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Pages 1 to 5

ESA/SCC RECOMMENDATIONS FOR THE EVALUATION AND PROCUREMENT OF NON-STANDARD ELECTRONIC COMPONENTS FOR SPACE APPLICATION

ESA/SCC Basic Specification No. 23100

space components
coordination group

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		Para. 3.1	: "Specification QRC-50G" amended to "PSS-01-60"	23727

TABLE OF CONTENTS

1. SCOPE

This specification records the decisions and lists the recommendations made by the Space Components Coordination Group (SCCG) in respect of the evaluation and procurement of non-standard components for space application.

For the purposes of this specification, the definition of a non-standard component is taken from ESA PSS-01-0, "Basic Requirements for Product Assurance of ESA Spacecraft and Associated Equipment", which reads as follows:-

"Non-standard Component
Non-standard components are those whose technology is subject to continuous evolution or whose level of production is not sufficient to assure a continuously running production and which have little or no previous history of high reliability applications."

2. PURPOSE

To achieve maximum standardisation of the approval procedures applied to both standard and non-standard components such that:-

(a) A User can readily compare the depth of treatment of the latter against the former and thus assess the degree of confidence which can be assumed, and

(b) The transition of a non-standard component to the status of being deemed a standard component is achieved more easily when it becomes a candidate for such consideration because the technology has stabilised through evolution and/or it has accrued sufficient history in application and production to confirm its maturity.

3. RECOMMENDATIONS

The SCCG recommends:-

3.1 GENERAL

That the approval and procurement of non-standard components for space application be carried out by the Project Groups concerned in accordance with the requirements of ESA PSS-01-0 and following the guidelines of ESA PSS-01-60.

3.2 STANDARDISATION

That the European Space Agency (ESA) rationalise and standardise the approach of all Project Groups to non-standard components.

In the interests of current standardisation and future evolution, particular regard should be paid to Para. 4.4 of ESA PSS-01-0 where it has a clear requirement that both the use of such components and the proposed testing programme are subject to ESA approval.

3.3 TEST METHODS AND TEST SEQUENCES

That more account be taken of another requirement of Para. 4.4 of ESA PSS-01-0, namely that the primary selection of test methods be based on current ESA/SCC documentation. Among the more appropriate documents are ESA/SCC Basic Specification Nos. 20100 and 22600 and the ESA/SCC Generic Specifications, some of which explicitly invite the reader to use all or part of the contents for purposes other than the normal qualification of standard components.

In particular, the maximum use should be made of the flow chart of ESA/SCC Basic Specification No. 22600. This chart offers the clear possibility of assessment of the work done under Project procedures against that done under full SCCG supervision. From this, a working formula could be derived to assist in arriving at a meaningful weighting in the proposed Preferred Parts List (P.P.L.) q.v.

3.4. PREFERRED PARTS LIST (P.P.L.)

All approvals of non-standard components should, on satisfactory completion, be submitted with all supporting data as candidates for entry into the ESA Preferred Parts List to facilitate maximum usage across ESA projects and to offer prospective Users complete visibility of the justification of any claims made.

Entries shall be weighted according to the extent and depth of the data submitted and subsequently be annotated with any change in status.

As the technology stabilises and the component history develops, a stage may be reached when the component becomes a candidate for recognition as a standard component. At this point, the uniformity of presentation and sheer accumulation of data may in itself prove insufficient. In order to ease this transition, it is therefore recommended also that each approval of a non-standard component be reviewed periodically by ESA. This need only take place every 9 to 12 months if regular production takes place but, even if no production occurs, a review should be made not later than 2 years from the original granting of the approval.

3.5 STATUS RECORD

Each P.P.L. entry of a non-standard component admitted for listing should include an update record of all such validating actions and name the responsible authority.

3.6 LIAISON WITH NATIONAL SPACE ORGANISATIONS

Recognising the known pressing limitations of resources, the assistance of the National Space Organisations should be sought at all times and, at the very least, they should be kept informed. Equally, and notwithstanding all the foregoing, more effort should be made to treat components as "standard" rather than seek recourse to "non-standard" treatment for reasons of expediency.