TECHNICAL REPORT

ISO/TR 8550-2

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Guidance on the selection and usage of acceptance sampling systems for inspection of discrete items in lots —

Part 2: Sampling by attributes

Lignes directrices pour la sélection d'un système, d'un programme ou d'un plan d'échantillonnage pour acceptation pour le contrôle d'unités discrètes en lots —

Partie 2: Échantillonnage par attributs

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TR 8550-2 was prepared by Technical Committee ISO/TC 69, *Applications of statistical methods*, Subcommittee SC 5, *Acceptance sampling*.

This first edition of ISO/TR 8550-2, together with ISO/TR 8550-1 and ISO/TR 8550-3, cancels and replaces ISO/TR 8550:1994.

ISO/TR 8550 consists of the following parts, under the general title *Guidance on the selection and usage of acceptance sampling systems for inspection of discrete items in lots*:

— *Part 1: Acceptance sampling*

— *Part 2: Sampling by attributes*

— *Part 3: Sampling by variables*

Introduction

This part of ISO/TR 8550 gives guidance on the selection of a generic acceptance sampling system, scheme or plan for inspection by attributes from those developed by ISO/TC 69. It does this principally by reviewing the available systems specified by various standards and by showing ways in which these can be compared to assess their suitability for an intended application. It is assumed that the choice has already been made to use sampling by attributes in preference to sampling by variables.

A corresponding guidance document on the selection of a generic acceptance sampling system, scheme or plan for inspection by variables is given in ISO/TR 8550-3.

Guidance on the selection and usage of acceptance sampling systems for inspection of discrete items in lots —

Part 2:
Sampling by attributes

1 Scope

The guidance given in this part of ISO/TR 8550 is confined to acceptance sampling of products that are supplied in lots and that can be classified as consisting of discrete items (i.e. discrete articles of product). Each item in a lot can be identified and segregated from the other items in the lot and has an equal chance of being included in the sample. Each item of product is countable and has specific characteristics that are measurable or classifiable as being conforming or nonconforming (to a given specification).

Standards on acceptance sampling by attributes are applicable to a wide variety of inspection situations. These include, but are not limited to, the following:

a) end items, such as complete products or sub-assemblies;

b) components and raw materials;

c) services;

d) materials in process;

e) supplies in storage;

f) maintenance operations;

g) data or records;

h) administrative procedures.

Although this part of ISO/TR 8550 is written principally in terms of manufacture and production, it is applicable to the selection of sampling systems, schemes and plans for all types of product and processes as defined in ISO 9000.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition listed applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

ISO/TR 8550-1:2007, *Guidance on the selection and usage of acceptance sampling systems for inspection of discrete items in lots — Part 1: Acceptance sampling*

3 Selection process

The task of selecting a suitable sampling system, scheme or plan is influenced by production and marketing conditions. In addition, the economics of the sampling system, the resources of the inspection organization and other aspects need to be considered. Therefore, the selection process becomes complex and rarely is there one method of acceptance sampling that fits all situations even though they might appear to be similar.

Tables 1, 2 and 3, together with Figures 1 and 2, illustrate the process of selecting a sampling system, scheme or plan. The tables provide “candidate” sampling systems, schemes and plans to fit given inspection situations, production conditions and market conditions, respectively. The method suggested is to review Tables 1, 2 and 3 and to select as many “candidate plans” as fit the situation. These candidates should then be reviewed through Figure 1 or 2 so that the user finally arrives at a system, scheme or plan that is most feasible and economical for the situation.

The initial selection decisions are for long and short production runs, isolated lots, and attribute or variables sampling; these decisions will point to one or more possible sampling schemes specified in standards.

Figures 1 and 2 are not flow charts. They show, in summary form, the procedures contained within each standard for arriving at a sampling system, scheme or plan. The summaries are listed side by side, which allows direct comparison between them. The solid connecting lines indicate the primary course to be followed in choosing and operating a standard; the broken lines indicate alternatives. These alternatives are applicable only under certain conditions. Text references and notes to the figures are given for guidance in following these procedures. The standards and procedures given below the horizontal line in each of the two figures are for use when economy of average sample size is an important consideration.

The procedure presented in Figure 1 is applicable when production is continuous and there are more than 10 lots of product undergoing inspection. International Standards from the ISO 2859 series are included here as “candidate’ systems”.

Figure 2 is applicable when other conditions prevail, e.g. when there is no continuity of production, when the number of lots is 10 or fewer, when the product warranty does not survive acceptance and/or when the presence of a small number of nonconforming items can result in a large loss.

A final selection should be based on both the requirements of the situation and the resources of the inspection organization.

When selecting a sampling system, scheme or plan, it may become apparent that it has one or more deficiencies. The cases in which only one method is appropriate are few. Iterative investigations usually identify two or more methods. The most economical and appropriate method should be chosen.

4 International Standards for acceptance sampling of lots by attributes

4.1 General

This clause summarizes the salient features of each of the current standards concerned with acceptance sampling methods by attributes. The summaries of the scope and application of the available standards should enable a user to select those standards which are most likely to suit a given purpose.

The comparisons between the various standard acceptance sampling systems in these summaries are not enough to allow a final selection of a sampling system, scheme or plan to be made in a particular situation. Before this can be done, a number of factors need to be understood and considered. These factors are reviewed in Clause 5.

4.2 ISO 2859−1: *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

This presents a sampling system indexed by lot-size ranges, inspection levels and AQLs, and specifies sampling plans and procedures for inspection by attributes of discrete items. It contains sampling plans for single, double and multiple sampling indexed by percent nonconforming and nonconformities per 100 items.

The sampling system specified in ISO 2859-1 is intended to employ tightened, normal and reduced inspection on a continuing series of lots to achieve customer protection while assuring the producer that, if quality is better than the AQL, acceptance will occur most of the time.

The objective is to maintain a process average quality at least as good as the AQL that has been agreed between the producer and the consumer, while at the same time providing an upper limit for the risk to the consumer of accepting the occasional lot of poor quality.

The sampling plans in ISO 2859-1 may also be used for the inspection of lots in isolation, but in this case the user is strongly advised to consult the operating characteristic curves (in Table 12 of ISO 2859-1:1999) to find a plan which will yield the desired protection. A much simpler procedure to follow in this type of situation is presented in ISO 2859-2.

4.3 ISO 2859-2: *Sampling procedures for inspection by attributes — Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection*

This establishes sampling plans indexed by limiting quality (LQ) and procedures for inspection that can be used when the switching rules of ISO 2859-1 cannot be applied. The LQ is used to indicate the customer protection. Procedure A is used for single lots and procedure B for lots isolated from a continuing series. Both procedures treat the LQ as an indicator of the actual percentage nonconforming in the lots submitted, though they can also be used in cases where quality is expressed in non-conformities per 100 items.

Procedure A is used when both the supplier and the customer wish to regard the lot in isolation, but it is also used as the default procedure where there is no specific instruction to use procedure B.

Procedure B is used when the supplier regards the lot as one of a continuing series, but the customer considers the lot received in isolation. The sampling plans employed permit a producer to maintain consistent procedures for customers, irrespective of whether the customers receive individual lots or a continuing series of lots. The manufacturer is concerned with all of the production but the individual customer only with the particular lot received.

For procedure A, sampling plans are identified by their lot size and LQ; for procedure B, they are identified by lot size, LQ and inspection level.

Procedure A includes sampling plans with an acceptance number of zero, but these are excluded from procedure B. Double and multiple sampling plans can be used as alternatives to single sampling plans in procedure B and for the non-zero acceptance number plans in procedure A.

4.4 ISO 2859-3: *Sampling procedures for inspection by attributes — Part 3: Skip-lot sampling procedures*

This specifies a sampling system that extends the procedures specified in ISO 2859-1. It provides generic attribute skip-lot sampling procedures, for reducing the inspection effort on products submitted by suppliers who have demonstrated their ability to control, in an effective manner, all facets of product quality and to produce superior quality material consistently. However, the standard proscribes these procedures for the inspection of product characteristics that involve the safety of personnel.

The skip-lot programme uses the acceptance sampling plans specified in ISO 2859-1 and is intended only for a continuing series of lots; it is not appropriate for isolated lots. All lots in a series are expected to be of a similar quality and there should be no reason to believe that lots that have not been inspected are of a poorer quality than those that have.

In a skip-lot sampling procedure, some lots in a series are accepted without inspection when the sampling results for a stated number of immediately preceding lots meet criteria that are provided in the standard. The lots to be inspected are chosen randomly with a stated frequency, called the “skip-lot frequency”.

4.5 ISO 2859-4: *Sampling procedures for inspection by attributes — Part 4: Procedures for assessment of declared quality levels*

This provides sampling plans and procedures for assessing whether the quality level of a lot or process conforms to a declared value. The sampling plans have been devised to have a risk of less than 5 % of contradicting a correct declared quality level (DQL). Conversely, the risk is 10 % of failing to contradict an incorrect DQL, which is related to the limiting quality ratio. ISO 2859-4 provides sampling plans corresponding to three levels of discriminatory ability.

In contrast to other parts of ISO 2859, the procedures in ISO 2859-4 are not intended for the acceptance assessment of lots. In general, the balancing of the risks of reaching incorrect conclusions for assessment procedures differs from the balancing in the procedures for acceptance sampling.

ISO 2859-4 may be used for various forms of quality inspection in situations where objective evidence of conformity to some DQL is to be provided by means of inspection of a sample. The procedures are applicable to entities such as lots, process output, etc., that allow random samples of individual items to be selected.

ISO 2859-4 is primarily intended to be used when the quantity of interest is the number or fraction of nonconforming items, but may also be used as an approximation when the quantity of interest is the number of nonconformities or the number of nonconformities per item.

4.6 ISO 2859-5: *Sampling procedures for inspection by attributes — Part 5: System of sequential sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 2859-5 presents a sampling system of sequential sampling plans for lot-by-lot inspection that supplements and matches the ISO 2859-1 system of single, double and multiple sampling plans by attributes. Accordingly, the plans are indexed by lot size ranges, inspection levels and AQL and the system includes switching rules. (For the relationship between AQL, LQ, CRP and PRP, see Figures 1 and 2 of ISO/TR 8550-1:2007.)

In sequential sampling, items are selected randomly and inspected one after another, and a cumulative count is kept of the number of nonconforming items or number of nonconformities. The decision to classify the lot as acceptable or not acceptable can occur at almost any stage and, for sequential sampling by attributes, depends on the number of items inspected and the cumulative number of nonconforming items or nonconformities found up to that point.

ISO 2859-5 provides procedures, based on a sequential assessment of inspection results, that encourage a supplier to supply lots of a good quality with a high probability of acceptance while maintaining an upper limit for the risk of consumers accepting lots of poor quality.

4.7 ISO 2859-10: *Sampling procedures for inspection by attributes — Part 10: Introduction to the ISO 2859 series of standards for sampling for inspection by attributes*

This is a companion document to this part of ISO/TR 8550 and can be read in conjunction with it, if desired, but this is not essential. It is not a source of sampling schemes or plans.

Clause 4 of ISO 2859-10:2006 is essentially an introduction to the sampling schemes employed in ISO 2859-1, ISO 2859-2 and ISO 2859-3, but it treats the subject in a general way. It contains explanations of terms, gives practical advice on sampling inspection and discusses some underlying concepts. Clause 5 of ISO 2859-10:2006 provides general and specific details of part 1 to part 5 in the ISO 2859 series, together with an example of the use of each part.

4.8 ISO 8422: *Sequential sampling plans for inspection by attributes*

ISO 8422 presents a sampling system that provides a wide range of sequential sampling plans indexed in terms of the consumer's risk point (CRP) and the producer's risk point (PRP).

In sequential sampling, items are selected randomly and inspected one after another, and a cumulative count is kept of the number of nonconforming items or number of nonconformities. The decision to classify the lot as acceptable or not acceptable can occur at almost any stage and, for sequential sampling by attributes, depends on the number of items inspected and the cumulative number of nonconforming items or nonconformities found up to that point.

ISO 8422 provides procedures, based on a sequential assessment of inspection results, that encourage a supplier to supply lots of a good quality with a high probability of acceptance while maintaining an upper limit for the risk of consumers accepting lots of poor quality.

These sampling procedures are intended primarily for use in inspection of a continuing series of lots from the same production run. Subject to the lot size being large and the anticipated fraction nonconforming being significantly less than 10 %, they may also be used for the inspection of lots in isolation.

In terms of the average number of items inspected per lot, ISO 8422 offers sampling plans that are more economical than those specified in ISO 2859-1, albeit at the expense of an increase in administrative complication.

4.9 ISO 18414: *Acceptance sampling procedures by attributes — Accept-zero sampling system based on credit principle for controlling outgoing quality*

As the zero defects concept gained in popularity, so did the inference that sampling plans by attributes should all have acceptance number zero, i.e. with only the sample size changing. That this inference is not entirely supportable is demonstrated in Example 1 of ISO/TR 8550-1:2007. However, that example also showed that, at a certain level of quality, sampling plans with acceptance number zero might well be the most appropriate. If the customer insists on the use of accept-zero plans, a coherent method of changing the sample size in response to quality history is required. Such a method is embodied in ISO 18414, which employs accept-zero attributes sampling plans in a remarkably simple procedure to provide an average outgoing quality limit (AOQL) for goods reaching the marketplace, i.e. an upper limit to the long-term average outgoing quality (AOQ). Moreover, it achieves this without the disadvantage of previous AOQL-indexed systems, which required 100 % inspection of all non-accepted lots and which could therefore place intolerable strains on the inspection system.

ISO 18414 takes account of quality history in a very simple way, using the concept of credit, which is defined as the total number of items accepted since the last lot was non-accepted. Suppose that the credit is denoted by K, and that the AOQL, specified as a fraction nonconforming, is denoted by a. Before inspection of the first lot begins, K is set to zero. For any subsequent lot of size N, the required sample size is the smallest value of n that is in accordance with the inequality:

$$n \geq \frac{N}{(N+K)a+1} \tag{1}$$

A sample of size n is selected at random from the lot and inspected. If no nonconforming items are found in the sample, the lot is accepted and K is increased by N. If one or more nonconforming items are found in the sample when K is zero, then K remains at zero, the lot is 100 % inspected and all conforming items found in the lot are allowed to enter the marketplace. However, if one or more nonconforming items are found in the sample when K exceeds zero, then K is reset to zero and the lot can be scrapped, returned to the supplier or 100 % inspected.

100 % inspection of large lots can therefore be avoided, without compromising the AOQL, by submitting only small sub-lots until a sub-lot is accepted and K becomes greater than zero. For this purpose, sub-lots consisting of a single item can legitimately be submitted for inspection.

As the AOQL is maintained by placing conforming items found in 100 % inspected lots in the marketplace, it follows that ISO 18414 is not applicable when inspection is destructive.

4.10 ISO 21247: *Combined accept-zero sampling systems and process control procedures for product acceptance*

ISO 21247 provides a set of accept-zero sampling systems and procedures for planning and conducting inspections to assess quality and conformance to specified requirements. Systems are provided for single sampling by attributes, single sampling by variables and continuous sampling by attributes. The systems are indexed by sample size code letters and by seven verification levels.

In addition, ISO 21247 provides requirements for alternative acceptance methods proposed by the supplier. Such alternative methods are based upon establishing and implementing an internal prevention-based quality management system as a means of ensuring that all products conform to requirements specified in the contract and associated specifications and standards.

The sampling systems and procedures of ISO 21247 are not intended for use with destructive tests or where product screening is impracticable.

5 Effect on the selection process of market and production conditions

Some of the ways in which the market and production conditions identified in ISO/TR 8550-1:2007, Clause **11** [1)], affect the choice of sampling systems, schemes or plans by attributes in differing inspection situations are summarized in Tables 1, 2 and 3. Tables 2 and 3 contain guidance notes, which are indexed by, and refer to, the market conditions (see ISO/TR 8550-1:2007, **11.2**) and the production conditions (see ISO/TR 8550-1:2007, **11.3**). It is to be noted that any coexistence of various conditions may affect the selection. The inspection situation also has to be considered (see Table 1).

1) In this clause and in the following tables, numbers in bold refer to subclause numbers in ISO/TR 8550-1:2007.

Table 1 — Guidance for selection of a candidate acceptance sampling system, scheme or plan for inspection by attributes, based on the inspection situation

Example of inspection situations	Conditions that affect the choice of a sampling plan (see ISO/TR 8550-1:2007, **11.2** and **11.3**)	Applicable type of attributes sampling plans	Specific acceptance sampling plans
Expensive or critical units	**11.2** c), **11.2** d)	100 % inspection AQL LQ Skip-lot Sequential	— [a] ISO 2859-1 ISO 2859-2 ISO 2859-3 ISO 2859-5, ISO 8422
Final inspection	**11.2** a), **11.2** f), **11.3** a), **11.3** j)	AQL Skip-lot	ISO 2859-1 ISO 2859-3
History of received quality unknown	**11.2** c), **11.2** f), **11.2** h), **11.3** g), **11.3** m)	LQ	ISO 2859-2
Limiting average outgoing quality	**11.2** f), **11.3** n), **11.3** o)	AOQL	ISO 18414 Dodge-Romig [16]
Small lots with good quality needed	**11.2** c), **11.3** a), **11.3** j), **11.3** o)	AQL (hypergeometric LQ)	ISO 2859-1 (see ISO 2859-2)
History of received quality has been good	**11.2** g), **11.2** h)	AQL Skip-lot AOQL	ISO 2859-1 ISO 2859-3 ISO 18414, ISO 21247
One-of-a-kind lots	**11.2** c), **11.2** d), **11.2** f), **11.3** i)	One-off plans	No standard available yet

NOTE See also Tables 2 and 3 and Figures 1 and 2 illustrating the selection process.

[a] No suitable standard is available.

Table 2 — Guidance for the selection of an acceptance sampling system, scheme or plan for sampling by attributes, using existing market conditions

Market conditions (see ISO/TR 8550-1:2007, **11.2**)	**Indicated practice** (see note)	**Guidance notes with ISO/TR 8550-1:2007 references**
Production is continuous and feedback from the recipient can influence the supplier's quality, or the warranty survives acceptance — **11.2** a), **11.2** b)	ISO 2859-1 ISO 2859-3 ISO 2859-4 ISO 2859-5 ISO 8422 ISO 18414	Virtually all attributes standards are recommended. The choice depends on other factors. Long runs are implied (see **8.1**).
The lot is isolated or it is one of a short sequence or the recipient cannot influence the supplier's quality or the warranty does not survive acceptance — **11.2** f), **11.2** g)	ISO 2859-2 ISO 8422	The quality of individual lots assumes greater importance, so Procedure B of ISO 2859-2 might be invoked in a continuous supply situation, or Procedure A for single lots. Otherwise, pay attention to appropriate discrimination — low numerical value of DR or inspection level (except "S" levels) (**9.2** and **8.6**). 100 % inspection is possible in suitable (e.g. automated) circumstances (**10.1**).
A small fraction nonconforming can cause great loss — **11.2** c)	ISO 2859-2 ISO 8422	This implies a numerically low value of CRQ (**8.5.2**) and strong discrimination (**8.3, 8.4, 8.5, 8.6, 9.1** and **9.2**).
A small fraction nonconforming cannot cause great loss; readily detected in processing —**11.2** b)	ISO 2859-1 ISO 2859-3 ISO 2859-4 ISO 2859-5 ISO 8422 Indirect inspection and grab sampling	Virtually all attributes standards are recommended. The choice depends on other factors. Long runs are normally implied (**8.1**) and very likely category "g" also (**8** and **11.2**), so moderate discrimination (or IL) (**8.3, 8.4, 8.5, 8.6, 9.1** and **9.2**).
Lot non-acceptance causes plant shut-down and economic loss — **11.2** d)	AOQL plans, e.g. ISO 18414	AOQL and rectifying inspection (**8.7**) could be helpful. Also, this situation will probably necessitate more administrative action, especially when sampling inspection yields a non-accept result.
There are many other sources for the item —**11.2** i)	See guidance note	Consider the other factors.
There is a history of received quality and the quality is consistently good – **11.2** e)	ISO 2859-3 ISO 21247 Indirect inspection and grab sampling	Where reliance can be placed on the inspection at a source (indirect inspection by the supplier), skip-lot or reduced inspection can be considered. Small sample sizes with moderate DR in a scheme, i.e. switching rules are an essential safeguard (**8.3, 8.4, 8.5** and **9.2**).
There is no history of received quality or there is a history and the received quality is poor – **11.2** j)	Tightened inspection ISO 2859-1 ISO 2859-5 ISO 8422	This implies the use of switching rules and commencing with fairly stringent sampling conditions, e.g. tightened inspection, only switching to less stringent (normal) when quality has been established, which then implies continuous supply — long run (**8.1**, **8.3, 8.4, 8.5, 8.7** and Clause **9**); ISO 2859-2 for short runs.
NOTE "Indicated practice" (sampling system or plan) simply means that the standards mentioned should be the first to be considered, though other factors might dictate, or lead to, a different selection. Practicality, risk and costs always have to be considered. Any coexistence of conditions can affect the selection. See also Table 3.		

Table 3 — Guidance for the selection of an acceptance sampling system, scheme or plan for sampling by attributes, using existing production conditions

Production conditions (see ISO/TR 8550-1:2007, **11.3**)	**Indicated practice** (see note)	**Guidance notes with ISO/TR 8550-1:2007 references**
There is a history of consistently good quality in production — **11.3** a), **11.3** b)	ISO 2859-3 ISO 21247 Indirect inspection, grab sampling	Where reliance can be placed on the inspection at a source (indirect inspection by the supplier), skip-lot or reduced inspection can be considered. Small sample sizes with moderate DR in a scheme, i.e. switching rules are an essential safeguard (**8.3, 8.4, 8.5** and **9.2**).
Production quality is very variable and/or poor — **11.3** k)	Tightened inspection ISO 2859-1 ISO 2859-5 ISO 8422	This implies the use of switching rules (5) and commencing with fairly stringent sampling conditions, e.g. tightened inspection, only switching to less stringent (normal) when quality has been established, which then implies continuous supply — long run (**8.1, 8.3, 8.4, 8.5, 8.7** and Clause **9**); ISO 2859-2 for short runs.
Random samples are easily chosen or the tests are rapid and inexpensive — **11.3** c), **11.3** d)	ISO 2859-1, double or multiple plans; ISO 2859-5 ISO 8422	Use sequential, multiple or double sampling, providing the administration does not become too complicated and costly (**9.3**).
Random sampling is difficult or expensive — **11.3** l)	ISO 2859-1, single sampling plans; ISO 2859-5 ISO 8422	Implies that the whole sample be taken initially, which leads to single sampling. Double or multiple sampling can be used with rules for sub-sample selection and sequential with curtailment (**9.3**). Reconsider the use of sampling by variables, which might offer an advantage with its relatively small sample sizes. Administration problems can arise.
Tests are long and/or expensive — **11.3** m)	ISO 2859-1, single sampling plans; ISO 2859-5 ISO 8422	Implies small samples with greater lot-by-lot risk (sampling plans with smaller discrimination ratios) but with long-term control of quality (**8.3, 8.4, 8.5, 8.6** and Clause **9**).
The distribution(s) is(are) known to be normal — **11.3** h)	ISO 2859-1 ISO 2859-2 ISO 2859-3 ISO 2859-5 ISO 8422	This refers to the characteristics in question, e.g. length distributed normally, but inspection may be by variables or attributes. The conformity criteria will be determined from knowledge of the distribution (**8.2, 8.3, 8.4, 8.5** and **8.6**). Reconsider the advantage of the smaller sample sizes under sampling by variables (ISO 3951-5, ISO 8423).

Table 3 *(continued)*

Production conditions (see ISO/TR 8550-1:2007, **11.3**)	**Indicated practice** (see note)	**Guidance notes with ISO/TR 8550-1:2007 references**
Only the fraction nonconforming is of importance, not the shape or dispersion of the distribution of the quality characteristic — **11.3** p) The distribution(s) is (are) unknown or known not to be normal — **11.3** q)	Attribute sampling plans: ISO 2859-1 ISO 2859-2 ISO 2859-3 ISO 2859-4 ISO 2859-5 ISO 8422 ISO 18414	Virtually any attributes standard applies, the choice depending on other factors. If inspection is by measurement, consider conversion to attributes. (Sampling by variables can be used if information on the distribution can be obtained in the long run, and the distribution can be transformed to normality, but there are added risks for short runs, or at the start of a continuous supply).
11.3 j) the lot is isolated or is one from a short production run	ISO 2859-2	Use Procedure A.
The lot is a one-of-a-kind lot — **11.3** i)	No suitable standard	See **10.3**.
Inspection of an item is costly or destructive — **11.3** e), **11.3** f)	ISO 2859-1 ISO 2859-5 ISO 8422 (ISO 18414 for non-destructive testing where a guarantee on the AOQL is required)	Minimum inspection implies small samples. Under sampling by attributes, consider the advantages of double, multiple or sequential sampling (**9.3**). Also, reconsider the possibility of requiring even smaller sample sizes under sampling by variables, e.g. ISO 2859-5.
Inspection of an item is inexpensive or non-destructive — **11.3** n), **11.3** o)	See guidance note	Consider the other factors.
NOTE "Indicated practice" (sampling system or plan) simply means that the standards mentioned should be the first to be considered, though other factors may dictate, or lead to, a different selection. Practically, risks and costs always have to be considered. Any coexistence of conditions might affect the selection. See also Table 1.		

Key

——— Primary operating route for a standard; will normally be considered first.

– – – – Link to alternative standard; a good alternative in certain conditions, especially where economy of average sample size is important.

Note **Boldface** numbers refer to the text of ISO/TR 8550-1. Numbers in regular font refer to the present standard. The "N" numbers refer to notes on page 13.

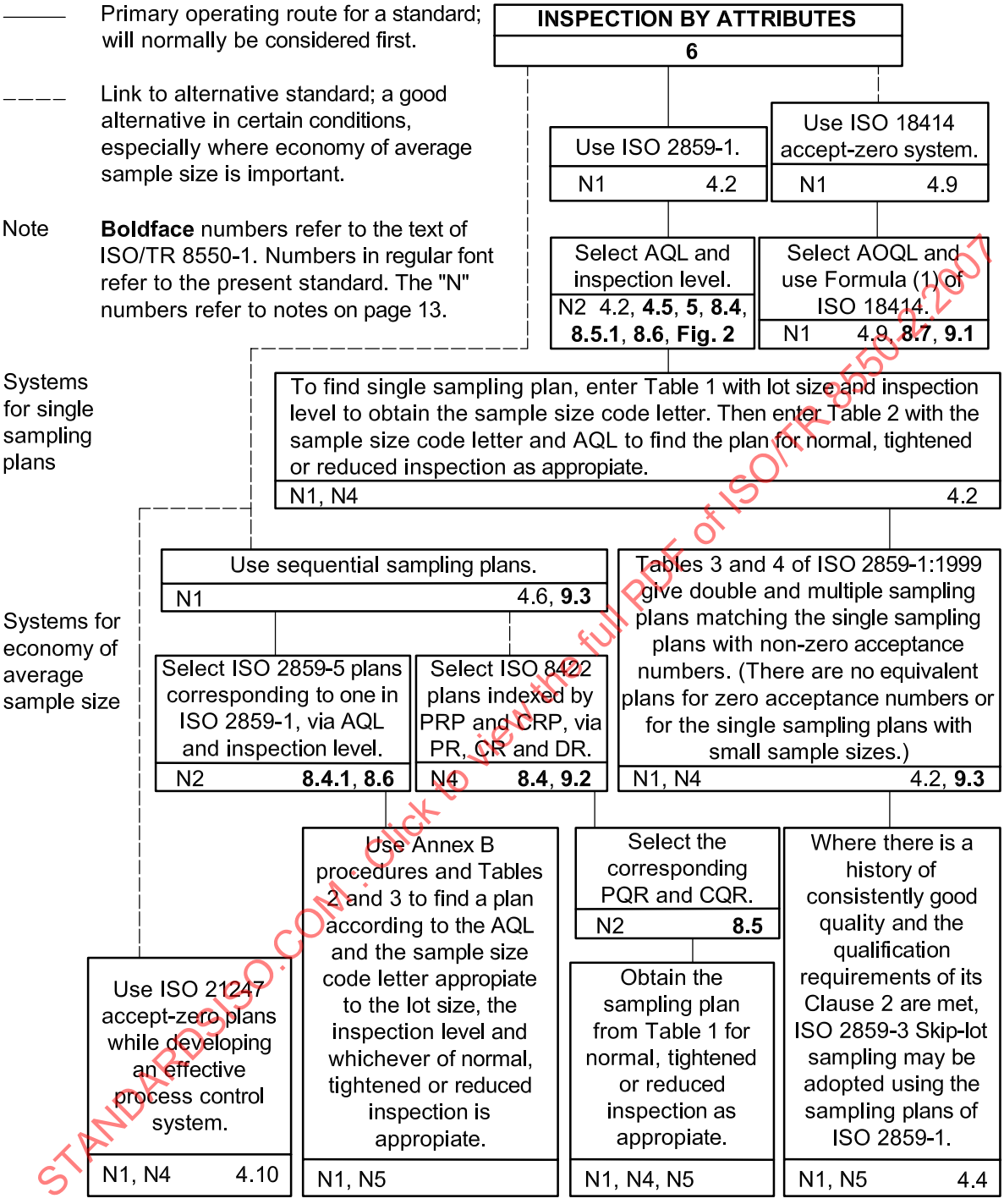

Figure 1 — Illustration of the selection procedure for inspection by attributes when production is continuous and run length exceeds 10 lots on original inspection