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Aerospace Series - Commercial aircraft passenger seats - Reliability testing

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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Aerospace Series - Commercial aircraft passenger seats - Reliability testing

Série aérospatiale - Sièges passagers d'aéronefs
commerciaux - Essais de fiabilitéLuft- und Raumfahrt - Fluggastsitze für die zivile
Luftfahrt - Zuverlässigkeitsprüfung

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European foreword

This document (EN 4888:2024) has been prepared by the ASD-STAN.

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, 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of an identical text or by endorsement, at the latest by March 2025, and conflicting national standards shall be withdrawn at the latest by March 2025.

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

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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EN 4888:2024 (E)**Introduction**

A well-organized reliability management process is very important for manufacturers in order to achieve the reliability requirements set by the customers and to continuously maintain market position. The prediction of the failure behaviour of a product in the field should be accomplished as early as possible. An optimized reliability management process contains qualitative and quantitative reliability methods based on fatigue damage calculations, test data, condition monitoring, field failure data and warranty cost analysis, which have to be fused to a closed loop failure analysis system in order to consider all lessons learned in the analysis tools used in product development.

Customers expect a reasonably priced product, which has a high level of quality and reliability at the same time.

The determination of the reliability of products is an essential component in the development and manufacture of products. The reliability of these technical products describes the property of not failing within a specified time period and to keep the failure rate at an acceptable level until the end of life in given functional and ambient conditions.

The reliability and its characteristics are described via the confidence level and confidence range. An important contribution concerns the analysis of service life information resulting from corresponding tests or reported from the service by customers.

Reliability testing involves the definition, implementation and analysis of tests that are to represent the use of seats in aircraft.

Furthermore, the second largest task of reliability testing involves analysing field data provided as feedback from airlines. In this way, the data is validated based on previously conducted tests and prognoses for future seat models are compiled.

1 Scope

This document specifies minimum reliability test requirements for sub-components of commercial aircraft passenger seats. Test procedures including in-service load cases regarding passenger behaviour for sub-seat components are specified. Abuse loads are excluded. This document is applicable to the sub-seat components such as but not limited to backrest, headrest, armrest, table, literature pocket and control elements.

This document does not apply to belts, Inflight-Entertainment, seat dress cover and cushions.

Additional environmental influences like temperature, radiation, gases and liquids may also alter the reliability of the aircraft passenger seats and their sub-components over their lifetime but are not taken into consideration in this document.

Tests on abrasion and surface durability are specified in EN 4860, EN 4864 and EN 4876.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1728:2012/AC:2013, *Furniture — Seating — Test methods for the determination of strength and durability*

SAE J826,¹ *Devices for Use in Defining and Measuring Vehicle Seating Accommodation*

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