DOCUMENT CHANGE REQUEST

DCR number 1008	Changes required for: Qualification	Originator: Steve Thacker
Date: 2016/11/17	Date sent: 2016/07/01	Organisation: ESCC Executive Secretariat
Status: IMPLEMENTED		

Title:	Generic Specification for Coils, RF and Power, Fixed		
Number:	3201	Issue:	5

Other documents affected:

Page:

All

Paragraph:

Total reformat/re-write of ESCC Generic Specification 3201 issue 5 implementing changes specified and agreed by ESA/CNES/Exxelia Magnetics (formerly Microspire), as well as part of the ongoing conversion of legacy ESA/SCC specifications to the ESCC format.

For details of the proposed contents of ESCC 3201 issue 6, see the attached draft Generic specification that implements all the proposed changes:
ESCC 3201 Draft 6C for DCR Review.docx

Original wording:

See 3201 issue 5

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 3201 draft 6 are based other published, converted ESCC Generic Specifications such as ESCC 5000, 9000, 4001 etc.

The proposed technical content of ESCC 3201 draft 6 is based on the current content of ESCC 3201 issue 5 plus additional changes proposed for the purposes of general improvement plus the addition of Transformers to the range of components covered as requested by Manufacturer Exxelia Magnetics (Microspire).

This DCR summarises all the amendments to ESCC 3201 issue 5, 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:

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2) Chart III Burn-in and Electrical Measurements, has been replaced by Chart F3, Screening Tests.

3) Chart IV & V, Qualification and Lot Acceptance Testing charts have been incorporated, with some modifications, into a single Chart F4, Qualification and Periodic Tests. Modifications include:
• Periodic testing is mandatory for ESCC qualified components with a defined testing schedule (i.e. 24 months for all testing).

• Para 8.2, Chart IV, 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 9.19, Operating Life is always 2000hours (previously was 2000hours for Qual / 1000hours for LAT2)

• No failures are allowed during Chart F4 testing.

• Sampling for the various test subgroups in Chart F4 has been amended

4) Para 1.2, etc, Introduction of Capability Approval Qualification per ESCC No. 24300 and 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) Para 2.1 & 4.5, Material outgassing reference document is corrected to be ESCC No. 22600 (not ECSS-Q-ST-70-02). Material restrictions per ESCC No. 22600 are specified.

9) Para 4.1, 4.3.1, Chart I, Chart III, etc, The SCC testing levels B and C have been deleted; there is now only a single ESCC testing level, equivalent to old SCC level C, but it is not given a specific designation. All requirements applicable to ESCC level B are deleted (e.g. Parameter Drift Value measurements, Radiographic Inspection, serialisation during

screening, documentation requirements)

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

13) Para 5 & Chart F2, Production Control/Special In-Process Controls, replaces Paras 5 & 6 and Chart II. Redundant/repeated tests in Chart II are removed (Electrical Measurements & External Visual). Thermal Shock is moved to new Chart F3.

14) Para 7.4.1, etc, Check for lot failure during Screening (PDA), only includes Electrical Parameter limit failures (excluding the mechanical, handling, lost and visual failures counting towards PDA in ESCC 3201 issue 5)

15) Para 9.3.3, Electrical Measurements at High and Low Temperatures (Para 8.3.2 in ESCC 3201 draft 6): A default sample of 5 components with 0 failures (otherwise 100%) is fixed for this test.

16 Para 9.6 & Chart II, Dimension Check is performed on 3 samples instead of 5.

17) Para 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 3201):

18) Specification Title and Para 1.1, etc: Transformers are now also covered by this specification.

19) Para 2.1 & 2.2:
Reference documents that are not actually referenced in 3201 are removed, i.e. ESCC 20900, IEC No. 410. MIL-STD-105, MIL-STD-414, ‘ECSS-Q-70-02’.
ESCC 22600, 23100, 24300, 25400 are added.

20) Para 4.1.5, Pre-encapsulation Inspection is replaced by Pre-Assembly Source Inspection.

21) Para 7.1.1, Burn-in test requirements are detailed in new Para 8.4 in ESCC 3201 draft 6.

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22) Para 8.1.2, Distribution of Qualification Test Lot: The defined minimum sample is replaced by general distribution guidelines for qualification of a single type or a family of types.

23) Weight requirements are added (in Para 5.2.3 & Chart F2 of ESCC 3201 draft 6).

24) Para 9.2, Thermal Shock: Test conditions are amended (A-1 only during Chart F3 & A-3 only during Chart F4). Requirements for SMD coils are made the same as for cylindrical coils. Electrical measurements are added for the Chart F4 test.

25) Para 9.3.1.x, All electrical test methods are amended plus some new electrical tests are added (Para 8.3.1.x in ESCC 3201 draft 6).

26) Para 9.7, Solderability, Test requirements specific to SMD components are added.

27) Para 9.8, Barometric Pressure: Specific mounting requirements removed. Dielectric withstanding voltage test conditions are changed.

28) Para 9.9, Temperature Rise: Figure 2 is removed.

29) Para 9.10, Overload: duration changed to 30 mins (was 5 mins)

30) Para 9.11, Resistance to Soldering Heat, test condition for SMD coils is changed to condition B (was D).

31) Para 9.12, Terminal Strength: Twist and Torque tests are removed.

32) Para 9.14, Chart IV, Low Temperature Storage is deleted (it is considered a redundant test already covered by the more severe Thermal Shock).

33) Para 9.15, Vibration: the definition of an electrical discontinuity (0.1ms) is removed. Mounting requirements are amended.

34) Para 9.16, Shock, Mounting requirements are amended.

35) Para 9.18, Moisture Resistance: Mounting requirements are amended.

36) Para 9.19, Operating Life: tolerance on duration is added. Mounting requirements are amended. The load ON/OFF cycling is removed.

37) Appendix A is deleted.

Justification:

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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.

All technical changes have been defined and/or agreed by ESA, CNES and ESCC qualified Manufacturer Exxelia Magnetics (Microspire).

ESCC 3201 draft 6 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.

Attachments:

3201_draft_6c_for_dcr_review.docx

Modifications:

N/A

Approval signature:



Date signed:

2016-11-17