



# DOCUMENT CHANGE REQUEST

DCR number	1045	Changes required for:	Qualification	Originator:	Jean-Paul Bussenot
Date:	2017/04/19	Date sent:	2016/09/07	Organisation:	CNES
Status:	IMPLEMENTED				

Title: Requirements for the Evaluation of Standard Electronic Components for Space Application

Number: 22600 Issue: 7

Other documents affected:

Page:

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Paragraph:

Paragraph 8.3 Evaluation Test Programme

Original wording:

“The ETP shall include a DPA of components representative of all the materials and constructional techniques employed. In certain cases, the requirements for an ETP can be minimized by the substitution of relevant test data from the Manufacturer.

During the definition of the ETP, the EA shall carefully review any such data submitted, equating it where possible to the requirements originally formulated.

Examples of data which might be considered in this context are:

- (a) Qualification and approval to National or International specification systems.
- (b) Satisfactory production and yield data for military hi-rel or other stringent requirements.
- (c) Evaluations carried out to ECSS-Q-60.
- (d) Manufacturer’s in-house production and testing data for the component.

The list is not necessarily exhaustive.”

Proposed wording:

“The ETP shall include a DPA of components representative of all the materials and constructional techniques employed. The ETP shall also include tests to demonstrate the component capability to withstand the constraints seen during the mounting phase, including manual repair. ECSS Q-ST-70-08 and/or Q-ST-70-38 validation requirements may form a basis for these tests. The main purpose of these tests is to assess the component capability to withstand mounting performed with typical mounting techniques (reflow or manual soldering). Where specific mounting conditions resulting in a critical mounting behavior are identified, Manufacturer and EA are entitled to set-up adequate procedure to closely simulate the behavior of components mounted on printed circuit boards. This may include the participation of users but these tests do not replace the mandatory users’ validation of their mounting processes as per project requirements and ECSS-Q-70-08 and Q-ST-70-38 recommendations.

In certain cases, the requirements for an ETP can be minimized by the substitution of relevant test data from the Manufacturer or alternate sources.

During the definition of the ETP, the EA shall carefully review any such data submitted, equating it where possible to the requirements originally formulated.

Examples of data which might be considered in this context are:

- (a) Qualification and approval to National or International specification systems.



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- (b) Satisfactory production and yield data for military hi-rel or other stringent requirements.
  - (c) Evaluations carried out to ECSS-Q-60.
  - (d) Mounting validations carried out to ECSS Q-ST-70-08 or Q-ST-70-38 as applicable.
  - (e) Manufacturer's in-house production and testing data for the component or structurally similar components as applicable.
- The list is not necessarily exhaustive."

### Justification:

Problems with the mounting of ESCC qualified SMD parts have often been identified during project assembly validation test, which is too late and adversely affects the use and promotion of ESCC qualified parts.  
This DCR answers to PSWG action resulting from the rejection of previous DCR 902. DCRs to ESCC 2263000, 2264000 and 2265000 are also posted to give example of the possible implementation of the requirement in ETP.

### Attachments:

esc22600\_iss\_8\_draft\_a\_for\_pswg\_review.docx

### Modifications:

Replace original contents of this DCR by the following:

Replace in Para. 8.3 the 5th subpara ("The ETP shall include a DPA ...") by the following:

The ETP shall include a constructional analysis of components representative of all the materials and constructional techniques employed.

The ETP shall also include an assessment of the component capability to withstand typical mounting in accordance with ECSS-Q-ST-70-08 and/or ECSSQST70-38. Where specific mounting conditions resulting in a critical mounting behavior are identified, the Manufacturer and the EA are entitled to set-up an adequate procedure to closely simulate the behaviour of components mounted on printed circuit boards. This may include the participation of users but these tests do not replace the mandatory users' validation of their mounting processes as per project requirements and ECSS-Q-ST-70-08 and/or ECSS-Q-ST-70-38 recommendations.

In addition:

Para. 3 & 8.3, correct ECSS-Q-ST-60 (was ECSS-Q-60)

Para. 3, add ESCC 21700 General Requirements for the Marking of ESCC Components

Para. 3.2, add ECSS-Q-ST-70-08, ECSS-Q-ST-70-38 & ECSS-Q-ST-70-02.

i.e. add the following:

ECSS-Q-ST-70-02 Space product assurance: Thermal vacuum outgassing test for the screening of space materials

ECSS-Q-ST-70-08 Space product assurance: Manual soldering of high-reliability electrical connections

ECSS-Q-ST-70-38 Space product assurance: High-reliability soldering for surface-mount and mixed technology

Approval signature:



Date signed:

2017-04-19