

Material aeroespacial. Análisis de causa raíz y resolución de problemas (Metodología 9S) (Ratificada por la Asociación Española de Normalización en junio de 2018.)

UNE-EN 9136:2018

Material aeroespacial. Análisis de causa raíz y resolución de problemas (Metodología 9S) (Ratificada por la Asociación Española de Normalización en junio de 2018.)

Aerospace series - Root cause analysis and problem solving (9S Methodology) (Endorsed by Asociación Española de Normalización in June of 2018.)

Série aérospatiale - Analyse de cause racine et résolution de problème (9S méthodologie) (Entérinée par l'Asociación Española de Normalización en juin 2018.)

En cumplimiento del punto 11.2.5.4 de las Reglas Internas de CEN/CENELEC Parte 2, se ha otorgado el rango de documento normativo español UNE al documento normativo europeo EN 9136:2018 (Fecha de disponibilidad 2018-05-16)

Este documento está disponible en los idiomas oficiales de CEN/CENELEC/ETSI.

Este anuncio causará efecto a partir del primer día del mes siguiente al de su publicación en la revista AENOR.

La correspondiente versión oficial de este documento se encuentra disponible en la Asociación Española de Normalización (Génova 6 28004 MADRID, www.une.org).

Las observaciones a este documento han de dirigirse a:

Asociación Española de Normalización

Génova, 6
28004 MADRID-España
Tel.: 915 294 900
info@une.org
www.une.org

© UNE 2018

Prohibida la reproducción sin el consentimiento de UNE.

Todos los derechos de p

This is a preview. Click here to purchase the full publication.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 9136

May 2018

ICS 03.120.10; 49.020

English Version

**Aerospace series - Root cause analysis and problem
solving (9S Methodology)**

Série aérospatiale - Analyse de cause racine et
résolution de problème (9S méthodologie)

Luft- und Raumfahrt - Ursachenanalyse und
Problemlösung (9S Methodik)

This European Standard was approved by CEN on 20 November 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword.....	3
Rationale.....	4
Foreword.....	4
Introduction	5
1 Scope.....	6
1.1 General.....	6
1.2 Purpose.....	6
2 Normative references.....	6
3 Terms and definitions	6
4 General Process	9
4.1 Basic Principles.....	9
4.1.1 Cultural Change.....	9
4.1.2 Effective Communication	10
4.2 When to Apply a Structured Root Cause Analysis and Problem Solving Process	10
4.3 Process Step Description.....	12
5 Process Steps	14
5.1 Step 0 – Start Immediate Containment Actions.....	14
5.2 Step 1 – Build the Team.....	16
5.3 Step 2 – Define Problem.....	18
5.4 Step 3 – Complete and Optimize Containment Actions	20
5.5 Step 4 – Identify Root Cause(s).....	21
5.6 Step 5 – Define and Select Permanent Corrective Actions	23
5.7 Step 6 – Implement Permanent Corrective Action and Check Effectiveness	24
5.8 Step 7 – Standardize and Transfer the Knowledge Across Business	26
5.9 Step 8 – Recognize and Close the Team.....	27
6 Information and documentation	29
6.1 Information data definition and documentation.....	29
6.2 Forms.....	30
6.3 Control of records	30
Annex A (informative) Acronym log.....	31
Annex B (informative) Information data definition	32
Annex C (informative) Form examples.....	48

European foreword

This document (EN 9136:2018) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2018, and conflicting national standards shall be withdrawn at the latest by November 2018.

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

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Rationale

The objective of root cause analysis and problem solving is to not only reduce the number of issues (i.e. undesirable conditions, defects, failures), but to minimize their impact on quality, delivery performance, costs, and ultimately on the customer. Often big issues originate with small problems that were discovered too late or were discovered, but were never resolved due to a lack of understanding the actual issue(s), incorrect analysis of the root cause, and/or ineffective actions being taken.

This guidance document was created to provide a methodology for performing root cause analysis to resolve a significant or recurrent issue [e.g. quality, On-Time Delivery (OTD), process, documentation], as guidance within the aviation, space, and defence industry and/or when contractually invoked at any level of the supply chain.

Foreword

In December 1998, the aviation, space, and defence industry established the International Aerospace Quality Group (IAQG) with the purpose of achieving significant improvements in quality and reductions in cost throughout the value stream. This organization, with representation from aviation, space, and defence companies in the Americas, Asia-Pacific, and Europe and sponsored by SAE International, Society of Japanese Aerospace Companies (SJAC), and AeroSpace and Defence Industries Association of Europe -Standardization (ASD-STAN), has agreed to take responsibility for the technical content of this document to promote best practices that would satisfy associated requirements of Aerospace Quality Management System (AQMS) standards (i.e. 9100, 9110, 9120).

To assure customer satisfaction, aviation, space, and defence industry organizations must produce and continually improve safe, reliable products that meet or exceed customer and regulatory authority requirements. This includes having processes in place to detect and eradicate significant and recurrent issues. This document standardizes methodology to perform root cause analysis and problem solving to support these efforts. The establishment of a common methodology, for use by organizations at all levels of the supply-chain should result in improved action plans and a standardized way of exchanging information between organizations and external stakeholders (e.g. suppliers, partners, customers, regulatory agencies).

Introduction

This document has been developed by the IAQG. In accordance with the continual improvement requirements defined in the 9100-series standards (see Clause 8, “Measurement, Analysis, and Improvement”), it was deemed useful to promote those industry recognized best practices for identifying the root causes of nonconformities or undesirable conditions (including potential issues and conditions) and implementing correction(s) and associated corrective/preventive actions. The process described in this document was created by comparing and mixing root cause analysis and problem solving methodologies [e.g. 7 Steps, 8D, Root Cause Corrective Action (RCCA)] used by main actors of aviation, space, and defence industry.

Unless contractually specified, other root cause analysis processes with slightly different sequencing of activities and/or different names of process steps may be acceptable, provided that these activities meet the intent of this document and deliver the same outcomes (i.e. immediate protection, temporary fix, durable solution, systemic improvement) and provides the same level of information.

Throughout this document, the words “should” and “required” indicate strong recommendations to apply and correspond to actions that the authors of this document consider important in order to deliver robust root cause analysis. When strict application of this document is decided by an organization or is mandated by a customer, they shall be interpreted as an obligation to be complied with (i.e. interpreted as “shall” and “must”).