



TECHNICAL REPORT

EIA-554-2™

Issued 1996-08
Stabilized 2015-08

Assessment of Nonconforming Levels In Parts Per Million (PPM)

NOTICE

This document has been taken directly from the original TechAmerica document and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE Technical Standards. The release of this document is intended to replace the original with the SAE International document. Any numbers established by the original document remain unchanged.

The original document was adopted as an SAE publication under the provisions of the SAE Technical Standards Board (TSB) Rules and Regulations (TSB 001) pertaining to accelerated adoption of specifications and standards. TSB rules provide for (a) the publication of portions of unrevised specifications and standards without consensus voting at the SAE committee level, and (b) the use of the existing specification or standard format.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2015 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
<http://www.sae.org>

SAE WEB ADDRESS:

Full document details: [SAE EIA554_2](#)

SAE values your input. To provide feedback on this Technical Report, please visit http://www.sae.org/technical/standards/EIA554_2

Documents
Document Sharing Hub

EIA STANDARD

Assessment of Nonconforming Levels In Parts Per Million (PPM)

EIA-554-2

AUGUST 1996

ELECTRONIC INDUSTRIES ALLIANCE

**GOVERNMENT ELECTRONICS AND
INFORMATION TECHNOLOGY ASSOCIATION**



A SECTOR OF



NOTICE

EIA Engineering Standards and Publications are designed to serve the public interest through eliminating misunderstandings between manufacturers and purchasers, facilitating interchangeability and improvement of products, and assisting the purchaser in selecting and obtaining with minimum delay the proper product for his particular need. Existence of such Standards and Publications shall not in any respect preclude any member or nonmember of EIA from manufacturing or selling products not conforming to such Standards and Publications, nor shall the existence of such Standards and Publications preclude their voluntary use by those other than EIA members, whether the standard is to be used either domestically or internationally.

Standards and Publications are adopted by EIA in accordance with the American National Standards Institute (ANSI) patent policy. By such action, EIA does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties adopting the Standard or Publication.

This EIA Standard is considered to have International Standardization implication, but the International Electrotechnical Commission activity has not progressed to the point where a valid comparison between the EIA Standard and the IEC document can be made.

This Standard does not purport to address all safety problems associated with its use or all applicable regulatory requirements. It is the responsibility of the user of this Standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations before its use.

(From Standards Proposal No. 4958, formulated under the cognizance of the Quality and Reliability Engineering (QRE) Committee.)

Published by

©ELECTRONIC INDUSTRIES ALLIANCE 1996
Technology Strategy & Standards Department
2500 Wilson Boulevard
Arlington, VA 22201

**PRICE: Please refer to the current
Catalog of EIA Electronic Industries Alliance Standards and Engineering Publications
or call Global Engineering Documents, USA and Canada (1-800-854-7179)
International (303-397-7956)**

All rights reserved
Printed in U.S.A.

PLEASE!
DON'T VIOLATE
THE
LAW!

This document is copyrighted by the EIA and may not be reproduced without permission.

Organizations may obtain permission to reproduce a limited number of copies through entering into a license agreement. For information, contact:

Global Engineering Documents
15 Inverness Way East
Englewood, CO 80112-5704 or call
U.S.A. and Canada 1-800-854-7179, International (303) 397-7956

**Government Electronics and Information Technology Association
(GEIA)**

**Assessment of Average Outgoing Quality Levels in Parts Per Million
(PPM)**

EIA-554-2

Revision	Description of change	Date
-	Initial Release	July 15,1996

ASSESSMENT OF NONCONFORMING LEVELS IN PARTS PER MILLION (PPM)

EIA - 554-2

Contents

<u>Section</u>	<u>Page</u>
1. INTRODUCTION	1
2. SCOPE	1
3. APPLICATION	1
4. REFERENCE PUBLICATIONS	1
5. DEFINITIONS	2
6. SYMBOLS	3
7. ASSUMPTIONS	3
8. PROCEDURES	4
8.1 Data accumulation.	4
8.2 Computing PPM.	4
8.3 Combining inspections within a group.	4
8.4 Combining groups within a class.	5
8.5 Combining classes.	5
8.6 Data exclusion.	5
9. REPORTING	6
ANNEX A - Derivation of PPM Estimator	7
ANNEX B - References	13

ASSESSMENT OF NONCONFORMING LEVELS IN PARTS PER MILLION (PPM)

(Formulated under the cognizance of the EIA Quality and Reliability Engineering (QRE) Committee.)

1. INTRODUCTION

Improvements in manufacturing technology and methodology have resulted in corresponding quality improvements for electronic components. As a result, the traditional measure for reporting average quality levels in percent nonconforming needs to be replaced with a quantity more in line with the quality levels of today. That measure is parts per million or PPM. It is simply clearer to report estimated average component quality as 10 PPM, rather than the more cumbersome 0.001%.

This standard was developed to provide a uniform method of assessing quality levels in situations where audit sampling rather than acceptance sampling is performed.

2. SCOPE

This standard is intended to provide a uniform method of determining proportion nonconforming in finished components and to provide a standardized definition of the quality index referred to as PPM. The method used here is primarily directed at components whose production or procured volume is large enough, during some predefined sampling period, to give statistically meaningful information.

3. APPLICATION

This standard is intended to provide a method for the derivation and reporting of proportion nonconforming. The PPM philosophy applies to the estimation of the average quality level of a product, not to lot acceptance plans. Since it is necessary to accumulate sufficient data for component quality characterization, the method in this standard should not be used to establish PPM levels for individual lots or to form the basis for determining acceptability of product on a lot-by-lot or batch-by-batch basis. The method proposed herein is applicable to audit sampling as opposed to acceptance sampling; it is usable for measuring quality levels at any point in a process.

4. REFERENCE PUBLICATIONS

Publications referenced by this document are listed in Annex B.