SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
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AEROSPACE STANDARD

SAE AS9133

Issued 2002-07

Qualification Procedure for Aerospace Standard Parts

1. SCOPE:

This document provides a basic uniform method for ensuring that aerospace standard parts (products) conform with the requirements of technical specifications referring to qualified parts and for a manufacturer of such parts to have a qualified management system at least equivalent to AS/EN/SJAC9100.

These standards apply when called out in the aerospace standard part standard.

9100 Quality Systems – Model for Quality Assurance in Design, Development, Production, Installation and Servicing

NOTE: This standard is published as an equivalent document in several countries. This standard uses the 9100 designation when referring to this standard.

9103 Variation Management of Key Characteristics

NOTE: This standard is published as an equivalent document in several countries. This standard uses the 9103 designation when referring to this standard.

2. TERMS, DEFINITIONS AND ABBREVIATIONS:

MANDATED BODY: Organization or person, approved by the Relevant Authority, tasked with assessing whether the manufacturer's products comply with the relevant standards and whether the manufacturer's quality system complies with 9100. For complex products/processes, AS/EN/9103 could be used, if so decided by the mandated body. In this case the key characteristics are identified in the technical specification for the qualified parts.

PRODUCT (within the Scope of this document): Standard part, standard part manufacturing process and standard part material (possibility of building a family of products must be laid down in the relevant technical specification).

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2. (Continued):

RELEVANT AUTHORITY: An Authority that runs a qualified products registration system for qualified products, issues product qualification certificates and maintains a list of qualified products and their manufacturers (e.g., AECMA-CERT,PRI-QPL). This list shall indicate the following minimum information: the serial number, issue and granting date of the certificate, and the period of validity.

USER: An organization purchasing specific aerospace qualified products.

MANUFACTURER: Company or organization manufacturing the products to be qualified and having a quality management system meeting the requirements of 9100. A manufacturer is assumed to be located in the place where the product is made.

QUALIFICATION TEST PROGRAM (QTP): A program to demonstrate that the tests (may be combinations of tests, analysis or other documentation) meet the requirements of the technical specifications.

QUALIFICATION TEST REPORT (QTR): Report contains the test results according to the QTP.

PRODUCT QUALIFICATION TEST REPORT (PQTR): Validation of the QTR by mandated body.

PRODUCT QUALIFICATION CERTIFICATE (PQC): A Serialized Document that certifies that a product has been qualified according to the relevant standards, established by an appropriate organization (relevant Authority).

3. APPLICATION PROCESS:

A manufacturer seeking to have a product qualified shall apply to the relevant Authority or to the mandated body specifying:

- the description of the product to be qualified, identifying the applicable specifications and the relevant qualification standard to be used;
- an overview of the company (organization, share holders and parent companies, products manufactured, manpower, facilities, etc);
- a list of approvals and/or qualifications already granted and, if any, information on results of evaluations already performed.

This shall be accompanied by a certificate showing compliance of the manufacturer with 9100 issued by a body acceptable to the relevant Authorities plus any other required certifications/accreditations from relevant organizations.

The above information shall be forwarded to the mandated body for examination.

4. QUALIFICATION PROCEDURE:

The mandated body shall:

- request the manufacturer to implement a Qualification Test Program and to specify the place, facilities and manufacturing line proposed to achieve this program
  (Note: The Qualification Test Program can include all the tests required by the technical specifications, or only an appropriate selection of these tests or demonstration by analysis/similarity. To evaluate the qualification program, the mandated body can take into account tests already performed on similar products or results of existing applications for the products used in similar conditions to those defined in the technical specifications)
- evaluate the Qualification Test Program (QTP) (including test procedures)
- establish a schedule for completion of the QTP
- ensure that the QTP is correctly achieved
- ensure that a Qualification Test Report (QTR) documenting the results of the QTP is prepared
- ensure that the QTR prepared by the manufacturer shall contain the following
  - a list of all the tests carried out in accordance with the QTP, including issue date of all relevant reference standards and documents
  - reference number of the agreed and frozen (issue date, index, …) manufacturing and inspection file
  - a full list of quantitative test results and a summary sheet giving the results of tests not as pass/fail, but with values
- have access during all stages of the production and test program to relevant manufacturing and inspection data for the product
- ensure all tools and test equipment used in the qualification are in calibration and being used correctly
- ensure the product to be evaluated has been manufactured and inspected in the same way as applicable to production parts
- reserve the right to proceed to verification test and have counter test performed when this is deemed necessary
- ensure that the significant manufacturing operations and parameters are identified, that these operations and parameters are recorded, design and manufacturing drawings are recorded and all signed by representatives of both the mandated body and the manufacturer (signed and sealed). The manufacturer shall certify not to change anything (manufacturer identity, manufacturing/ inspection process parameters or manufacturing location) without the express written approval of the relevant Authorities.

After examination of the test results, the mandated body shall write a Product Qualification Test Report (PQTR) and forward a copy to the relevant Authority and the manufacturer.

4. (Continued):

This report shall contain at least the following:

- a recommendation of the acceptance or otherwise of the qualification
- any required corrective action and its compliance

5. CERTIFICATION PROCEDURE:

The relevant Authority shall accept the recommendations from the mandated body and issue a product qualification certificate which shall contain the following minimum information:

- name of the manufacturer of the product
- where the product was manufactured
- the product designation based on the product standard, part number of the Product Qualified, reference number of technical specification the part was qualified to
- the Qualification Test Report number
- a serial number, issue and granting date of the certificate
- a validity period (of e.g. 3 years)
- reference to the approved quality management system

6. MAINTENANCE:

In due time before the end of the validity period the relevant Authority shall inform the mandated body to perform a re-assessment (e.g. audit) on the manufacturer to verify that the manufacturing process is still valid and then make a recommendation to the relevant Authority whether or not the qualification can be continued.

A user may conduct or have conducted on his behalf, complementary evaluations which he judges are necessary.

In case of dispute, appeal can be made to the relevant Authority appeal committee.

The manufacturer shall inform the relevant Authority when

- any change is made in his quality system that might affect the granted approval
- any evolutions occur in the company situation (merger, take-over, winding up, change of name, change of premises, etc.)
- modifications are proposed in manufacturing or inspection (significant operations and/or parameters, process changes, place change of manufacture, change of sub suppliers, etc.)
- re-start of production is planned after break of more than 18 months

The relevant Authority will examine each case and give a considered verdict. This may include a request to the mandated body for additional assessment.