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Standard Practice for
Use of Process Oriented AOQL and LTPD Sampling Plans[1]

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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.[2] The theoretical development of the Dodge-Roming plans will be found in Volumes 8 and 20 of the Bell System Technical Journal[3,4] and an amplification of the plans is given in *Acceptance Sampling in Quality Control.*[5]

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[6]
E 456 Terminology Relating to Quality and Statistics[6]

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.

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 1 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.

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.

Lot Size	Process Average 0 to 0.005 %			Process Average 0.006 to 0.050 %			Process Average 0.051 to 0.100 %			Process Average 0.101 to 0.150 %			Process Average 0.151 to 0.200 %			Process Average 0.201 to 0.250 %		
	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %
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 inspcted.

Lot Size	Process Average 0 to 0.010 %			Process Average 0.011 to 0.10 %			Process Average 0.11 to 0.20 %			Process Average 0.21 to 0.30 %			Process Average 0.31 to 0.40 %			Process Average 0.41 to 0.50 %		
	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %
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	0.08	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 inspcted.

Lot Size	Process Average 0 to 0.02 %			Process Average 0.03 to 0.20 %			Process Average 0.21 to 0.40 %			Process Average 0.41 to 0.60 %			Process Average 0.61 to 0.80 %			Process Average 0.81 to 1.00 %		
	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	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 inspcted.

Lot Size	Process Average 0 to 0.05 %			Process Average 0.06 to 0.50 %			Process Average 0.51 to 1.00 %			Process Average 1.01 to 1.50 %			Process Average 1.51 to 2.00 %			Process Average 2.01 to 2.50 %		
	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	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	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 inspcted.

Lot Size	Process Average 0 to 0.10 %			Process Average 0.11 to 1.00 %			Process Average 1.01 to 2.00 %			Process Average 2.01 to 3.00 %			Process Average 3.01 to 4.00 %			Process Average 4.01 to 5.00 %		
	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	AOQL %	n	c	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

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 %**

Lot Size	Process Average 0 to 0.005 %						Process Average 0.006 to 0.050 %						Process Average 0.051 to 0.100 %					
	Trial 1[A]		Trial 2[B]			AOQL[C]	Trial 1		Trial 2			AOQL	Trial 1		Trial 2			AOQL[C]
	n_1	c_1	n_2	n_1+n_2	c_2	in %	n_1	c_1	n_2	n_1+n_2	c_2	in %	n_1	c_1	n_2	n_1+n_2	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	1400	2300	6	0.16
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

Lot Size	Process Average 0.101 to 0.150 %						Process Average 0.151 to 0.200 %						Process Average 0.201 to 0.250 %					
	Trial 1[A]		Trial 2[B]			AOQL[C]	Trial 1		Trial 2			AOQL	Trial 1		Trial 2			AOQL
	n_1	c_1	n_2	n_1+n_2	c_2	in %	n_1	c_1	n_2	n_1+n_2	c_2	in %	n_1	c_1	n_2	n_1+n_2	c_2	in %
1–180	all[D]	0	...	...	...	0	all	0	...	...	...	0	all	0	...	...	...	0
181–210	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
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	500	990	2	0.09	490	0	500	990	2	0.09	490	0	500	990	2	0.09
2001–3000	520	0	530	1050	2	0.10	520	0	760	1280	3	0.11	520	0	980	1500	4	0.11
3001–4000	530	0	810	1340	3	0.11	530	0	1030	1560	4	0.12	840	1	1160	2000	6	0.13
4001–5000	540	0	1060	1600	4	0.13	845	1	1205	2050	6	0.14	845	1	1425	2270	7	0.14
5001–7000	545	0	1105	1650	4	0.13	860	1	1490	2350	7	0.15	860	1	1700	2560	8	0.16
7001–10 000	880	1	1300	2180	6	0.15	880	1	1770	2650	8	0.16	1170	2	2160	3330	11	0.17
10 001–20 000	900	1	1840	2740	8	0.18	1200	2	2250	3450	11	0.19	1740	4	2620	4360	15	0.21
20 001–50 000	1210	2	2330	3540	11	0.20	1500	3	2980	4480	15	0.22	2300	6	4240	6540	24	0.24
50 001–100 000	1210	2	2590	3800	12	0.21	1770	4	3690	5460	19	0.23	2560	7	5420	7980	30	0.26

[A]Trial 1: n_1 = first sample size; c_1 = acceptance number for first sample.
[B]Trial 2: n_2 = second sample size; c_2 = acceptance number for first and second samples combined.
[C]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 %

Lot Size	Process Average 0 to 0.010 %						Process Average 0.011 to 0.10 %						Process Average 0.11 to 0.20 %					
	Trial 1[A]		Trial 2[B]			AOQL[C]	Trial 1		Trial 2			AOQL	Trial 1		Trial 2			AOQL
	n_1	c_1	n_2	n_1+n_2	c_2	in %	n_1	c_1	n_2	n_1+n_2	c_2	in %	n_1	c_1	n_2	n_1+n_2	c_2	in %
1–120	all[D]	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
2001–3000	270	0	160	430	1	0.19	270	0	300	570	2	0.22	270	0	420	690	3	0.25
3001–4000	275	0	160	435	1	0.19	275	0	305	580	2	0.22	275	0	435	710	3	0.25
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

Lot Size	Process Average 0.21 to 0.30 %						Process Average 0.31 to 0.40 %						Process Average 0.41 to 0.50 %					
	Trial 1[A]		Trial 2[B]			AOQL[C]	Trial 1		Trial 2			AOQL	Trial 1		Trial 2			AOQL
	n_1	c_1	n_2	n_1+n_2	c_2	in %	n_1	c_1	n_2	n_1+n_2	c_2	in %	n_1	c_1	n_2	n_1+n_2	c_2	in %
1–120	all[D]	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	205	430	2	0.16
601–800	235	0	230	465	2	0.18	235	0	230	465	2	0.18	235	0	230	465	2	0.18
801–1000	245	0	250	495	2	0.19	245	0	250	495	2	0.19	245	0	250	495	2	0.19
1001–2000	265	0	405	670	3	0.23	265	0	515	780	4	0.24	265	0	515	780	4	0.24
2001–3000	270	0	545	815	4	0.26	430	1	620	1050	6	0.28	430	1	830	1260	8	0.30
3001–4000	435	1	645	1080	6	0.29	435	1	865	1300	8	0.30	580	2	940	1520	10	0.33
4001–5000	440	1	660	1100	6	0.30	440	1	1000	1440	9	0.33	585	2	1075	1660	11	0.35
5001–7000	445	1	785	1230	7	0.33	590	2	990	1580	10	0.36	730	3	1190	1920	13	0.38
7001–10 000	450	1	920	1370	8	0.35	600	2	1240	1840	12	0.39	870	4	1540	2410	17	0.41
10 001–20 000	605	2	1035	1640	10	0.39	745	3	1485	2230	15	0.43	1150	6	1990	3140	23	0.44
20 001–50 000	605	2	1295	1900	12	0.42	885	4	1845	2730	19	0.47	1280	7	2600	3880	29	0.52
50 001–100 000	605	2	1545	2150	14	0.44	885	4	2085	2970	21	0.49	1410	8	3280	4690	36	0.55

[A]Trial 1: n_1= first sample size; c_1= acceptance number for first sample.
[B]Trial 2: n_2= second sample size; c_2= acceptance number for first and second samples combined.
[C]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 %

Lot Size	Process Average 0 to 0.02 % Trial 1[A] n₁	c₁	Trial 2[B] n₂	n₁+n₂	c₂	AOQL[C] in %	Process Average 0.03 to 0.20 % Trial 1 n₁	c₁	Trial 2 n₂	n₁+n₂	c₂	AOQL in %	Process Average 0.21 to 0.40 % Trial 1 n₁	c₁	Trial 2 n₂	n₁+n₂	c₂	AOQL in %
1–75	all[D]	0	...	...	...	0	all	0	...	...	...	0	all	0	...	...	...	0
76–100	70	0	...	...	...	0.16	70	0	...	...	...	0.16	70	0	...	...	...	0.16
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
501–600	125	0	70	195	1	0.34	125	0	70	195	1	0.34	125	0	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
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

Lot Size	Process Average 0.41 to 0.60 % Trial 1[A] n₁	c₁	Trial 2[B] n₂	n₁+n₂	c₂	AOQL[C] in %	Process Average 0.61 to 0.80 % Trial 1 n₁	c₁	Trial 2 n₂	n₁+n₂	c₂	AOQL in %	Process Average 0.81 to 1.00 % Trial 1 n₁	c₁	Trial 2 n₂	n₁+n₂	c₂	AOQL in %
1–75	all[D]	0	...	...	...	0	all	0	...	...	...	0	all	0	...	...	...	0
76–100	70	0	...	...	...	0.16	70	0	...	...	...	0.16	70	0	...	...	...	0.16
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	115	235	2	0.34	120	0	115	235	2	0.34	120	0	115	235	2	0.34
401–500	125	0	120	245	2	0.37	125	0	120	245	2	0.37	125	0	120	245	2	0.37
501–600	125	0	130	255	2	0.39	125	0	185	310	3	0.41	125	0	185	310	3	0.41
601–800	130	0	195	325	3	0.44	130	0	250	380	4	0.45	130	0	250	380	4	0.45
801–1000	135	0	200	335	3	0.46	135	0	255	390	4	0.48	210	1	290	500	6	0.54
1001–2000	135	0	285	420	4	0.54	220	1	375	595	7	0.62	220	1	485	705	9	0.65
2001–3000	225	1	385	610	7	0.65	295	2	435	730	9	0.69	360	3	535	895	12	0.72
3001–4000	225	1	455	680	8	0.69	295	2	555	850	11	0.74	365	3	715	1080	15	0.77
4001–5000	225	1	460	685	8	0.70	300	2	620	920	12	0.77	435	4	775	1210	17	0.81
5001–7000	300	2	450	750	9	0.74	370	3	680	1050	14	0.82	505	5	935	1440	21	0.89
7001–10 000	300	2	520	820	10	0.77	375	3	735	1110	15	0.85	575	6	1055	1630	24	0.95
10 001–20 000	305	2	645	950	12	0.83	375	3	935	1310	18	0.92	640	7	1240	1880	28	1.0
20 001–50 000	305	2	715	1020	13	0.86	445	4	1045	1490	21	0.98	705	8	1635	2340	36	1.1
50 001–100 000	305	2	830	1135	15	0.90	510	5	1150	1660	24	1.0	770	9	1850	2620	41	1.2

[A]Trial 1: n_1= first sample size; c_1= acceptance number for first sample.
[B]Trial 2: n_2= second sample size; c_2= acceptance number for first and second samples combined.
[C]AOQL = Average Outgoing Quality Limit.
[D]"all" indicates that each piece in the lot is to be inspected.

TABLE A2.4 Double Sampling Table for
Lot Tolerance Percent Defective (LTPD) = 5.0 %

Lot Size	Process Average 0 to 0.05 %						Process Average 0.06 to 0.50 %						Process Average 0.51 to 1.00 %					
	Trial 1[A]		Trial 2[B]			AOQL[C] in %	Trial 1		Trial 2			AOQL in %	Trial 1		Trial 2			AOQL in %
	n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–30	all[D]	0	...	...	...	0	all	0	...	...	...	0	all	0	...	...	...	0
31–50	30	0	...	...	...	0.49	30	0	...	...	...	0.49	30	0	...	...	...	0.49
51–75	38	0	...	...	...	0.59	38	0	...	...	...	0.59	38	0	...	...	...	0.59
76–100	44	0	21	65	1	0.64	44	0	21	65	1	0.64	44	0	21	65	1	0.64
101–200	49	0	26	75	1	0.84	49	0	26	75	1	0.84	49	0	26	75	1	0.84
201–300	50	0	30	80	1	0.91	50	0	30	80	1	0.91	50	0	55	105	2	1.0
301–400	55	0	30	85	1	0.92	55	0	55	110	2	1.1	55	0	55	110	2	1.1
401–500	55	0	30	85	1	0.93	55	0	55	110	2	1.1	55	0	80	135	3	1.2
501–600	55	0	30	85	1	0.94	55	0	60	115	2	1.1	55	0	85	140	3	1.2
601–800	55	0	35	90	1	0.95	55	0	65	120	2	1.1	55	0	85	140	3	1.3
801–1000	55	0	35	90	1	0.96	55	0	65	120	2	1.1	55	0	115	170	4	1.4
1001–2000	55	0	35	90	1	0.98	55	0	95	150	3	1.3	55	0	120	175	4	1.4
2001–3000	55	0	65	120	2	1.2	55	0	95	150	3	1.3	55	0	150	205	5	1.5
3001–4000	55	0	65	120	2	1.2	55	0	95	150	3	1.3	90	1	140	230	6	1.6
4001–5000	55	0	65	120	2	1.2	55	0	95	150	3	1.4	90	1	165	255	7	1.6
5001–7000	55	0	65	120	2	1.2	55	0	95	150	3	1.4	90	1	165	255	7	1.8
7001–10 000	55	0	65	120	2	1.2	55	0	120	175	4	1.5	90	1	190	280	8	1.9
10 001–20 000	55	0	65	120	2	1.2	55	0	120	175	4	1.5	90	1	190	280	8	1.9
20 001–50 000	55	0	65	120	2	1.2	55	0	150	205	5	1.7	90	1	215	305	9	2.0
50 001–100 000	55	0	65	120	2	1.2	55	0	150	205	5	1.7	90	1	240	330	10	2.1

Lot Size	Process Average 1.01 to 1.50 %						Process Average 1.51 to 2.00 %						Process Average 2.01 to 2.50 %					
	Trial 1[A]		Trial 2[B]			AOQL[C] in %	Trial 1		Trial 2			AOQL in %	Trial 1		Trial 2			AOQL in %
	n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–30	all[D]	0	...	...	...	0	all	0	...	...	...	0	all	0	...	...	...	0
31–50	30	0	...	...	...	0.49	30	0	...	...	...	0.49	30	0	...	...	...	0.49
51–75	38	0	...	...	...	0.59	38	0	...	...	...	0.59	38	0	...	...	...	0.59
76–100	44	0	21	65	1	0.64	44	0	21	65	1	0.64	44	0	21	65	1	0.64
101–200	49	0	51	100	2	0.91	49	0	51	100	2	0.91	49	0	51	100	2	0.91
201–300	50	0	55	105	2	1.0	50	0	80	130	3	1.1	50	0	100	150	4	1.1
301–400	55	0	80	135	3	1.1	55	0	100	155	4	1.2	85	1	105	190	6	1.3
401–500	55	0	105	160	4	1.3	85	1	120	205	6	1.4	85	1	140	225	7	1.4
501–600	55	0	110	165	4	1.3	85	1	145	230	7	1.4	85	1	165	250	8	1.5
601–800	90	1	125	215	6	1.5	90	1	170	260	8	1.5	120	2	185	305	10	1.6
801–1000	90	1	150	240	7	1.5	90	1	200	290	9	1.6	120	2	210	330	11	1.7
1001–2000	90	1	185	275	8	1.7	120	2	225	345	11	1.9	175	4	260	435	15	2.0
2001–3000	120	2	180	300	9	1.9	150	3	270	420	14	2.1	205	5	375	580	21	2.3
3001–4000	120	2	210	330	10	2.0	150	3	295	445	15	2.3	230	6	420	650	24	2.4
4001–5000	120	2	255	375	12	2.1	150	3	345	495	17	2.3	255	7	445	700	26	2.5
5001–7000	120	2	260	380	12	2.1	150	3	370	520	18	2.3	255	7	495	750	28	2.6
7001–10 000	120	2	285	405	13	2.1	175	4	370	545	19	2.4	280	8	540	820	31	2.7
10 001–20 000	120	2	310	430	14	2.2	175	4	420	595	21	2.4	280	8	660	940	36	2.8
20 001–50 000	120	2	335	455	15	2.2	205	5	485	690	25	2.5	305	9	745	1050	41	2.9
50 001–100 000	120	2	360	480	16	2.3	205	5	555	760	28	2.6	330	10	810	1140	45	3.0

[A] Trial 1: n_1= first sample size; c_1= acceptance number for first sample.
[B] Trial 2: n_2= second sample size; c_2= acceptance number for first and second samples combined.
[C] AOQL = Average Outgoing Quality Limit.
[D] "all" indicates that each piece in the lot is to be inspected.

TABLE A2.5 Double Sampling Table for
Lot Tolerance Percent Defective (LTPD) = 10.0 %

Lot Size	Process Average 0 to 0.10 % Trial 1[A] n_1	c_1	Trial 2[B] n_2	n_1+n_2	c_2	AOQL[C] in %	Process Average 0.11 to 1.00 % Trial 1 n_1	c_1	Trial 2 n_2	n_1+n_2	c_2	AOQL in %	Process Average 1.01 to 2.00 % Trial 1 n_1	c_1	Trial 2 n_2	n_1+n_2	c_2	AOQL in %
1–20	all[D]	0	...	...	...	0	all	0	...	...	...	0	all	0	...	...	...	0
21–50	17	0	...	...	...	1.3	17	0	...	...	...	1.3	17	0	...	...	...	1.3
51–100	25	0	13	38	1	1.6	25	0	13	38	1	1.6	25	0	13	38	1	1.6
101–200	27	0	15	42	1	1.8	27	0	15	42	1	1.8	27	0	28	55	2	2.1
201–300	27	0	16	43	1	1.9	27	0	30	57	2	2.2	27	0	43	70	3	2.4
301–400	27	0	17	44	1	1.9	27	0	33	60	2	2.2	27	0	43	70	3	2.5
401–500	28	0	16	44	1	1.9	28	0	32	60	2	2.3	28	0	57	85	4	2.7
501–600	28	0	17	45	1	1.9	28	0	32	60	2	2.3	28	0	57	85	4	2.8
601–800	28	0	17	45	1	2.0	28	0	47	75	3	2.6	28	0	57	85	4	2.9
801–1000	28	0	32	60	2	2.3	28	0	47	75	3	2.6	28	0	72	100	5	3.0
1001–2000	28	0	32	60	2	2.4	28	0	47	75	3	2.7	45	1	70	115	6	3.3
2001–3000	28	0	32	60	2	2.4	28	0	47	75	3	2.7	45	1	85	130	7	3.5
3001–4000	28	0	32	60	2	2.4	28	0	62	90	4	2.9	45	1	85	130	7	3.5
4001–5000	28	0	32	60	2	2.4	28	0	62	90	4	3.0	45	1	95	140	8	3.7
5001–7000	28	0	32	60	2	2.4	28	0	62	90	4	3.0	45	1	95	140	8	3.8
7001–10 000	28	0	32	60	2	2.5	28	0	62	90	4	3.0	45	1	95	140	8	3.8
10 001–20 000	28	0	32	60	2	2.5	28	0	62	90	4	3.0	45	1	110	155	9	3.9
20 001–50 000	28	0	32	60	2	2.5	28	0	72	100	5	3.3	45	1	120	165	10	3.9
50 001–100 000	28	0	32	60	2	2.5	28	0	72	100	5	3.8	45	1	135	180	11	4.2

Lot Size	Process Average 2.01 to 3.00 % Trial 1[A] n_1	c_1	Trial 2[B] n_2	n_1+n_2	c_2	AOQL[C] in %	Process Average 3.01 to 4.00 % Trial 1 n_1	c_1	Trial 2 n_2	n_1+n_2	c_2	AOQL in %	Process Average 4.01 to 5.00 % Trial 1 n_1	c_1	Trial 2 n_2	n_1+n_2	c_2	AOQL in %
1–20	all[D]	0	...	...	...	0	all	0	...	...	...	0	all	0	...	...	...	0
21–50	17	0	...	...	...	1.3	17	0	...	...	...	1.3	17	0	...	...	...	1.3
51–100	25	0	24	49	2	1.8	25	0	24	49	2	1.8	25	0	24	49	2	1.8
101–200	27	0	38	65	3	2.3	27	0	53	80	4	2.4	27	0	53	80	4	2.4
201–300	27	0	53	80	4	2.7	43	1	62	105	6	2.8	43	1	82	125	8	3.0
301–400	44	1	66	110	6	2.9	44	1	86	130	8	3.1	60	2	90	150	10	3.2
401–500	44	1	76	120	7	3.1	44	1	101	145	9	3.3	60	2	105	165	11	3.4
501–600	45	1	75	120	7	3.3	60	2	100	160	10	3.4	75	3	115	190	13	3.6
601–800	45	1	90	135	8	3.5	60	2	110	170	11	3.7	75	3	140	215	15	3.9
801–1000	45	1	90	135	8	3.5	60	2	125	185	12	3.9	90	4	150	240	17	4.1
1001–2000	60	2	105	165	10	3.9	75	3	150	225	15	4.3	115	6	200	315	23	4.8
2001–3000	60	2	130	190	12	4.1	75	3	175	250	17	4.4	130	7	235	365	27	5.0
3001–4000	60	2	130	190	12	4.2	90	4	170	260	18	4.6	130	7	255	385	29	5.1
4001–5000	60	2	140	200	13	4.3	90	4	180	270	19	4.7	140	8	270	410	31	5.2
5001–7000	60	2	140	200	13	4.4	90	4	205	295	21	4.9	140	8	315	455	35	5.3
7001–10 000	60	2	155	215	14	4.4	90	4	220	310	22	5.0	140	8	340	480	37	5.4
10 001–20 000	60	2	165	225	15	4.4	100	5	230	330	24	5.1	155	9	370	525	41	5.6
20 001–50 000	75	3	165	240	16	4.5	100	5	280	380	28	5.2	165	10	405	570	45	5.7
50 001–100 000	75	3	200	275	19	4.8	115	6	285	400	30	5.3	165	10	440	605	48	6.2

[A]Trial 1: n_1= first sample size; c_1= acceptance number for first sample.
[B]Trial 2: n_2= second sample size; c_2= acceptance number for first and second samples combined.
[C]AOQL = Average Outgoing Quality Limit.
[D]"all" indicates that each piece in the lot is to be inspected.

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).

**TABLE A3.1 Single Sampling Table for
Average Outgoing Quality Limit (AOQL) = 0.1 %**

Lot Size	Process Average 0 to 0.002 %			Process Average 0.003 to 0.020 %			Process Average 0.021 to 0.040 %			Process Average 0.041 to 0.060 %			Process Average 0.061 to 0.080 %			Process Average 0.081 to 0.100 %		
	n^A	c	p_t^B %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %
1–75	all^C	0	. . .	all	0	. . .	all	0	. . .	all	0	. . .	all	0	. . .	all	0	. . .
76–95	75	0	1.5	75	0	1.5	75	0	1.5	75	0	1.5	75	0	1.5	75	0	1.5
96–130	95	0	1.4	95	0	1.4	95	0	1.4	95	0	1.4	95	0	1.4	95	0	1.4
131–200	130	0	1.2	130	0	1.2	130	0	1.2	130	0	1.2	130	0	1.2	130	0	1.2
201–300	165	0	1.1	165	0	1.1	165	0	1.1	165	0	1.1	165	0	1.1	165	0	1.1
301–400	190	0	0.96	190	0	0.96	190	0	0.96	190	0	0.96	190	0	0.96	190	0	0.96
401–500	210	0	0.91	210	0	0.91	210	0	0.91	210	0	0.91	210	0	0.91	210	0	0.91
501–600	230	0	0.86	230	0	0.86	230	0	0.86	230	0	0.86	230	0	0.86	230	0	0.86
601–800	250	0	0.81	250	0	0.81	250	0	0.81	250	0	0.81	250	0	0.81	250	0	0.81
801–1000	270	0	0.76	270	0	0.76	270	0	0.76	270	0	0.76	270	0	0.76	270	0	0.76
1001–2000	310	0	0.71	310	0	0.71	310	0	0.71	310	0	0.71	310	0	0.71	310	0	0.71
2001–3000	330	0	0.67	330	0	0.67	330	0	0.67	330	0	0.67	330	0	0.67	655	1	0.64
3001–4000	340	0	0.64	340	0	0.64	340	0	0.64	695	1	0.59	695	1	0.59	695	1	0.59
4001–5000	345	0	0.62	345	0	0.62	345	0	0.62	720	1	0.54	720	1	0.54	720	1	0.54
5001–7000	350	0	0.61	350	0	0.61	750	1	0.51	750	1	0.51	750	1	0.51	750	1	0.51
7001–10 000	355	0	0.60	355	0	0.60	775	1	0.49	775	1	0.49	775	1	0.49	1210	2	0.44
10 001–20 000	360	0	0.59	810	1	0.48	810	1	0.48	1280	2	0.42	1280	2	0.42	1770	3	0.38
20 001–50 000	365	0	0.58	830	1	0.47	1330	2	0.41	1870	3	0.37	2420	4	0.34	2980	5	0.33
50 001–100 000	365	0	0.58	835	1	0.46	1350	2	0.40	2480	4	0.33	3070	5	0.32	4270	7	0.30

$^A n$ = sample size; c = acceptance number.
$^B p_t$ = lot tolerance per cent defective with a Consumer's Risk (Pc) of 0.10.
^{C}"all" indicates that each piece in the lot is to be inspected.

**TABLE A3.2 Single Sampling Table for
Average Outgoing Quality Limit (AOQL) = 0.5 %**

Lot Size	Process Average 0 to 0.010 %			Process Average 0.011 to 0.10 %			Process Average 0.11 to 0.20 %			Process Average 0.21 to 0.30 %			Process Average 0.31 to 0.40 %			Process Average 0.41 to 0.50 %		
	n^A	c	p_t^B %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %
1–30	all^C	0	...	all	0	...	all	0	...	all	0	...	all	0	...	all	0	...
31–50	30	0	5.0	30	0	5.0	30	0	5.0	30	0	5.0	30	0	5.0	30	0	5.0
51–100	42	0	4.2	42	0	4.2	42	0	4.2	42	0	4.2	42	0	4.2	42	0	4.2
101–200	55	0	3.6	55	0	3.6	55	0	3.6	55	0	3.6	55	0	3.6	55	0	3.6
201–300	60	0	3.4	60	0	3.4	60	0	3.4	60	0	3.4	60	0	3.4	60	0	3.4
301–400	60	0	3.5	60	0	3.5	60	0	3.5	60	0	3.5	60	0	3.5	60	0	3.5
401–500	65	0	3.3	65	0	3.3	65	0	3.3	65	0	3.3	65	0	3.3	125	1	2.9
501–600	65	0	3.3	65	0	3.3	65	0	3.3	65	0	3.3	130	1	2.7	130	1	2.7
601–800	65	0	3.4	65	0	3.4	65	0	3.4	140	1	2.6	140	1	2.6	140	1	2.6
801–1000	70	0	3.2	70	0	3.2	70	0	3.2	145	1	2.6	145	1	2.6	145	1	2.6
1001–2000	70	0	3.2	70	0	3.2	155	1	2.5	155	1	2.5	155	1	2.5	240	2	2.2
2001–3000	70	0	3.3	70	0	3.3	160	1	2.4	160	1	2.4	250	2	2.1	250	2	2.1
3001–4000	70	0	3.3	160	1	2.4	160	1	2.4	255	2	2.1	255	2	2.1	355	3	1.9
4001–5000	75	0	3.0	165	1	2.4	165	1	2.4	260	2	2.0	360	3	1.9	460	4	1.7
5001–7000	75	0	3.0	165	1	2.4	265	2	2.0	265	2	2.0	370	3	1.8	475	4	1.7
7001–10 000	75	0	3.1	165	1	2.4	265	2	2.0	375	3	1.8	485	4	1.7	595	5	1.6
10 001–20 000	75	0	3.1	165	1	2.4	270	2	1.9	380	3	1.7	615	5	1.5	855	7	1.4
20 001–50 000	170	1	2.3	275	2	1.9	390	3	1.7	625	5	1.5	875	7	1.3	1410	11	1.2
50 001–100 000	170	1	2.3	275	2	1.9	510	4	1.6	755	6	1.4	1290	10	1.2	2130	16	1.1

^{A} n = sample size; c = acceptance number.
^{B} p_t = lot tolerance per cent defective with a Consumer's Risk (Pc) of 0.10.
^{C} "all" indicates that each piece in the lot is to be inspected.

**TABLE A3.3 Single Sampling Table for
Average Outgoing Quality Limit (AOQL) = 1.0 %**

Lot Size	Process Average 0 to 0.02 %			Process Average 0.03 to 0.20 %			Process Average 0.21 to 0.40 %			Process Average 0.41 to 0.60 %			Process Average 0.61 to 0.80 %			Process Average 0.81 to 1.00 %		
	n^A	c	p_t^B %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %
1–25	all^C	0	...	all	0	...	all	0	...	all	0	...	all	0	...	all	0	...
26–50	22	0	7.7	22	0	7.7	22	0	7.7	22	0	7.7	22	0	7.7	22	0	7.7
51–100	27	0	7.1	27	0	7.1	27	0	7.1	27	0	7.1	27	0	7.1	27	0	7.1
101–200	32	0	6.4	32	0	6.4	32	0	6.4	32	0	6.4	32	0	6.4	32	0	6.4
201–300	33	0	6.3	33	0	6.3	33	0	6.3	33	0	6.3	33	0	6.3	65	1	5.0
301–400	34	0	6.1	34	0	6.1	34	0	6.1	70	1	4.6	70	1	4.6	70	1	4.6
401–500	35	0	6.1	35	0	6.1	35	0	6.1	70	1	4.7	70	1	4.7	70	1	4.7
501–600	35	0	6.1	35	0	6.1	75	1	4.4	75	1	4.4	75	1	4.4	75	1	4.4
601–800	35	0	6.2	35	0	6.2	75	1	4.4	75	1	4.4	75	1	4.4	120	2	4.2
801–1000	35	0	6.3	35	0	6.3	80	1	4.4	80	1	4.4	120	2	4.3	120	2	4.3
1001–2000	36	0	6.2	80	1	4.5	80	1	4.5	130	2	4.0	130	2	4.0	180	3	3.7
2001–3000	36	0	6.2	80	1	4.6	80	1	4.6	130	2	4.0	185	3	3.6	235	4	3.3
3001–4000	36	0	6.2	80	1	4.7	135	2	3.9	135	2	3.9	185	3	3.6	295	5	3.1
4001–5000	36	0	6.2	85	1	4.6	135	2	3.9	190	3	3.5	245	4	3.2	300	5	3.1
5001–7000	37	0	6.1	85	1	4.6	135	2	3.9	190	3	3.5	305	5	3.0	420	7	2.8
7001–10 000	37	0	6.2	85	1	4.6	135	2	3.9	245	4	3.2	310	5	3.0	430	7	2.7
10 001–20 000	85	1	4.6	135	2	3.9	195	3	3.4	250	4	3.2	435	7	2.7	635	10	2.4
20 001–50 000	85	1	4.6	135	2	3.9	255	4	3.1	380	6	2.8	575	9	2.5	990	15	2.1
50 001–100 000	85	1	4.6	135	2	3.9	255	4	3.1	445	7	2.6	790	12	2.3	1520	22	1.9

^{A} n = sample size; c = acceptance number.
^{B} p_t = lot tolerance per cent defective with a Consumer's Risk (Pc) of 0.10.
^{C} "all" indicates that each piece in the lot is to be inspected.

TABLE A3.4 Single Sampling Table for
Average Outgoing Quality Limit (AOQL) = 2.0 %

Lot Size	Process Average 0 to 0.04 %			Process Average 0.05 to 0.40 %			Process Average 0.41 to 0.80 %			Process Average 0.81 to 1.20 %			Process Average 1.21 to 1.60 %			Process Average 1.61 to 2.00 %		
	n^A	c	p_t^B %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %
1–15	all^C	0	...	all	0	. . .	all	0	...	all	0	...	all	0	...	all	0	...
16–50	14	0	13.6	14	0	13.6	14	0	13.6	14	0	13.6	14	0	13.6	14	0	13.6
51–100	16	0	12.4	16	0	12.4	16	0	12.4	16	0	12.4	16	0	12.4	16	0	12.4
101–200	17	0	12.2	17	0	12.2	17	0	12.2	17	0	12.2	35	1	10.5	35	1	10.5
201–300	17	0	12.3	17	0	12.3	17	0	12.3	37	1	10.2	37	1	10.2	37	1	10.2
301–400	18	0	11.8	18	0	11.8	38	1	10.0	38	1	10.0	38	1	10.0	60	2	8.5
401–500	18	0	11.9	18	0	11.9	39	1	9.8	39	1	9.8	60	2	8.6	60	2	8.6
501–600	18	0	11.9	18	0	11.9	39	1	9.8	39	1	9.8	60	2	8.6	60	2	8.6
601–800	18	0	11.9	40	1	9.6	40	1	9.6	65	2	8.0	65	2	8.0	85	3	7.5
801–1000	18	0	12.0	40	1	9.6	40	1	9.6	65	2	8.1	65	2	8.1	90	3	7.4
1001–2000	18	0	12.0	41	1	9.4	65	2	8.2	65	2	8.2	95	3	7.0	120	4	6.5
2001–3000	18	0	12.0	41	1	9.4	65	2	8.2	95	3	7.0	120	4	6.5	180	6	5.8
3001–4000	18	0	12.0	42	1	9.3	65	2	8.2	95	3	7.0	155	5	6.0	210	7	5.5
4001–5000	18	0	12.0	42	1	9.3	70	2	7.5	125	4	6.4	155	5	6.0	245	8	5.3
5001–7000	18	0	12.0	42	1	9.3	95	3	7.0	125	4	6.4	185	6	5.6	280	9	5.1
7001–10 000	42	1	9.3	70	2	7.5	95	3	7.0	155	5	6.0	220	7	5.4	350	11	4.8
10 001–20 000	42	1	9.3	70	2	7.6	95	3	7.0	190	6	5.6	290	9	4.9	460	14	4.4
20 001–50 000	42	1	9.3	70	2	7.6	125	4	6.4	220	7	5.4	395	12	4.5	720	21	3.9
50 001–100 000	42	1	9.3	95	3	7.0	160	5	5.9	290	9	4.9	505	15	4.2	955	27	3.7

$^A n$ = sample size; c = acceptance number.
$^B p_t$ = lot tolerance per cent defective with a Consumer's Risk (Pc) of 0.10.
^{C}"all" indicates that each piece in the lot is to be inspected.

TABLE A3.5 Single Sampling Table for
Average Outgoing Quality Limit (AOQL) = 5.0 %

Lot Size	Process Average 0 to 0.10 %			Process Average 0.11 to 1.00 %			Process Average 1.01 to 2.00 %			Process Average 2.01 to 3.00 %			Process Average 3.01 to 4.00 %			Process Average 4.01 to 5.00 %		
	n^A	c	p_t^B %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %
1–5	all^C	0	...	all	0	...	all	0	...	all	0	...	all	0	...	all	0	...
6–50	6	0	30.5	6	0	30.5	6	0	30.5	6	0	30.5	6	0	30.5	6	0	30.5
51–100	7	0	27.0	7	0	27.0	7	0	27.0	14	1	26.5	14	1	26.5	14	1	26.5
101–200	7	0	27.5	7	0	27.5	16	1	24.0	16	1	24.0	16	1	24.0	24	2	21.5
201–300	7	0	27.5	16	1	24.0	16	1	24.0	16	1	24.0	25	2	21.0	25	2	21.0
301–400	7	0	27.5	16	1	24.0	16	1	24.0	26	2	20.0	26	2	20.0	35	3	18.8
401–500	7	0	27.5	16	1	24.0	16	1	24.0	26	2	20.0	36	3	18.3	46	4	17.0
501–600	7	0	28.0	16	1	24.0	26	2	20.0	26	2	20.0	37	3	17.9	47	4	16.6
601–800	7	0	28.0	16	1	24.0	27	2	19.4	37	3	17.9	48	4	16.3	60	5	15.2
801–1000	7	0	28.0	17	1	22.5	27	2	19.5	37	3	17.9	48	4	16.3	70	6	14.3
1001–2000	7	0	28.0	17	1	23.0	27	2	19.6	38	3	17.6	60	5	15.3	85	7	13.7
2001–3000	7	0	28.0	17	1	23.0	38	3	17.6	50	4	15.8	75	6	13.9	125	10	12.3
3001–4000	17	1	23.0	27	2	19.6	39	3	17.0	60	5	15.4	85	7	13.8	140	11	11.8
4001–5000	17	1	23.0	27	2	19.6	39	3	17.0	65	5	14.2	100	8	12.9	155	12	11.6
5001–7000	17	1	23.0	27	2	19.7	39	3	17.1	75	6	13.9	115	9	12.3	185	14	11.0
7001–10 000	17	1	23.0	27	2	19.7	50	4	15.9	75	6	14.0	130	10	12.0	225	17	10.4
10 001–20 000	17	1	23.0	27	2	19.7	50	4	15.9	90	7	13.1	170	13	11.0	305	22	9.6
20 001–50 000	17	1	23.0	39	3	17.1	65	5	14.3	115	9	12.3	215	16	10.4	400	28	9.0
50 001–100 000	17	1	23.0	39	3	17.1	75	6	14.0	145	11	11.6	275	20	9.8	450	31	8.8

TABLE A3.6 Single Sampling Table for
Average Outgoing Quality Limit (AOQL) = 10.0 %

Lot Size	Process Average 0 to 0.04 %			Process Average 0.05 to 0.40 %			Process Average 0.41 to 0.80 %			Process Average 0.81 to 1.20 %			Process Average 1.21 to 1.60 %			Process Average 1.61 to 2.00 %		
	n^A	c	p_t^B %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %	n	c	p_t %
1–3	all^C	0	...	all	0	...	all	0	...	all	0	...	all	0	...	all	0	...
4–50	3	0	52.5	3	0	52.5	3	0	52.5	3	0	52.5	3	0	52.5	7	1	43.5
51–100	4	0	43.0	4	0	43.0	8	1	40.0	8	1	40.0	8	1	40.0	12	2	37.5
101–200	4	0	43.5	8	1	40.0	8	1	40.0	13	2	35.5	13	2	35.5	18	3	33.0
201–300	4	0	43.5	8	1	40.5	8	1	40.5	13	2	35.5	18	3	33.0	23	4	32.0
301–400	4	0	43.5	8	1	40.5	13	2	35.5	13	2	35.5	24	4	30.0	29	5	30.0
401-500	4	0	43.5	8	1	40.5	13	2	36.0	19	3	31.6	24	4	30.0	30	5	29.5
501–600	4	0	43.5	8	1	40.5	13	2	36.0	19	3	31.5	24	4	30.5	36	6	28.5
601–800	4	0	43.5	8	1	40.5	13	2	36.0	19	3	31.5	31	5	29.5	42	7	27.5
801–1000	4	0	44.0	8	1	40.5	14	2	33.5	25	4	30.0	37	6	28.0	49	8	26.5
1001–2000	8	1	40.5	14	2	33.5	19	3	32.0	31	5	30.0	44	7	26.5	65	10	23.5
2001–3000	8	1	40.5	14	2	33.5	19	3	32.0	31	5	30.0	50	8	26.0	85	13	22.5
3001–4000	8	1	40.5	14	2	33.5	25	4	30.0	38	6	27.5	65	10	24.0	100	15	21.5
4001–5000	8	1	40.5	14	2	33.5	25	4	30.0	44	6	27.5	65	10	24.0	120	18	20.5
5001–7000	8	1	40.5	14	2	33.5	25	4	30.0	44	7	27.0	80	12	22.5	135	20	19.8
7001–10 000	8	1	40.5	14	2	33.5	32	5	29.0	50	8	26.0	85	13	22.5	160	23	19.2
10 001–20 000	8	1	40.5	19	3	32.0	32	5	29.0	60	9	24.5	110	16	21.0	190	27	18.3
20 001–50 000	8	1	40.5	19	3	32.0	38	6	27.5	70	11	23.0	130	19	19.7	225	31	17.5
50 001–100 000	14	2	33.5	19	3	32.0	44	7	27.0	80	12	22.5	155	22	19.0	260	35	16.9

$^A n$ = sample size; c = acceptance number.
$^B p_t$ = lot tolerance per cent defective with a Consumer's Risk (Pc) of 0.10.
^{C}"all" indicates that each piece in the lot is to be inspected.

A4. DOUBLE SAMPLING TABLES FOR STATED VALUES OF AVERAGE OUTGOING QUALITY LIMIT (AOQL)
0.1 % AOQL, 0.5 % AOQL, 1.0 % AOQL, 2.0- % AOQL, 5.0 % AOQL, 10.0 % AOQL

A4.1 Tables A4.1-A4.6 illustrate double sampling for stated values of average outgoing quality limit (AOQL).

TABLE A4.1 Double Sampling Table for
Average Outgoing Quality Limit (AOQL) = 0.1 %

Lot Size	Process Average 0 to 0.002 %						Process Average 0.003 to 0.020						Process Average 0.021 to 0.040					
	Trial 1[A]		Trial 2[B]			p_t[C] %	Trial 1		Trial 2			p_t %	Trial 1		Trial 2			p_t %
	n_1	c_2	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–75	all	0	…	…	…	…	all	0	…	…	…	…	all	0	…	…	…	…
76–95	75	0	…	…	…	1.5	75	0	…	…	…	1.5	75	0	…	…	…	1.5
96–130	95	0	…	…	…	1.4	95	0	…	…	…	1.4	95	0	…	…	…	1.4
131–200	130	0	…	…	…	1.2	130	0	…	…	…	1.2	130	0	…	…	…	1.2
201–300	165	0	…	…	…	1.1	165	0	…	…	…	1.1	165	0	…	…	…	1.1
301–350	190	0	…		…	0.96	190	0	…	…	…	0.96	190	0	…	…	…	0.96
351–400	225	0	95	320	1	0.86	225	0	95	320	1	0.86	225	0	95	320	1	0.86
401–500	250	0	120	370	1	0.80	250	0	120	370	1	0.80	250	0	120	370	1	0.80
501–600	275	0	130	405	1	0.77	275	0	130	405	1	0.77	275	0	130	405	1	0.77
601–800	310	0	155	465	1	0.71	310	0	155	465	1	0.71	310	0	155	465	1	0.71
801–1000	350	0	185	535	1	0.66	350	0	185	535	1	0.66	350	0	185	535	1	0.66
1001–2000	430	0	240	670	1	0.58	430	0	240	670	1	0.58	430	0	240	670	1	0.58
2001–3000	465	0	265	730	1	0.56	465	0	265	730	1	0.56	465	0	265	730	1	0.56
3001–4000	495	0	285	780	1	0.54	495	0	285	780	1	0.54	540	0	570	1110	2	0.49
4001–5000	505	0	295	800	1	0.53	505	0	295	800	1	0.53	555	0	615	1170	2	0.48
5001–7000	520	0	320	840	1	0.52	520	0	320	840	1	0.52	590	0	660	1250	2	0.46
7001–10 000	540	0	335	875	1	0.51	625	0	715	1340	2	0.44	625	0	715	1340	2	0.44
10 001–20 000	555	0	345	900	1	0.50	650	0	750	1400	2	0.43	720	0	1150	1870	3	0.38
20 001–50 000	660	0	760	1420	2	0.42	660	0	760	1420	2	0.42	770	0	1700	2470	4	0.36
50 001–100 000	670	0	770	1440	2	0.42	740	0	1230	1970	3	0.38	805	0	1725	2530	4	0.35

Lot Size	Process Average 0.041 to 0.060 %						Process Average 0.061 to 0.080 %						Process Average 0.081 to 0.100 %					
	Trial 1[A]		Trial 2[B]			p_t[C]	Trial 1		Trial 2			p_t	Trial 1		Trial 2			p_t
	n_1	c_1	n_2	n_2+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–75	all	0	…	…	…	…	all	0	…	…	…	…	all	0	…	…	…	…
76–95	75	0	…	…	…	1.5	75	0	…	…	…	1.5	75	0	…	…	…	1.5
96–130	95	0	…	…	…	1.4	95	0	…	…	…	1.4	95	0	…	…	…	1.4
131–200	130	0	…	…	…	1.2	130	0	…	…	…	1.2	130	0	…	…	…	1.2
201–300	165	0	…	…	…	1.1	165	0	…	…	…	1.1	165	0	…	…	…	1.1
301–350	190	0	…	…	…	0.96	190	0	…	…	…	0.96	190	0	…	…	…	0.96
351–400	225	0	95	320	1	0.86	225	0	95	320	1	0.86	225	0	95	320	1	0.86
401–500	250	0	120	370	1	0.80	250	0	120	370	1	0.80	250	0	120	370	1	0.80
501–600	275	0	130	405	1	0.77	275	0	130	405	1	0.77	275	0	130	405	1	0.77
601–800	310	0	155	465	1	0.71	310	0	155	465	1	0.71	310	0	155	465	1	0.71
801–1000	350	0	185	535	1	0.66	350	0	185	535	1	0.66	350	0	185	535	1	0.66
1001–2000	430	0	240	670	1	0.58	430	0	240	670	1	0.58	475	0	450	925	2	0.54
2001–3000	520	0	530	1050	2	0.50	520	0	530	1050	2	0.50	520	0	530	1050	2	0.50
3001–4000	540	0	570	1110	2	0.49	540	0	570	1110	2	0.49	585	0	885	1470	3	0.45
4001–5000	555	0	615	1170	2	0.48	605	0	935	1540	3	0.44	605	0	935	1540	3	0.44
5001–7000	655	0	1045	1700	3	0.41	655	0	1045	1700	3	0.41	680	0	1360	2040	4	0.40
7001–10 000	700	0	1120	1820	3	0.39	700	0	1120	1820	3	0.39	1250	1	1780	3030	6	0.35
10 001–20 000	740	0	1530	2270	4	0.37	1350	1	2020	3370	6	0.33	1400	1	2420	3820	7	0.32
20 001–50 000	1400	1	2170	3570	6	0.32	1450	1	3030	4480	8	0.31	2230	2	4650	6880	12	0.27
50 001–100 000	1460	1	3060	4520	8	0.31	2330	2	4910	7240	12	0.26	3690	4	7580	11270	19	0.24

[A]Trial 1: n_1 = first sample size; c_1 = acceptance number for first sample.
[B]Trial 2: n_2 = second sample size; c_2 = acceptance number for first and second samples combined.
[C]p_t = lost tolerance percent defective with a Consumer's Risk (P_c) of 0.10.

TABLE A4.2 Double Sampling Table for Average Outgoing Quality Limit (AOQL) = 0.5 %

Lot Size	Process Average 0 to 0.010 %						Process Average 0.011 to 0.10 %						Process Average 0.11 to 0.20 %					
	Trial 1[A]		Trial 2[B]			p_t[C] %	Trial 1		Trial 2			p_t %	Trial 1		Trial 2			p_t %
	n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–30	all[D]	0	...	......		...	all	0	...	......		...	all	0	...	......		...
31–50	30	0	...	......		5.0	30	0	...	......		5.0	30	0	...	......		5.0
51–75	40	0	...	......		4.6	40	0	...	......		4.6	40	0	...	......		4.6
76–100	47	0	23	70	1	4.4	47	0	23	70	1	4.4	47	0	23	70	1	4.4
101–150	60	0	30	90	1	3.8	60	0	30	90	1	3.8	60	0	30	90	1	3.8
151–200	70	0	35	105	1	3.3	70	0	35	105	1	3.3	70	0	35	105	1	3.3
201–300	80	0	45	125	1	3.0	80	0	45	125	1	3.0	80	0	45	125	1	3.0
301–400	85	0	50	135	1	2.9	85	0	50	135	1	2.9	85	0	50	135	1	2.9
401–500	90	0	55	145	1	2.8	90	0	55	145	1	2.8	90	0	55	145	1	2.8
501–600	95	0	55	150	1	2.8	95	0	55	150	1	2.8	95	0	55	150	1	2.8
601–800	100	0	55	155	1	2.7	100	0	55	155	1	2.7	110	0	115	225	2	2.4
801–1000	100	0	60	160	1	2.7	100	0	60	160	1	2.7	115	0	125	240	2	2.3
1001–2000	105	0	60	165	1	2.6	125	0	135	260	2	2.2	125	0	135	260	2	2.2
2001–3000	110	0	60	170	1	2.6	130	0	145	275	2	2.1	145	0	235	380	3	1.9
3001–4000	110	0	65	175	1	2.5	130	0	155	285	2	2.1	145	0	240	385	3	1.9
4001–5000	135	0	150	285	2	2.1	135	0	150	285	2	2.1	150	0	240	390	3	1.9
5001–7000	135	0	155	290	2	2.1	135	0	155	290	2	2.1	155	0	245	400	3	1.8
7001–10 000	135	0	160	295	2	2.1	135	0	160	295	2	2.1	175	0	375	550	4	1.6
10 001–20 000	140	0	160	300	2	2.0	155	0	250	405	3	1.8	185	0	500	685	5	1.5
20 001–50 000	140	0	165	305	2	2.0	155	0	255	410	3	1.8	185	0	505	690	5	1.5
50 001–100 000	140	0	170	310	2	2.0	155	0	260	415	3	1.8	325	1	495	820	6	1.4

Lot Size	Process Average 0.21 to 0.30 %						Process Average 0.31 to 0.40 %						Process Average 0.41 to 0.50 %					
	Trial 1[A]		Trial 2[B]			p_t[C] %	Trial 1		Trial 2			p_t %	Trial 1		Trial 2			p_t %
	n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–30	all[D]	0	...	......		...	all	0	...	......		...	all	0	...	......		...
31–50	30	0	...	......		5.0	30	0	...	......		5.0	30	0	...	......		5.0
51–75	40	0	...	......		4.6	40	0	...	......		4.6	40	0	...	......		4.6
76–100	47	0	23	70	1	4.4	47	0	23	70	1	4.4	47	0	23	70	1	4.4
101–150	60	0	30	90	1	3.8	60	0	30	90	1	3.8	60	0	30	90	1	3.8
151–200	70	0	35	105	1	3.3	70	0	35	105	1	3.3	70	0	35	105	1	3.3
201–300	80	0	45	125	1	3.0	80	0	45	125	1	3.0	80	0	45	125	1	3.0
301–400	85	0	50	135	1	2.9	95	0	90	185	2	2.7	95	0	90	185	2	2.7
401–500	100	0	100	200	2	2.6	100	0	100	200	2	2.6	100	0	100	200	2	2.6
501–600	105	0	105	210	2	2.5	105	0	105	210	2	2.5	105	0	105	210	2	2.5
601–800	110	0	115	225	2	2.4	110	0	115	225	2	2.4	120	0	180	300	3	2.2
801–1000	115	0	125	240	2	2.3	125	0	185	310	3	2.2	125	0	185	310	3	2.2
1001–2000	135	0	220	355	3	2.0	135	0	220	355	3	2.0	145	0	295	440	4	1.9
2001–3000	145	0	235	380	3	1.9	150	0	320	470	4	1.8	275	1	475	750	7	1.6
3001–4000	155	0	325	480	4	1.8	280	1	415	695	6	1.6	295	1	600	895	8	1.5
4001–5000	165	0	345	510	4	1.7	300	1	525	825	7	1.5	430	2	700	1130	10	1.4
5001–7000	175	0	455	630	5	1.6	310	1	670	980	8	1.4	460	2	860	1320	11	1.3
7001–10 000	300	1	460	760	6	1.5	465	2	785	1250	10	1.3	620	3	1120	1740	14	1.2
10 001–20 000	320	1	680	1000	8	1.4	495	2	1175	1670	13	1.2	740	4	1420	2160	18	1.2
20 001–50 000	350	1	930	1280	10	1.3	680	3	1490	2170	16	1.1	925	5	2085	3010	24	1.1
50 001–100 000	505	2	1075	1580	12	1.2	680	3	1810	2490	19	1.1	1550	9	3410	4960	38	0.99

[A]Trial 1: n_1 = first sample size; c_1 = acceptance number for first sample.
[B]Trial 2: n_2 = second sample size; c_2 = acceptance number for first and second samples combined.
[C]p_t = lot tolerance percent defective with a Consumer's Risk (Pc) of 0.10.
[D]"all" indicates that each piece in the lot is to be inspected.

TABLE A4.3 Double Sampling Table for Average Outgoing Quality Limit (AOQL) = 1.0 %

Lot Size	Process Average 0 to 0.02 %						Process Average 0.03 to 0.20 %						Process Average 0.21 to 0.40 %					
	Trial 1[A]		Trial 2[B]			p_t[C] %	Trial 1		Trial 2			p_t %	Trial 1		Trial 2			p_t %
	n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–25	all[D]	0	...	......		...	all	0	...	.....		...	all	0	...	......		...
26–50	22	0	...	......		7.7	22	0	...	.....		7.7	22	0	...	......		7.7
51–100	33	0	17	50	1	6.9	33	0	17	50	1	6.9	33	0	17	50	1	6.9
101–200	43	0	22	65	1	5.8	43	0	22	65	1	5.8	43	0	22	65	1	5.8
201–300	47	0	28	75	1	5.5	47	0	28	75	1	5.5	47	0	28	75	1	5.5
301–400	49	0	31	80	1	5.4	49	0	31	80	1	5.4	55	0	60	115	2	4.8
401–500	50	0	30	80	1	5.4	50	0	30	80	1	5.4	55	0	65	120	2	4.7
501–600	50	0	30	80	1	5.4	50	0	30	80	1	5.4	60	0	65	125	2	4.6
601–800	50	0	35	85	1	5.3	60	0	70	130	2	4.5	60	0	70	130	2	4.5
801–1000	55	0	30	85	1	5.2	60	0	75	135	2	4.4	60	0	75	135	2	4.4
1001–2000	55	0	35	90	1	5.1	65	0	75	140	2	4.3	75	0	120	195	3	3.8
2001–3000	65	0	80	145	2	4.2	65	0	80	145	2	4.2	75	0	125	200	3	3.7
3001–4000	70	0	80	150	2	4.1	70	0	80	150	2	4.1	80	0	175	255	4	3.5
4001–5000	70	0	80	150	2	4.1	70	0	80	150	2	4.1	80	0	180	260	4	3.4
5001–7000	70	0	80	150	2	4.1	75	0	125	200	3	3.7	80	0	180	260	4	3.4
7001–10 000	70	0	80	150	2	4.1	80	0	125	205	3	3.6	85	0	180	265	4	3.3
10 001–20 000	70	0	80	150	2	4.1	80	0	130	210	3	3.6	90	0	230	320	5	3.2
20 001–50 000	75	0	80	155	2	4.0	80	0	135	215	3	3.6	95	0	300	395	6	2.9
50 001–100 000	75	0	80	155	2	4.0	85	0	180	265	4	3.3	170	1	380	550	8	2.6

Lot Size	Process Average 0.41 to 0.60 %						Process Average 0.61 to 0.80 %						Process Average 0.81 to 1.00 %					
	Trial 1[A]		Trial 2[B]			p_t[C] %	Trial 1		Trial 2			p_t %	Trial 1		Trial 2			p_t %
	n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–25	all[D]	0	...	......		...	all	0	...	.....		...	all	0	...	......		...
26–50	22	0	...	......		7.7	22	0	...	.....		7.7	22	0	...	......		7.7
51–100	33	0	17	50	1	6.9	33	0	17	50	1	6.9	33	0	17	50	1	6.9
101–200	43	0	22	65	1	5.8	43	0	22	65	1	5.8	47	0	43	90	2	5.4
201–300	55	0	50	105	2	4.9	55	0	50	105	2	4.9	55	0	50	105	2	4.9
301–400	55	0	60	115	2	4.8	55	0	60	115	2	4.8	60	0	80	140	3	4.5
401–500	55	0	65	120	2	4.7	60	0	95	155	3	4.3	60	0	95	155	3	4.3
501–600	60	0	65	125	2	4.6	65	0	100	165	3	4.2	65	0	100	165	3	4.2
601–800	65	0	105	170	3	4.1	65	0	105	170	3	4.1	70	0	140	210	4	3.9
801–1000	65	0	110	175	3	4.0	70	0	150	220	4	3.8	125	1	180	305	6	3.5
1001–2000	80	0	165	245	4	3.7	135	1	200	335	6	3.3	140	1	245	385	7	3.2
2001–3000	80	0	170	250	4	3.6	150	1	265	415	7	3.0	215	2	355	570	10	2.8
3001–4000	85	0	220	305	5	3.3	160	1	330	490	8	2.8	225	2	455	680	12	2.7
4001–5000	145	1	225	370	6	3.1	225	2	375	600	10	2.7	240	2	595	835	14	2.5
5001–7000	155	1	285	440	7	2.9	235	2	440	675	11	2.6	310	3	665	975	16	2.4
7001–10 000	165	1	355	520	8	2.7	250	2	585	835	13	2.4	385	4	785	1170	19	2.3
10 001–20 000	175	1	415	590	9	2.6	325	3	655	980	15	2.3	520	6	980	1500	24	2.2
20 001–50 000	250	2	490	740	11	2.4	340	3	910	1250	19	2.2	610	7	1410	2020	32	2.1
50 001–100 000	275	2	700	975	14	2.2	420	4	1050	1470	22	2.1	770	9	1850	2620	41	2.0

[A] Trial 1: n_1 = first sample size; c_1 = acceptance number for first sample.
[B] Trial 2: n_2 = second sample size; c_2 = acceptance number for first and second samples combined.
[C] p_t = lot tolerance percent defective with a Consumer's Risk (Pc) of 0.10.
[D] "all" indicates that each piece in the lot is to be inspected.

TABLE A4.4 Double Sampling Table for Average Outgoing Quality Limit (AOQL) = 2.0 %

Lot Size	Process Average 0 to 0.04 %						Process Average 0.05 to 0.40 %						Process Average 0.41 to 0.80 %					
	Trial 1[A]		Trial 2[B]			p_t[C] %	Trial 1		Trial 2			p_t %	Trial 1		Trial 2			p_t %
	n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–15	all[D]	0	...	......		...	all	0	...	......		...	all	0	...	......		...
16–50	14	0	...	......		13.6	14	0	...	......		13.6	14	0	...	......		13.6
51–100	21	0	12	33	1	11.7	21	0	12	33	1	11.7	21	0	12	33	1	11.7
101–200	24	0	13	37	1	11.0	24	0	13	37	1	11.0	24	0	13	37	1	11.0
201–300	26	0	15	41	1	10.4	26	0	15	41	1	10.4	29	0	31	60	2	9.1
301–400	26	0	16	42	1	10.3	26	0	16	42	1	10.3	30	0	35	65	2	9.0
401–500	27	0	16	43	1	10.3	30	0	35	65	2	9.0	30	0	35	65	2	9.0
501–600	27	0	16	43	1	10.3	31	0	34	65	2	8.9	35	0	55	90	3	7.9
601–800	27	0	17	44	1	10.2	31	0	39	70	2	8.8	35	0	60	95	3	7.7
801–1000	27	0	17	44	1	10.2	32	0	38	70	2	8.7	36	0	59	95	3	7.6
1001–2000	33	0	37	70	2	8.5	33	0	37	70	2	8.5	37	0	63	100	3	7.5
2001–3000	34	0	41	75	2	8.2	34	0	41	75	2	8.2	41	0	84	125	4	7.0
3001–4000	34	0	41	75	2	8.2	38	0	62	100	3	7.3	41	0	89	130	4	6.9
4001–5000	34	0	41	75	2	8.2	38	0	62	100	3	7.3	42	0	88	130	4	6.9
5001–7000	35	0	40	75	2	8.1	38	0	62	100	3	7.3	44	0	116	160	5	6.4
7001–10 000	35	0	40	75	2	8.1	38	0	62	100	3	7.3	45	0	115	160	5	6.3
10 001–20 000	35	0	40	75	2	8.1	39	0	66	105	3	7.2	45	0	115	160	5	6.3
20 001–50 000	35	0	40	75	2	8.1	43	0	92	135	4	6.6	47	0	148	195	6	6.0
50 001–10 000	35	0	45	80	2	8.0	43	0	92	135	4	6.6	85	1	185	270	8	5.2

Lot Size	Process Average 0.81 to 1.20 %						Process Average 1.21 to 1.60 %						Process Average 1.61 to 2.00 %					
	Trial 1[A]		Trial 2[B]			p_t[C] %	Trial 1		Trial 2			p_t %	Trial 1		Trial 2			p_t %
	n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–15	all[D]	0	...	......		...	all	0	...	......		...	all	0	...	......		...
16–50	14	0	...	......		13.6	14	0	...	......		13.6	14	0	...	......		13.6
51–100	21	0	12	33	1	11.7	21	0	12	33	1	11.7	23	0	23	46	2	10.9
101–200	27	0	28	55	2	9.6	27	0	28	55	2	9.6	27	0	28	55	2	9.6
201–300	29	0	31	60	2	9.1	32	0	48	80	3	8.4	32	0	48	80	3	8.4
301–400	33	0	52	85	3	8.2	33	0	52	85	3	8.2	36	0	69	105	4	7.6
401–500	34	0	56	90	3	7.9	36	0	74	110	4	7.5	60	1	90	150	6	7.0
501–600	35	0	55	90	3	7.9	37	0	78	115	4	7.4	65	1	95	160	6	6.8
601–800	38	0	82	120	4	7.3	38	0	82	120	4	7.3	70	1	120	190	7	6.4
801–1000	38	0	87	125	4	7.2	70	1	100	170	6	6.5	70	1	145	215	8	6.2
1001–2000	43	0	112	155	5	6.5	80	1	160	240	8	5.8	110	2	205	315	11	5.5
2001–3000	75	1	115	190	6	6.1	115	2	195	310	10	5.3	160	3	310	470	15	4.7
3001–4000	80	1	140	220	7	5.8	120	2	255	375	12	5.0	235	5	415	650	20	4.3
4001–5000	80	1	175	255	8	5.5	125	2	285	410	13	4.9	275	6	475	750	23	4.2
5001–7000	85	1	205	290	9	5.3	125	2	320	445	14	4.8	280	6	575	855	26	4.1
7001–10 000	85	1	210	295	9	5.2	165	3	335	500	15	4.5	320	7	645	965	29	4.0
10 001–20 000	90	1	260	350	11	5.1	170	3	425	595	18	4.4	395	9	835	1230	37	3.9
20 001–50 000	130	2	300	430	13	4.7	205	4	515	720	22	4.3	480	11	1090	1570	46	3.7
50 001–100 000	135	2	345	480	14	4.5	250	5	615	865	26	4.1	580	13	1460	2040	58	3.5

[A]Trial 1: n_1 = first sample size; c_1 = acceptance number for first sample.
[B]Trial 2: n_2 = second sample size; c_2 = acceptance number for first and second samples combined.
[C]p_t = lot tolerance percent defective with a Consumer's Risk (Pc) of 0.10.
[D]"all" indicates that each piece in the lot is to be inspected.

TABLE A4.5 Double Sampling Table for Average Outgoing Quality Limit (AOQL) = 5.0 %

Lot Size	Process Average 0 to 0.10 % Trial 1[A] n_1	c_1	Trial 2[B] n_2	n_1+n_2	c_2	p_t[C] %	Process Average 0.11 to 1.00 % Trial 1 n_1	c_1	Trial 2 n_2	n_1+n_2	c_2	p_t %	Process Average 1.01 to 2.00 % Trial 1 n_1	c_1	Trial 2 n_2	n_1+n_2	c_2	p_t %
1–5	all[D]	0	...	......		...	all	0	...	......		...	all	0	...	......		...
6–50	6	0	...	......		30.5	6	0	...	......		30.5	6	0	...	......		30.5
51–100	10	0	6	16	1	26.5	10	0	6	16	1	26.5	11	0	11	22	2	25.0
101–200	11	0	6	17	1	26.0	12	0	15	27	2	22.0	12	0	15	27	2	22.0
201–300	11	0	7	18	1	25.0	13	0	15	28	2	21.0	14	0	24	38	3	19.3
301–400	11	0	8	19	1	25.0	13	0	15	28	2	21.0	15	0	24	39	3	19.0
401–500	13	0	15	28	2	21.0	13	0	15	28	2	21.0	15	0	24	39	3	19.0
501–600	13	0	15	28	2	21.0	13	0	15	28	2	21.0	15	0	25	40	3	18.7
601–800	13	0	16	29	2	20.5	13	0	16	29	2	20.5	16	0	34	50	4	17.1
801–1000	13	0	16	29	2	20.5	13	0	16	29	2	20.5	16	0	34	50	4	17.1
1001–2000	13	0	16	29	2	20.5	15	0	25	40	3	18.7	17	0	33	50	4	17.1
2001–3000	13	0	16	29	2	21.0	15	0	26	41	3	18.4	17	0	48	65	5	15.5
3001–4000	14	0	15	29	2	21.0	15	0	26	41	3	18.4	18	0	47	65	5	15.5
4001–5000	14	0	16	30	2	20.5	16	0	25	41	3	18.0	18	0	47	65	5	15.5
5001–7000	14	0	16	30	2	20.5	16	0	26	42	3	18.0	18	0	47	65	5	15.5
7001–10 000	14	0	16	30	2	20.5	16	0	26	42	3	18.0	19	0	56	75	6	15.0
10 001–20 000	14	0	17	31	2	20.5	17	0	38	55	4	16.4	19	0	56	75	6	15.0
20 001–50 000	14	0	17	31	2	20.5	17	0	38	55	4	16.4	33	1	72	105	8	13.5
50 001–10 000	14	0	18	32	2	20.5	18	0	47	65	5	15.6	34	1	86	120	9	13.1

Lot Size	Process Average 2.01 to 3.00 % Trial 1[A] n_1	c_1	Trial 2[B] n_2	n_1+n_2	c_2	p_t[C] %	Process Average 3.01 to 4.00 % Trial 1 n_1	c_1	Trial 2 n_2	n_1+n_2	c_2	p_t %	Process Average 4.01 to 5.00 % Trial 1 n_1	c_1	Trial 2 n_2	n_1+n_2	c_2	p_t %
1–5	all[D]	0	...	......		...	all	0	...	......		...	all	0	...	......		...
6–50	6	0	...	......		30.5	6	0	...	......		30.5	6	0	...	......		30.5
51–100	11	0	11	22	2	25.0	11	0	11	22	2	25.0	12	0	18	30	3	23.0
101–200	14	0	22	36	3	19.8	14	0	22	36	3	19.8	14	0	30	44	4	19.0
201–300	14	0	24	38	3	19.3	15	0	32	47	4	18.0	27	1	48	75	7	16.3
301–400	16	0	33	49	4	17.5	27	1	38	65	6	16.6	29	1	56	85	8	15.5
401–500	16	0	34	50	4	17.1	29	1	51	80	7	15.5	30	1	70	100	9	14.9
501–600	16	0	34	50	4	17.1	31	1	64	95	8	14.3	43	2	72	115	10	13.9
601–800	17	0	43	60	5	16.2	32	1	78	110	9	13.9	45	2	90	135	12	13.5
801–1000	30	1	45	75	6	15.0	45	2	75	120	10	13.3	60	3	110	170	14	12.4
1001–2000	31	1	59	90	7	14.5	50	2	100	150	12	12.7	75	4	160	235	19	11.5
2001–3000	32	1	68	100	8	14.0	50	2	130	180	14	12.0	95	5	185	280	22	11.0
3001–4000	34	1	81	115	9	13.5	65	3	135	200	15	11.3	95	5	255	350	27	10.5
4001–5000	35	1	95	130	10	13.0	70	3	155	225	17	11.0	130	7	260	390	29	10.0
5001–7000	50	2	90	140	11	12.5	70	3	185	255	19	10.7	160	9	355	515	38	9.5
7001–10 000	50	2	105	155	12	12.1	85	4	200	285	21	10.4	180	10	430	610	44	9.2
10 001–20 000	50	2	125	175	13	11.7	100	5	220	320	23	10.0	215	12	490	705	50	8.9
20 001–50 000	50	2	135	185	14	11.3	120	6	290	410	29	9.5	230	13	605	835	59	8.7
50 001–100 000	55	2	160	215	16	11.0	140	7	315	455	32	9.3	265	15	705	970	68	8.5

[A]Trial 1: n_1 = first sample size; c_1 = acceptance number for first sample.
[B]Trial 2: n_2 = second sample size; c_2 = acceptance number for first and second samples combined.
[C]p_t = lot tolerance percent defective with a Consumer's Risk (Pc) of 0.10.
[D]"all" indicates that each piece in the lot is to be inspected.

21

TABLE A4.6 Double Sampling Table for Average Outgoing Quality Limit (AOQL) = 10.0 %

Lot Size	Process Average 0 to 0.20 %						Process Average 0.21 to 2.00 %						Process Average 2.01 to 4.00 %					
	Trial 1[A]		Trial 2[B]			p_t[C] %	Trial 1		Trial 2			p_t %	Trial 1		Trial 2			p_t %
	n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–3	all[D]	0	...	... ...	...	...	all	0	...	... ...	...	...	all	0	...	... ...	...	...
4–15	3	0	...	... ...		50.0	3	0	...	... ...		50.0	3	0	...	... ...		50.0
16–50	5	0	3	8	1	53.5	5	0	3	8	1	53.5	5	0	3	8	1	53.5
51–100	5	0	3	8	1	55.0	6	0	8	14	2	43.0	6	0	8	14	2	43.0
101–200	5	0	4	9	1	52.0	7	0	7	14	2	42.0	7	0	12	19	3	38.0
201–300	7	0	7	14	2	42.5	7	0	7	14	2	42.5	7	0	13	20	3	37.0
301–400	7	0	7	14	2	42.5	7	0	7	14	2	42.5	8	0	17	25	4	35.0
401–500	7	0	8	15	2	40.0	7	0	8	15	2	40.0	8	0	18	26	4	34.0
501–600	7	0	8	15	2	40.0	8	0	13	21	3	35.0	8	0	18	26	4	34.0
601–800	7	0	8	15	2	40.5	8	0	13	21	3	35.0	8	0	18	26	4	34.5
801–1000	7	0	8	15	2	40.5	8	0	13	21	3	35.0	9	0	18	27	4	33.0
1001–2000	7	0	8	15	2	40.5	8	0	14	22	3	34.0	9	0	23	32	5	31.0
2001–3000	7	0	8	15	2	41.0	8	0	14	22	3	34.0	9	0	24	33	5	30.0
3001–4000	7	0	8	15	2	41.0	8	0	14	22	3	34.5	9	0	24	33	5	30.5
4001–5000	7	0	8	15	2	41.0	8	0	14	22	3	35.0	10	0	29	39	6	29.5
5001–7000	7	0	8	15	2	41.0	9	0	18	27	4	32.5	16	1	29	45	7	28.5
7001–10 000	7	0	8	15	2	41.0	9	0	18	27	4	32.5	17	1	38	55	8	26.0
10 001–20 000	7	0	8	15	2	41.0	9	0	18	27	4	32.5	17	1	38	55	8	26.0
20 001–50 000	7	0	8	15	2	41.0	9	0	18	27	4	32.5	18	1	42	60	9	25.5
50 001–100 000	8	0	14	22	3	33.5	9	0	25	34	5	30.0	18	1	52	70	10	24.5

Lot Size	Process Average 4.01 to 6.00 %						Process Average 6.01 to 8.00 %						Process Average 8.01 to 10.00 %					
	Trial 1[A]		Trial 2[B]			p_t[C] %	Trial 1		Trial 2			p_t %	Trial 1		Trial 2			p_t %
	n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2		n_1	c_1	n_2	n_1+n_2	c_2	
1–3	all[D]	0	...	... ...	...	...	all	0	...	... ...	...	...	all	0	...	... ...	...	...
4–15	3	0	...	... ...		50.0	3	0	...	... ...		50.0	3	0	...	... ...		50.0
16–50	6	0	6	12	2	48.0	6	0	6	12	2	48.0	6	0	6	12	2	48.0
51–100	7	0	11	18	3	38.5	7	0	11	18	3	38.5	7	0	16	23	4	36.5
101–200	8	0	16	24	4	35.5	13	1	20	33	6	33.5	14	1	24	38	7	32.0
201–300	8	0	17	25	4	35.0	14	1	26	40	7	31.5	19	2	29	48	9	31.0
301–400	8	0	22	30	5	34.0	15	1	30	45	8	31.0	21	2	44	65	12	29.0
401–500	15	1	23	38	6	30.5	16	1	39	55	9	28.5	22	2	53	75	13	27.0
501–600	16	1	28	44	7	28.5	22	2	38	60	10	27.5	28	3	52	80	14	26.5
601–800	16	1	28	44	7	29.0	22	2	43	65	11	27.0	29	3	56	85	15	26.0
801–1000	16	1	34	50	8	28.0	24	2	56	80	13	25.5	36	4	69	105	18	24.5
1001–2000	17	1	38	55	9	27.5	24	2	61	85	14	25.0	45	5	95	140	23	23.0
2001–3000	17	1	48	65	10	26.0	33	3	72	105	16	23.0	50	6	115	165	27	22.0
3001–4000	24	2	46	70	11	25.0	41	4	99	140	21	21.5	70	8	150	220	34	20.5
4001–5000	26	2	54	80	12	23.5	44	4	111	155	22	20.0	80	9	195	275	41	19.0
5001–7000	27	2	63	90	13	22.5	50	5	120	170	24	19.5	90	10	240	330	47	18.0
7001–10 000	27	2	68	95	14	22.0	60	6	145	205	28	18.5	110	12	265	375	53	17.5
10 001–20 000	28	2	77	105	15	22.0	70	7	165	235	32	18.0	125	14	320	445	62	17.0
20 001–50 000	28	2	87	115	17	21.5	80	8	205	285	39	17.5	140	16	355	495	69	16.8
50 001–100 000	36	3	99	135	20	21.0	85	8	245	330	44	17.0	150	17	390	540	77	16.6

[A]Trial 1: n_1 = first sample size; c_1 = acceptance number for first sample.
[B]Trial 2: n_2 = second sample size; c_2 = acceptance number for first and second samples combined.
[C]p_t = lot tolerance percent defective with a Consumer's Risk (Pc) of 0.10.
[D]"all" indicates that each piece in the lot is to be inspected.