	all <sup>D</sup> 120 140 165  arc1801e 200 215 225 235	0 0 0 0 0 0 0	75 90 100 115 230	255 290 315 340 465	  urds/s 1 1 1	0.06 0.08 0.10 0.10 0.12 0.14 0.15 0.18	120 140 165 180 200 215 225 235	0 0 0 9 9 4 1 0 0 0 0 0 0	 98··· 97 (754 90 100 115 230	255 290 315 340 465	  b1f5 1 1 1	0.06 0.08 0.10 0.10 0.12 0.14 0.15 0.18	120 140 165 180 200 215 225 235	0 0 0 0 0 0	75 90 100 205 230	25590 290 315 430 465	)41.9 1 1 2 2	000000000000000000000000000000000000000
121–150 151–200 201–260 261–300 301–400 401–500 501–600 601–800 801–1000	all <sup>D</sup> 120 140 165 ar 180 e 200 215 225 235 245	0 0 0 0 0 0	75 90 100 115 230 250	255 290 315 340 465 495	  urds/s 1 1 1 2 2	0.06 0.08 0.10 0.10 0.12 0.14 0.15 0.18 0.19	120 140 165 180 200 215 225 235 245	0 0 0 9 9 4 1 0 9 0 0 0 0 0 0 0	90 100 115 230 250	255 290 315 340 465 495	  15 1 1 1 2 2	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19	120 140 165 180 200 215 225 235 245	0 0 0 0 0 0	75 90 100 205 230 250	255 290 315 430 465 495	  1 1 2 2 2	0. 0. 0. 0. 0. 0.
121–150 151–200 201–260 261–300 301–400 401–500 501–600 601–800 801–1000	all <sup>D</sup> 120 140 165  ar 180 to 200 215 225 235 245 265	0 0 0 0 0 0 0	75 90 100 115 230 250	255 290 315 340 465 495	  1 1 1 2 2	0.06 0.08 0.10 0.10 0.12 0.14 0.15 0.18 0.19	120 140 165 180 200 215 225 235 245 265	0 0 0 9 9 4 1 0 9 0 0 0	90 100 115 230 250 515	255 290 315 340 465 495	  15 1 1 1 2 2	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19	120 140 165 180 200 215 225 235 245	0 0 0 0 0 0	75 90 100 205 230 250 515	255 290 315 430 465 495 780	  1 1 2 2 2	0. 0. 0. 0. 0. 0. 0.
121–150 151–200 201–260 261–300 301–400 401–500 501–600 601–800 801–1000 1001–2000 2001–3000 3001–4000	all <sup>D</sup> 120 140 165  arc 1801e 200 215  225 235 245  265 270 435	0 0 0 0 0 0 0 0	75 90 100 115 230 250 405 545 645	255 290 315 340 465 495 670 815 1080	  1 1 1 1 2 2 3 4 6	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.23 0.26 0.29	120 140 165 180 200 215 225 235 245 265 430 435		 98 17 (754) 90 100 115 230 250 515 620 865	255 290 315 340 465 495 780 1050 1300	115 1 1 1 2 2 4 6 8	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.24 0.28 0.30	120 140 165 180 200 215 225 235 245 265 430 580	0 0 0 0 0 0 0 0 0	75 90 100 205 230 250 515 830 940	255 1290 315 430 465 495 780 1260 1520	1 1 1 2 2 2 4 8 10	0 0 0 0 0 0 0 0
121–150 151–200 201–260 261–300 stand 301–400 401–500 501–600 601–800 801–1000 1001–2000 2001–3000 3001–4000 4001–5000	all <sup>D</sup> 120 140 165  ar 1801e 200 215 225 235 245 265 270 435 440	0 0 0 0 0 0 0 0 0	75 90 100 115 230 250 405 545 645	255 290 315 340 465 495 670 815 1080 1100	  1 1 1 1 2 2 3 4 6	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.23 0.26 0.29	120 140 165 180 200 215 225 235 245 265 430 435 440		 98 90 100 115 230 250 515 620 865 1000	255 290 315 340 465 495 780 1050 1300	  1 1 1 1 2 2 4 6 8	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.24 0.28 0.30	120 140 165 180 200 215 225 235 245 265 430 580	0 0 0 0 0 0 0 0 0	75 90 100 205 230 250 515 830 940	255 290 315 430 465 495 780 1260 1520 1660	     1 1 1 2 2 2 2 4 8 10	0 0 0 0 0 0 0 0
121–150 151–200 201–260 261–300 301–400 401–500 501–600 601–800 801–1000 1001–2000 2001–3000 3001–4000	all <sup>D</sup> 120 140 165  arc 1801e 200 215  225 235 245  265 270 435	0 0 0 0 0 0 0 0	75 90 100 115 230 250 405 545 645	255 290 315 340 465 495 670 815 1080	  1 1 1 1 2 2 3 4 6	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.23 0.26 0.29	120 140 165 180 200 215 225 235 245 265 430 435		77 (754 90 100 115 230 250 515 620 865 1000 990	255 290 315 340 465 495 780 1050 1300	115 1 1 1 2 2 4 6 8	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.24 0.28 0.30	120 140 165 180 200 215 225 235 245 265 430 580	0 0 0 0 0 0 0 0 0	75 90 100 205 230 250 515 830 940	255 ) 290 315 430 465 495 780 1260 1520	1 1 1 2 2 2 4 8 10	
121–150 151–200 201–260 261–300 301–400 401–500 501–600 601–800 801–1000 1001–2000 2001–3000 3001–4000 4001–5000 5001–7000 7001–10 000	all <sup>D</sup> 120 140 165  ar 180 te 200 215  225 235 245  265 270 435  440 445 450	0 0 0 0 0 0 0 0 0 0	75 90 100 115 230 250 405 545 645 660 785 920	255 290 315 340 465 495 670 815 1080 1100 1230 1370		0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.23 0.26 0.29 0.30 0.33 0.35	120 140 165 180 200 215 225 235 245 265 430 435 440 590 600	0 0 0 0 0 0 0 0 0 0 0 0 0	7 (754) 90 100 115 230 250 515 620 865 1000 990 1240	255 290 315 340 465 495 780 1050 1300 1440 1580 1840	15 1 1 1 1 2 2 4 6 8 9 10 12	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.24 0.28 0.30 0.33 0.36 0.39	120 140 165 180 200 215 225 235 245 265 430 580 585 730 870	0 0 0 0 0 0 0 0 0 0 0	75 90 100 205 230 250 515 830 940 1075 1190 1540	255 ) 290 315 430 465 495 780 1260 1520 1660 1920 2410	 1 1 1 2 2 2 4 8 10 11 13 17	
121–150 151–200 201–260 261–300 301–400 401–500 501–600 601–800 801–1000 1001–2000 2001–3000 3001–4000 4001–5000 5001–7000 7001–10 000	all <sup>D</sup> 120 140 165  ar 180 te 200 215 225 235 245 265 270 435 440 445 450 605	0 0 0 0 0 0 0 0 0 0 0 0	 90 100 115 230 250 405 545 645 660 785 920	255 290 315 340 465 495 670 815 1080 1100 1230 1370	1	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.23 0.26 0.29 0.30 0.33 0.35	120 140 165 180 200 215 225 235 245 265 430 435 440 590 600 745	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 3 3 3 3 3 3 3 1 1 1 1	 98. · · · · · · · · · · · · · · · · · · ·	255 290 315 340 465 495 780 1050 1300 1440 1580 1840 2230	115 111 1122 468 91012	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.24 0.28 0.30 0.33 0.36 0.39	120 140 165 180 200 215 225 235 245 265 430 580 585 730 870	0 0 0 0 0 0 0 0 0 0 0 0 0	 90 100 205 230 250 515 830 940 1075 1190 1540	255 90 315 430 465 495 780 1260 1520 1660 1920 2410 3140	  )41.9 1 1 2 2 2 2 4 8 10 11 13 17	0. 0. 0. 0. 0. 0. 0. 0. 0. 0.
121–150 151–200 201–260 261–300 301–400 401–500 501–600 601–800 801–1000 1001–2000 2001–3000 3001–4000 4001–5000 5001–7000 7001–10 000	all <sup>D</sup> 120 140 165  ar 180 te 200 215  225 235 245  265 270 435  440 445 450	0 0 0 0 0 0 0 0 0 0	75 90 100 115 230 250 405 545 645 660 785 920	255 290 315 340 465 495 670 815 1080 1100 1230 1370		0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.23 0.26 0.29 0.30 0.33 0.35	120 140 165 180 200 215 225 235 245 265 430 435 440 590 600	0 0 0 0 0 0 0 0 0 0 0 0 0	77 (754 90 100 115 230 250 515 620 865 1000 990 1240 1485 1845	255 290 315 340 465 495 780 1050 1300 1440 1580 1840	15 1 1 1 1 2 2 4 6 8 9 10 12	0.06 0.08 0.10 0.12 0.14 0.15 0.18 0.19 0.24 0.28 0.30 0.33 0.36 0.39	120 140 165 180 200 215 225 235 245 265 430 580 585 730 870	0 0 0 0 0 0 0 0 0 0 0	75 90 100 205 230 250 515 830 940 1075 1190 1540	255 290 315 430 465 495 780 1260 1520 1660 1920 2410 3140 3880	 1 1 1 2 2 2 4 8 10 11 13 17	0. 0. 0. 0. 0. 0. 0. 0. 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.

D"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 / 0 to 0.						Process 0.03 to						ocess Av 0.21 to 0.			
Lot Size	Trial	1 <sup>A</sup>		Trial 2 <sup>B</sup>		AOQL <sup>C</sup>	Tria	al 1		Trial 2		AOQL	Tria	l 1	Т	rial 2		AOQL
	n	<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	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	1 + n <sub>2</sub>	<i>c</i> <sub>2</sub>	in %
1–75	all <sup>D</sup>	0				0	all	0				0	all	0				0
76-100	70	0				0.16	70	0				0.16	70	0				0.16
101–200	85	0				0.25	85	0				0.25	85	0				0.25
201–300	115	0	50	165	1	0.29	115	0	50	165	1	0.29	115	0	50	165	1	0.29
301–400	120	0	60	180	1	0.32	120	0	60	180	1	0.32	120	0	60	180	1	0.32
401–500	125	0	65	190	1	0.33	125	0	65	190	1	0.33	125	0	120	245	2	0.37
F04 C00	405	0	70	405	4	0.04	405	0	70	405	,	0.04	405	0	400	055	_	0.00
501–600	125	-	70	195	1	0.34	125	-	70	195	1	0.34	125	-	130	255	2	0.39
601–800	130	0	75	205	1	0.35	130	0	75	205	1	0.35	130	0	125	265	2	0.41
801–1000	135	0	75	210	1	0.36	135	0	140	275	2	0.42	135	0	140	275	2	0.42
1001-2000	135	0	85	220	1	0.38	135	0	155	290	2	0.45	135	0	220	355	3	0.50
2001-3000	140	0	85	225	1	0.39	140	0	155	295	2	0.46	140	0	285	425	4	0.56
3001-4000	140	0	85	225	1	0.40	140	0	225	365	3	0.52	140	0	290	430	4	0.57
4001–5000	140	0	160	300	2	0.47	140	0	230	370	3	0.53	140	0	360	500	5	0.61
5001-7000	140	0	160	300	2	0.48	140	0	230	370	3	0.54	140	0	365	505	5	0.62
7001–10 000	140	0	160	300	2	0.48	140	0	235	375	3	0.54	225	1	350	575	6	0.66
10 001 20 000	140	0	165	305	2	0.49	140	0	235	375	3	0.54	225	1	415	640	7	0.71
10 001–20 000		-						-										
20 001–50 000	140	0	165	305	2	0.49	140	0	305	445	4	0.59	225	1	480	705	8	0.75
50 001–100 000	140	0	165	305	2	0.49	140	0	305	445	4	0.60	225	1	545	770	9	0.78
			Process / 0.41 to (						Process 0.61 to						ocess Av ).81 to 1.			
Lot Size			011110	0.00 70					0.0.10	0.00 /						00 70		
_0. 0.20	Trial	1 <sup>A</sup>		Trial 2B		1001 G	Tri	al 1	0,400	Trial 2		4001	Trial	l 1	Т	rial 2		٨٥٥١
20. 0120	Trial		n a na	Trial 2 <sup>B</sup>		_ AOQL <sup>C</sup> in %		al 1	$n_2$	Trial 2 $n_1 + n_2$	- Co	AOQL in %	Trial			rial 2	Co	AOQL in %
	n	<i>C</i> <sub>1</sub>	$n_2$ $n_1$	Trial $2^B$ + $n_2$ $c_2$	9 6 / 1	in %		<i>c</i> <sub>1</sub>	$n_2$	Trial 2 n <sub>1</sub> + n <sub>2</sub>	. c <sub>2</sub>	in %	n <sub>1</sub>	<i>c</i> <sub>1</sub>	n <sub>2</sub> n	1 + n <sub>2</sub>	<i>c</i> <sub>2</sub>	in %
1–75	$n_1$ all <sup>D</sup>	<i>c</i> <sub>1</sub>	(Hit	+ n <sub>2</sub> c	•//	in % 0	$n_1$ all	<i>c</i> <sub>1</sub>		$n_1 + n_2$		in % 0	n <sub>1</sub>	<i>c</i> <sub>1</sub>	n <sub>2</sub> n	1 + n <sub>2</sub>		in %
1–75 76–100	n <sub>1</sub> all <sup>D</sup> 70	0 0		+ n <sub>2</sub> c <sub>2</sub>	• • • •	in % 0 0.16	n <sub>1</sub> all 70	0 0		n <sub>1</sub> + n <sub>2</sub>		in % 0 0.16	n <sub>1</sub> all 70	0 0	n <sub>2</sub> n.			in % 0 0.16
1–75	$n_1$ all <sup>D</sup>	<i>c</i> <sub>1</sub>	(Hit	+ n <sub>2</sub> c	•//	in % 0	$n_1$ all	<i>c</i> <sub>1</sub>		$n_1 + n_2$		in % 0	n <sub>1</sub>	<i>c</i> <sub>1</sub>	n <sub>2</sub> n	1 + n <sub>2</sub>		in %
1–75 76–100	n <sub>1</sub> all <sup>D</sup> 70	0 0		+ n <sub>2</sub> c <sub>2</sub>	• • • •	in % 0 0.16	n <sub>1</sub> all 70	0 0		n <sub>1</sub> + n <sub>2</sub>		in % 0 0.16	n <sub>1</sub> all 70	0 0	n <sub>2</sub> n.			in % 0 0.16
1–75 76–100 101–200	n <sub>1</sub> all <sup>D</sup> 70 85	0 0 0		+ n <sub>2</sub> c <sub>2</sub>	) C l	0 0.16 0.25	n <sub>1</sub> all 70 85	0 0 0	Pre	$n_1 + n_2$ $\dots$ $\dots$	ev	in % 0 0.16 0.25	n <sub>1</sub> all 70 85	0 0 0	n <sub>2</sub> n.			in % 0 0.16 0.25
1–75 76–100 101–200 201–300	n <sub>1</sub> all <sup>D</sup> 70 85	0 0 0 0		+ n <sub>2</sub>	1	in % 0 0.16 0.25 0.29	n <sub>1</sub> all 70 85	0 0 0 0	50	n <sub>1</sub> + n <sub>2</sub> 165	 E-V	in % 0 0.16 0.25 0.29	n <sub>1</sub> all 70 85	C <sub>1</sub> 0 0 0 0	n <sub>2</sub> n.	  165		in % 0 0.16 0.25 0.29
1–75 76–100 101–200 201–300 301–400 401–500	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125	C <sub>1</sub> 0 0 0 0 0 0	50 115 120	+ n <sub>2</sub> c <sub>2</sub> 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	C <sub>1</sub> 0 0 0 0 0 0 0	50 115 120	n <sub>1</sub> + n <sub>2</sub> 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	C <sub>1</sub> 0 0 0 0 0 0	n <sub>2</sub> n	  165 235	1 2 2	in % 0 0.16 0.25 0.29 0.34 0.37
1–75 76–100 101–200 201–300 301–400 401–500 501–600 stand	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125	0 0 0 0 0	50 115 120	+ n <sub>2</sub> c <sub>2</sub> 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	0 0 0 0 0 0	50 115 120	n <sub>1</sub> + n <sub>2</sub> 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	0 0 0 0 0 0	n <sub>2</sub> n	1 + n <sub>2</sub> 165 235 245	1 2 2	in %  0 0.16 0.25 0.29 0.34 0.37
1–75 76–100 101–200 201–300 301–400 401–500	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125	C <sub>1</sub> 0 0 0 0 0 0	50 115 120	+ n <sub>2</sub> c <sub>2</sub> 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	C <sub>1</sub> 0 0 0 0 0 0 0	50 115 120	n <sub>1</sub> + n <sub>2</sub> 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	C <sub>1</sub> 0 0 0 0 0 0	n <sub>2</sub> n	165 235 245	1 2 2	in % 0 0.16 0.25 0.29 0.34 0.37
1–75 76–100 101–200 201–300 301–400 401–500 501–600 stand 601–800 801–1000	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 130 135	0 0 0 0 0 0 0 0	50 115 120 130 195 200	+ n <sub>2</sub> c 165 235 245 255 325 335	1 2 2 2 3 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 85 115 120 125 125 130 135	0 0 0 0 0 0 0 0 0	50 115 120 185 250 255	165 235 245 310 380 390	1 2 2 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 85 115 120 125 125 125 130 210	C <sub>1</sub> 0 0 0 0 0 0 0 1	50 115 120 38 185 250 290	1 + n <sub>2</sub> 165 235 245 310 380 500	1 2 2 4 39 4 6	in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.54
1–75 76–100 101–200 201–300 301–400 401–500 501–600 stand 601–800 801–1000	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 130 135 135	0 0 0 0 0 0 0 0	50 115 120 195 200 285	+ n <sub>2</sub> c 165 235 245 255 325 335 420	1 2 2 3 3 3	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 85 115 120 125 125 130 135	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	50 115 120 7 185 250 255 375	165 235 245 310 380 390 595	1 2 2 3 4 4	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	C <sub>1</sub> 0 0 0 0 0 0 0 1 1	n <sub>2</sub> n 50 115 120 as 185 250 290 485	1 + n <sub>2</sub> 165 235 245 310 380 500	1 2 2 4 3 4 6	in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.54  0.65
1–75 76–100 101–200 201–300 301–400 401–500 501–600 stand 601–800 801–1000	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 130 135 135 225	0 0 0 0 0 0 0 0 0	50 115 120 201 195 200 285 385	+ n <sub>2</sub> c <sub>2</sub> 165 235 245 255 325 335 420 610	1 2 2 2 3 3 3	0.16 0.25 0.29 0.34 0.37 0.39 0.44 0.46	n <sub>1</sub> all 70 85 115 120 125 125 130 135 220 295	0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0	50 115 120 185 250 255 375 435	165 235 245 310 380 390 595 730	1 2 2 3 4 4 7 9	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 85 115 120 125 130 210 220 360	C <sub>1</sub> 0 0 0 0 0 0 0 1 1 1 3	n <sub>2</sub> n 50 115 120 250 290 485 535	165 235 245 310 380 500 705 895	1 2 2 4 3 4 6	in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.54  0.65 0.72
1–75 76–100 101–200 201–300 301–400 401–500 501–600 stand 601–800 801–1000	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 130 135 135	0 0 0 0 0 0 0 0	50 115 120 195 200 285	+ n <sub>2</sub> c 165 235 245 255 325 335 420	1 2 2 3 3 3	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 85 115 120 125 125 130 135	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	50 115 120 7 185 250 255 375	165 235 245 310 380 390 595	1 2 2 3 4 4	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	C <sub>1</sub> 0 0 0 0 0 0 0 1 1	n <sub>2</sub> n 50 115 120 as 185 250 290 485	1 + n <sub>2</sub> 165 235 245 310 380 500	1 2 2 4 3 4 6	in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.54  0.65
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	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 130 135 135 225 225	C <sub>1</sub> 0 0 0 0 0 0 0 0 0 0 1 1	50 115 120 241 195 200 285 385 455	+ n <sub>2</sub> c c c c c c c c c c c c c c c c c c c	1 2 2 2 3 3 3 4 7 8	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 0 0 0 0 0 1 2 2	50 115 120 185 250 255 375 435 555 620	165 235 245 310 380 390 595 730 850 920	1 2 2 3 4 4 7 9 11	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	n <sub>1</sub> all 70 85 115 120 125 125 130 210 220 360 365 435	C <sub>1</sub> 0 0 0 0 0 0 1 1 3 3 4	n <sub>2</sub> n.  50 115 120  as 185 250 290  485 535 715	1 + n <sub>2</sub> 165 235 245 310 380 500 705 895 1080	1 2 2 4 3 4 6 9 12 15 17	in %  0 0.16 0.25 0.29 0.34 0.37 0.41 0.45 0.54 0.65 0.72 0.77 0.81
1–75 76–100 101–200 201–300 301–400 401–500 501–600 601–800 801–1000 1001–2000 2001–3000 3001–4000	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 130 135 135 225 225	C <sub>1</sub> 0 0 0 0 0 0 0 0 0 1 1 1 2	50 115 120 2ata130 195 200 285 385 455 460 450	+ n <sub>2</sub> c 165 235 245 255 325 335 420 610 680	1 2 2 3 3 3 4 7 8	0.16 0.25 0.29 0.34 0.37 0.39 0.44 0.46 0.54 0.65 0.69	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 1 2 2 2 3	50 115 120 185 250 255 375 435 555	165 235 245 310 380 390 595 730 850	1 2 2 3 4 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 85 115 120 125 125 130 210 220 360 365	C <sub>1</sub> 0 0 0 0 0 0 1 1 1 3 3 4 5	n <sub>2</sub> n 50 115 120 290 485 535 715 775 935	1 + n <sub>2</sub> 165 235 245 310 380 500 705 895 1080 1210 1440	1 2 2 4 3 4 6 6 9 12 15 17 21	in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.54  0.65 0.72 0.77  0.81 0.89
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	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 130 135 135 225 225	C <sub>1</sub> 0 0 0 0 0 0 0 0 0 0 1 1	50 115 120 241 195 200 285 385 455	+ n <sub>2</sub> c c c c c c c c c c c c c c c c c c c	1 2 2 2 3 3 3 4 7 8	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 0 0 0 0 0 1 2 2	50 115 120 185 250 255 375 435 555 620	165 235 245 310 380 390 595 730 850 920	1 2 2 3 4 4 7 9 11	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	n <sub>1</sub> all 70 85 115 120 125 125 130 210 220 360 365 435	C <sub>1</sub> 0 0 0 0 0 0 1 1 3 3 4	n <sub>2</sub> n.  50 115 120  as 185 250 290  485 535 715	1 + n <sub>2</sub> 165 235 245 310 380 500 705 895 1080	1 2 2 4 3 4 6 6 9 12 15 17 21	in %  0 0.16 0.25 0.29 0.34 0.37 0.41 0.45 0.54 0.65 0.72 0.77 0.81
1–75 76–100 101–200 201–300 301–400 401–500 501–600 801–1000 1001–2000 2001–3000 3001–4000 4001–5000 5001–7000	n <sub>1</sub> all <sup>D</sup> 70 85 115 120 125 130 135 135 225 225 300	C <sub>1</sub> 0 0 0 0 0 0 0 0 0 1 1 1 2	50 115 120 241 130 195 200 285 385 455 460 450	+ n <sub>2</sub> c c c c c c c c c c c c c c c c c c c	1 2 2 3 3 3 4 7 8	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 1 2 2 2 3	50 115 120 185 250 255 375 435 555 620 680	165 235 245 310 380 390 595 730 850 920 1050	1 2 2 3 4 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 85 115 120 125 125 130 210 220 360 365 435 505	C <sub>1</sub> 0 0 0 0 0 0 1 1 1 3 3 4 5	n <sub>2</sub> n 50 115 120 290 485 535 715 775 935	1 + n <sub>2</sub> 165 235 245 310 380 500 705 895 1080 1210 1440	1 2 2 4 3 4 6 9 12 15 17 21 24	in %  0 0.16 0.25  0.29 0.34 0.37  0.41 0.45 0.54  0.65 0.72 0.77  0.81 0.89
1–75 76–100 101–200 201–300 301–400 401–500 501–600 stand 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 85 115 120 125 130 135 225 225 225 300 300	C <sub>1</sub> 0 0 0 0 0 0 0 0 0 1 1 1 2 2	50 115 120 200 285 385 455 460 450 520	+ n <sub>2</sub> c <sub>2</sub> 165 235 245  255 325 325 325 420 610 680 685 750 820	1 2 2 3 3 4 7 8 8 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 0.77	n <sub>1</sub> all 70 85 115 120 125 130 135 220 295 295 300 370 375	C <sub>1</sub> 0 0 0 0 0 0 0 1 2 2 3 3	50 115 120 185 250 255 375 435 555 620 680 735	n <sub>1</sub> + n <sub>2</sub> 165 235 245 310 380 390 595 730 850 920 1050 1110 1310	1 2 2 13 4 4 4 7 9 11 12 14 15	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 0.85	n <sub>1</sub> all 70 85 115 120 125 125 130 210 220 360 365 435 505 575	C <sub>1</sub> 0 0 0 0 0 0 1 1 3 3 4 5 6	n <sub>2</sub> n.  50 115 120  8. 185 250 290  485 535 715  775 935 1055	165 235 245 310 380 500 705 895 1080 1210 1440 1630	1 2 2 4 3 4 6 6 9 12 15 17 21 24 28	in %  0 0.16 0.25 0.29 0.34 0.37 0.41 0.45 0.54 0.65 0.72 0.77 0.81 0.89 0.95

 $<sup>^{</sup>A}$ Trial 1:  $n_{1}$ = first sample size;  $c_{1}$ = acceptance number for first sample.

 $<sup>^{</sup>B}$ 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.