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Zero Acceptance Number Sampling Procedures and Tables for Inspection by Attributes of A Continuous Manufacturing Process

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(From Standards Proposal No. 4961 formulated under the cognizance of the Quality and Reliability Engineering (QRE) Committee.)

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**ZERO ACCEPTANCE NUMBER
SAMPLING PROCEDURES AND TABLES
FOR INSPECTION BY ATTRIBUTES
FOR A CONTINUOUS MANUFACTURING PROCESS**

CONTENTS

<u>Section</u>	<u>Page</u>
1. SCOPE	1
1.1 PURPOSE	1
1.2 APPLICATION	1
1.3 INSPECTION	1
1.4 INSPECTION BY ATTRIBUTES	2
1.5 UNIT OF PRODUCT	2
1.6 NONCONFORMANCE	2
2. PARTS PER MILLION (PPM)	2
2.1 EXPRESSION OF NONCONFORMANCE	2
2.2 PARTS PER MILLION (PPM)	2
3. SAMPLING PLAN APPLICATION	3
3.1 NOTATION	3
3.2 USE	4
3.3 SELECTION	5
4. SUBMISSION OF PRODUCT	6
4.1 LOT	6
4.2 FORMATION OF LOTS	6
4.3 LOT SIZE	6
4.4 PRESENTATION OF LOTS	6
5. ACCEPTANCE AND REJECTION	6
5.1 ACCEPTABILITY OF LOTS	6
5.2 NONCONFORMING UNITS	7
5.3 RESUBMITTED LOTS	7
6. DRAWING OF SAMPLES	7
6.1 SAMPLE	7
6.2 REPRESENTATIVE SAMPLING	7
6.3 TIME OF SAMPLING	7

EIA-584

CONTENTS (Continued)

<u>Section</u>	<u>Page</u>
APPENDIX A	
OPERATING CHARACTERISTIC (OC) CURVES AND AVERAGE OUTGOING QUALITY (AOQ) CURVES FOR A CONTINUOUS MANUFACTURING PROCESS	10
APPENDIX B	
USE OF EIA STANDARD	26
APPENDIX C	
A DUAL SYSTEM SAMPLING PLAN	30

**ZERO ACCEPTANCE NUMBER
SAMPLING PROCEDURES AND TABLES
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(From Standards Proposal No. 2145, formulated under the cognizance of the EIA Quality and Reliability Engineering (QRE) Committee.)

1. SCOPE

1.1 PURPOSE

Conventional attribute sampling plans based upon nonzero acceptance numbers are no longer desirable. In addition, emphasis is now placed on the quality level that is received by the customer. This relates directly to the Lot Tolerance Percent Defective (LTPD) value or the Limiting Quality Protection of MIL-STD-105. Measuring quality levels in percent nonconforming, although not incorrect, has been replaced with quality levels measured in parts per million (PPM). As a result, this standard addresses the need for sampling plans that can augment MIL-STD-105, are based upon a zero acceptance number, and address quality (nonconformance) levels in the parts per million range. This document does not address minor nonconformances, which are defined as nonconformances that are not likely to reduce materially the usability of the unit of product for its intended purpose.

1.2 APPLICATION

The sampling plans based upon a zero acceptance number designated in this standard are applicable, but not limited, to inspection of the following:

- a. End items.
- b. Components and raw material.

These plans are for use with a continuing series of lots, and not for isolated lots. With a continuing series of lots, consult Table 2 if it is desired to use the Average Outgoing Quality curves of Appendix A, and consult Table 1 for the resulting consumer's risk for a given sample quantity. At the discretion of the responsible authority, certain characteristics may require 100% inspection.

1.3 INSPECTION

Inspection is the process of measuring, examining, testing, or otherwise comparing the unit of product with the requirements.

EIA-584

Page 2

1.4 INSPECTION BY ATTRIBUTES

Inspection by attributes is inspection whereby either the unit of product is classified simply as nonconforming or conforming, or else the number of nonconformances in the unit of product is counted and compared to a given requirement or set of requirements.

1.5 UNIT OF PRODUCT

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

1.6 NONCONFORMANCE

A nonconforming unit is one that is likely to result in failure, or to reduce materially the usability of the unit of product for its intended purpose.

2. PARTS PER MILLION (PPM)

2.1 EXPRESSION OF NONCONFORMANCE

The extent of nonconformance of product shall be expressed in parts per million (PPM).

2.2 PARTS PER MILLION (PPM)

This document is a sampling document which provides a graph (Operating Characteristic Curve) showing the risk that the producer is taking (probability of rejecting a good lot) and the risk the customer is taking (probability of accepting a bad lot), when the lot quality is expressed in PPM. The sampling plans specified herein can also be the basis of accumulation of data over a series of lots for use in subsequent PPM calculations in accordance with EIA Std 554, Assessment of Outgoing Nonconforming Levels in Parts Per Million (PPM)