DOCUMENT CHANGE REQUEST

DCR number 1380	Changes required for: General	Originator: Steve Jeffery
Date: 2022/11/10	Date sent: 2019/02/28	Organisation: ESCC Executive
Status: IMPLEMENTED		

Title:	Generic Specification for Connectors Electrical Filtered Circular & Rectangular		
Number:	3405	Issue:	2

Other documents affected:

Page:

All.

Paragraph:

Total reformat/re-write of ESCC Generic Specification 3405 issue 2 in order to implement changes as part of the ongoing conversion of legacy ESA/SCC specifications to the ESCC format.

For details of the proposed contents of ESCC 3405 issue 3, see the attached draft Generic specification that implements all the proposed changes:
3405 draft 3A for DCR review.docx

Original wording:

See 3405 issue 2.

[NB: The manufacturer C&K intends, or intended, to raise a DCR against 3405 issue 2 to propose various technical and editorial changes to bring the content of the spec in-line with their own internal specification for Filter Connectors, similarly for the Detail Spec 3405/001 issue 3 for D*J Type Filter Connectors.

This DCR is raised independently purely for the purpose of converting these specifications, and therefore does not include any changes proposed by C&K]

Proposed wording:

The Generic Specification is proposed to be extensively amended to incorporate various policy, technical & editorial amendments, and corrections in order to bring it in line with other ESCC Generic Specifications that have already been converted to the new ESCC format.

The layout, format and general structure, and editorial content of ESCC 3405 draft 3A are based on other published, converted ESCC Generic Specifications such as ESCC 5000, 9000, 4001 etc.

The proposed technical content of ESCC 3405 draft 3A is based on the current content of ESCC 3405 issue 2 plus additional changes proposed for the purposes of general improvement.

This DCR summarises all the amendments to ESCC 3405 issue 2, plus identifies the additional editorial & technical changes not already generally detailed and justified by previous, approved DCRs related to conversion of ESCC Generic Specifications.

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Change Details:

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A) Main General Changes (similar to those already incorporated into other converted ESCC generic specifications e.g. ESCC5000, etc):

1) Chart I, The General Flow Chart is replaced by Chart F1; It clarifies the flow of components for Procurement.

2) Charts III(a) & III(b) Burn-in and Electrical Measurements, have been replaced by Charts F3A and F3B, Screening Tests.

3) Charts IV & V, Qualification and Lot Acceptance Testing charts have been incorporated, with some modifications, into a single Chart F4, Qualification, Periodic Testing and Lot Validation Testing. Modifications include:
• Periodic testing is mandatory for ESCC qualified components with a defined testing schedule (i.e. 12 months for Endurance and Electrical Subgroups and 24 months for all other testing).
• Para 8.2, Chart V, etc, Lot Acceptance Testing has been deleted but an Orderer option for similar Lot Validation Testing, for procurement, has been added. Lot Validation Testing is not mandatory and will only be done if specifically stipulated by the Orderer in the PO.
• Para 8.2.1, The requirement for LAT level 3 as a minimum for non-qualified component procurement is removed.
• Para 9.21, Operating Life is 2000hours for Qualification Testing and when Periodic Testing is being performed due to lapse of qualification; 1000hours for Periodic Testing performed to achieve extension of qualification (previously was 2000hours for Qual / 1000hours for LAT2).
• No failures are allowed during Chart F4 testing.
• The Lot Acceptance Testing Level 3 tests, which were set out in Chart V, are performed in either Chart F2 or F3 or as part of other testing and have therefore not been included in Chart F4.

4) Para 1.2, etc, Introduction of Technology Flow Qualification per ESCC No. 25400 to the Generic spec.

5) Para 1.2, etc, Introduction of ESCC 23100 (ESCC Recommendations on the use of the ESCC Specification System for the Evaluation and Procurement of Unqualified Components) to the generic spec.

6) Para 1.2, etc, The Generic Specification has been made applicable and fully usable for procurement of unqualified components as well as for ESCC Qualified components.

7) Para 2.1, etc, Clarification that the term PID is specific to ESCC qualified components.

8) Paras 2.2 & 4.5, Material outgassing reference document is corrected to be ESCC No. 22600 (not ESA PSS-01-702). Material restrictions per ESCC No. 22600 are specified.

9) Paras 4.1, 4.3, 7.1, Chart I, etc, The SCC testing level B has been deleted; there is now only a single ESCC testing level, equivalent to old SCC level B, but it is not given a specific designation.

10) Para 4.3, When using the ESCC System to procure components from an unqualified source and marking the parts with the ESCC component number, the Manufacturer should possess a manufacturing and quality assurance system that is compatible with space application. As such, the user expectation should be that parts would be compatible with passing the testing requirements of Chart F4. Accordingly the requirement placed on qualified sources to not knowingly supply components that cannot meet the Chart F4 testing is extended to unqualified sources.

11) Para 4.3.1, The maximum allowed delay for Lot failure notification (provided by the Manufacturer) is now 5 working days (was 2).

12) Para 4.4, Marking requirements per ESCC No. 21700 shall apply.

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13) Para 5 & Charts F2A and F2B, Production Control/Special In-Process Controls, replaces Paras 5 & 6 and Charts II(a) and II(b).
Redundant/repeated tests in Charts II(a) and II(b) are removed (Electrical Measurements & External Visual Inspection).
Rapid Change of Temperature is moved to new Chart F3B.

14) Para 7.4.1, etc, Check for lot failure during Screening (PDA), only includes Electrical Parameter limit and drift failures (excluding the mechanical, handling, lost and visual failures counting towards PDA in ESCC 3405 issue 2).

15) Para 9.5 & Chart II, Dimension Check is performed on 3 samples per standard ESCC policy.

16) Paras 10.1.2, 10.1.3, The minimum required delivered documentation to the customer for procurement is a Certificate of Conformity & a Cover sheet.

B) Other Editorial and/or Technical Changes (specific to ESCC 3405):

17) The Title is amended (circular connectors reference is unnecessary).

18) Para 2.1 & 2.2:
Reference documents that are not actually referenced in 3405 are removed, i.e. IEC No. 410, MIL STD-414, 'ESA PSS-01-702'.
ESCC 22600, 23100, 24400, 25400 are added.
Reference to ESCC Generic Specification No. 3008 is no longer required and is therefore deleted.

19) Weight requirements are added to Para 5.2.8 & Chart F2 of ESCC 3405 draft 3A.

20) Paras 9.1, 9.7, 9.28 are no longer required and are therefore deleted.

21) Para 9.3, etc., Electrical Measurements:
• All electrical test methods are amended, e.g. irrelevant details/information deleted.
• Where a reference to a paragraph in ESCC Generic Specification No. 3008 is made this is replaced by the relevant test method details.
• Paras. 9.3.1.4, 9.15, etc.: As Mated Shell Conductivity does not apply to the only connector types (i.e. those defined in ESCC 3405/001), this test is deleted.
• Modifications made to take account of the changes from Charts IV and V to Chart F4 (Para. 8.3.1.x in ESCC 3405 draft 3).

22) Paras 9.4 and 9.5 are merged into a single Para (External Visual Inspection and Dimension Check).

23) Para 9.9, Rapid Change of Temperature, is modified to take account of the changes from Charts II, IV & V to Charts F2/F3 and F4. The reference to the obsolete/withdrawn IEC document 512-6 is removed.

24) Para 9.10, Wiring, is re-written for clarification and simplification purposes.

25) Para 9.11, Vibration:
• The test methods IEC 512-4 and 68-2-35 are obsolete and therefore the paragraph is re-written to reflect suitable existing test methods.
• The contact monitoring IEC Publication No. reference is corrected ("-5" missing) to 60512-2-5.
• As the only associated Detail Specification, 3405/001, does not feature connectors with a screw coupling mechanism(s), the torqueing cycle, and the measurement of unlocking torque and unlocking torque drift are deleted.

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26) Para 9.12, Shock or Bump:
• 'Bump' is deleted as test is either Shock OR Bump; typically (in various converted Generics) only Shock is retained.
• The test method IEC 512-4 is obsolete and therefore the paragraph is re-written to reflect a suitable existing test method.
• As the only associated Detail Specification, 3405/001, does not feature connectors with a screw coupling mechanism(s), the measurement of unlocking torque and unlocking torque drift are deleted.

27) Paras 9.13.1, Dry Heat & 9.13.3, Cold (part of Climatic Sequence): Withdrawn IEC tests replaced (Bb replaces 'Ba'; Ab replaces 'Aa'.)

28) Para 9.13.4, Low Air Pressure (part of Climatic Sequence): The altitude condition is corrected.

29) Para 9.18, High Temperature Storage: the test method IEC 512-6 is obsolete and therefore the paragraph is re-written to reflect suitable existing test method.

30) Para 9.19, Corrosion: Part (a) is deleted as the test is applicable to the only associated Detail Specification, 3405/001.

31) Para 9.21, Operating Life: Tolerance on duration is added.

32) Para 9.22, Resistance to Soldering Heat: Para is totally revised – the reference to a paragraph in ESCC Generic Specification No. 3008 is replaced by the applicable test method details.

33) Para 9.23, Engagement and Separation Forces: Sampling requirements are re-worded as Charts IV and V have been replaced by Chart F4.

34) Para 9.25, Probe Damage: The applicable test method is changed to test 16a of IEC 60512-16-1 due to the obsolescence of test method IEC 512-8.

35) Para 9.26, Solderability:
• Test method IEC 512-6 is obsolete and is therefore replaced.
• The requirements for PCB contacts are removed (the only associated Detail Specification, 3405/001, only includes solder bucket contacts).

36) Annexe I is deleted.

Justification:

All changes have been defined and included to serve the purposes of technical improvement, clarification, accuracy, completeness, simplification, harmonisation and consistency. The aim is to simplify and improve the content and interpretation of the specification and its requirements whilst maintaining an efficient and acceptable technical baseline.

ESCC 3405 draft 3A is written to closely follow the layout, format and content of the latest ESCC 5000. The justifications for the related policy and editorial changes given in all other previous DCRs related to the conversion of ESCC Generic Specifications also apply to this DCR.

Note: For information purposes, and to hopefully aid the review process, an MSWord document of the only available associated Detail Specification in the "converted" format, ESCC 3405/001 Draft 4A, is attached to this DCR.

Attachments:
escc3405001draft4a.docx, 3405_draft_3b_for_dcr_review.docx
Modifications:
Updated per PSWG review and subsequent discussions with PSWG (specifically ADS). Final changes include: - Title page: Addition of "Non-Removable Contacts" (for clarification). - Editorial correction is made to Para. 1.1 Scope. - Para. 3 Terms, Definitions, Abbreviations, Symbols and Units is amended (for clarification and completeness). - Charts F1, F2 and F3 and related Paras. e.g. 5.2 Special In-Process Controls are revised for the purposes of clarification, consistency and also to correct various errors. The DCR, with these amendments to the Draft Spec, has been accepted Ref. PSWG #99 Minutes of Meeting, Item 5.2.
Approval signature:

Date signed:
2022-11-10