DOCUMENT CHANGE REQUEST

DCR number 703	Changes required for: General	Originator: Steve Thacker
Date: 2013/12/05	Date sent: 2012/01/26	Organisation: ESCC Executive Secretariat
Status: IMPLEMENTED		

Title:	Relays Electromagnetic Non-Latching 28Vdc 1A 2PDT TO5 Can		
Number:	3601/002	Issue:	1

Other documents affected:

Page:

Total reformat/re-write of ESCC 3601/002 issue 1 as part of the ongoing conversion to the ESCC format.

The changes incorporated into 3601/002 include the following:
• editorial & technical changes that reflect the content of Generic specification No.3601 issue 3 (per DCR672).
• technical changes per approved DCRs 157, 340, 341.
• technical changes in accordance with the still relevant content of pending DCRs 289, 346, 348, 351, 353, 355, 359, 360 (as applicable).
• additional editorial and technical changes as detailed herein.

Paragraph:

See below

Original wording:

See 3601/002 issue 1

Proposed wording:

Total reformat of this Detail Specification (from the range of various ESCC Detail Specifications, 3601/xxx, for resistors under Generic Specification No. 3601) as part of the ongoing conversion of ESA/SCC legacy Detail specifications to the ESCC format, as well as amendments resulting from the changes to the Generic specification No.3601 per DCR672.

Note: The proposed technical content of ESCC3601/002 issue 2 is based on the current content of ESCC3601/002 issue 1 plus amendments discussed by ESA and CNES since 2006. Many of the amendments have already been proposed in other DCRs (those already approved: DCRs 340, 341)(those still open or intended to be withdrawn: DCRs 289, 346, 348, 351, 353, 355, 359, 360). This DCR details all changes including the applicable changes from all these other DCRs.

See below for summary of changes proposed by this DCR.

Also see the attached proposed 3601/002 Issue 2 Draft E which incorporates all amendments proposed per this DCR.

Note: known support for active procurement against this specification includes the following Manufacturer:
REL-STPI/F (is willing to support procurement of all variants and is ESCC qualified for all variants).

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Summary of changes to the current format, layout and content is as follows

1) General
Rewording and restructure of various sections and paragraphs of the specification, plus other editorial changes based on the layout and editorial content of other Detail Specifications already converted to ESCC format.

2) Para 2, Reference to MIL-STD-202 is deleted (as it is not actually referenced)

3) Table 1(b) Maximum Ratings.
• Contact Resistance is deleted (as Contact Resistance is not a rating; Contact Voltage Drop is specified in Room Temperature Electrical Measurements)
• Storage Temperature ratings are added (these standard ESCC ratings were missing).

4) Figure 2, Dimension alpha is amended to refer to BSC (for clarification purposes)

5) Para 4.2, Deviations from the generic spec are removed (no longer needed as the detail spec is now compliant with the generic spec)

6) Para 4.5.4, nominal coil resistance values are deleted (as redundant information)

7) Para 4.7.1 & Table 4, Miss Test is renamed ‘Run-in’ and Table 4 is used to specify Parameter Drift Values.
Miss Test Contact Resistance limit is deleted from Table 4 and replaced by Pick-up Voltage & Drop-out Voltage drift values (+/-15%)

8) Table 2 & Table 6, Voltage Proof Leakage Current test is added whenever Voltage Proof is tested (ref DCR340; note that the Voltage Proof test is retained)

9) Table 2 & Table 3, Contact Voltage Drop test current is specified (=100mA to be consistent with the generic spec)

10) Table 3, Pick-up Voltage & Drop-out Voltage:
• For Pick-up Voltage the max limits only apply to the high temperature test. No test is required at low temperature.
• For Drop-out Voltage the max limits only apply to the high temperature test, and the minimum limits only apply to the low temperature test.

11) Figure 4, Figure 5(a), Figure 5(b) are deleted (Not applicable)

12) Table 5(a), the 3 high, low and room temperature conditions for Run-in (= “Miss Test”) are replaced by a single test temperature of 22C.

13) Table 5(b) is deleted (Generic Spec No.3601 default test conditions apply).

14) Table 6, tests that do not include electrical measurements are removed from the table (i.e. Terminal Strength). Only

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electrical tests are included in the Table (i.e. references to visual examination are removed from the Table).

15) Table 6, Salt Spray test is deleted (ref. DCR341; Note that Solderability is not added to this table)

16) Table 6, some Contact Voltage Drop limits are amended.
i.e.
• Overload: 400mV during monitoring (was 1.4V)
• Intermediate Current: 20mV during monitoring; 200mV during final measurements (was 300mV for both)
• Operating Life Resistive (= Resistive Life): 200mV during monitoring (was 2.8V)
• Operating Life Low Level Load and Mechanical Life (= Low Level Life): 200mV during monitoring (was 2.8V)

17) Table 6, Random Vibration, High Level Sine Vibration & High Level Mechanical Shock electrical measurement requirements are added (to be consistent with the Generic Specification per DCR672)

18) Table 6, Addition of drift values (for Pick-up Voltage & Drop-out Voltage, +/-15%) during the following tests:
• Vibration (= Low Level Sine Vibration)
• Mechanical Shock (= Low Level Mechanical Shock)
• Overload
• Intermediate Current
• Operating Life Resistive (= Resistive Life)
• Operating Life Low Level Load and Mechanical Shock (= Low Level Life)
• Random Vibration (new test)
• High Level Sine Vibration (new test)
• High Level Mechanical Shock (new test)

Note 1 is added to permit an additional measurement (of drift parameters) prior to the test in question in order to facilitate the drift calculation.

Justification:

a) Part of the ongoing activity of conversion of legacy ESA/SCC specifications to the ESCC format. Amendments are made to the format and editorial content in order to be consistent with various other ESCC Detail Specifications.

b) To make the detail spec fully consistent with the requirements and content of the ESCC Generic spec 3601 issue 3 (per DCR672).

c) To incorporate specific technical changes as detailed in the relevant change item above. All changes are for the purposes of technical improvement and have been previously discussed with CNES/ESA.

d) Implement drift measurement limits for Pick-up Voltage & Drop-out Voltage during Screening (over Run-in) and during Qualification and Periodic Testing on specific tests (see item 18 above).
Note - This change has not yet been agreed with the ESCC QPL Manufacturer REL-STPI/F.

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Attachments:

3601002_draft_2g_in_review.pdf, null

Modifications:

The above DCR text is amended as follows:
Note – Modifications as follows include those requested by REL-STPI/F, as agreed by ESA & CNES.

The proposed draft specification is changed to be 3601/002 draft 2G which incorporates all changes per this DCR including these modifications.

Item 4) Figure 2, Add the following change:
Dimension F is specified as a diameter (for clarification purposes).

Item 7) Delete item and replace with the following:
7) Para 4.7.1 & Table 4, Miss Test is renamed ‘Run-in’ and Table 4 is used to specify Parameter Drift Values.
Miss Test Contact Resistance limit is deleted from Table 4 and replaced by Pick-up Voltage & Drop-out Voltage drift values. Drift value limits are not specified at this time. Drift values are to be recorded for information purposes only in order to amass data so that suitable drift value limits can be specified at a later date (in a later revision).

Item 9) Table 2 & 3, Add the following change:
The limit for Contact Voltage Drop is amended to be 10mV maximum (was 100mV max; correction of error to be consistent with a contact resitance value of 100mohm)

Item 16) Table 6.
Amend the Intermediate Current bullet to read as follows:
· Intermediate Current: 300mV during monitoring (clarification only; no actual change); 20mV during final measurements (per DCR157)

Amend the Operating Life Low Level Load and Mechanical Life bullet to read as follows:
· Operating Life Low Level Load and Mechanical Life (= Low Level Life): 20mV during final measurements (was 200mV)

Add new bullet as follows:
· Operating Life Resistive (= Resistive Life): 2.8V during monitoring (clarification only; no actual change); 20mV during final measurements (was 200mV)

Item 17) Table 6, Add Coil Life electrical measurements to the list of tests added to Table 6.

Item 18) Delete item and replace with the following:
18) Table 6, Addition of drift values (for Pick-up Voltage & Drop-out Voltage) during the following tests:
Note - Drift value limits are not specified in the table at this time. Drift values are to be recorded for information purposes only in order to amass data so that suitable drift value limits can be specified at a later date (in a later revision). Note 1 is added to clarify this position.

- Vibration (= Low Level Sine Vibration)
- Mechanical Shock (= Low Level Mechanical Shock)
- Overload
- Intermediate Current
- Operating Life Resistive (= Resistive Life)
- Operating Life Low Level Load and Mechanical Shock (= Low Level Life)
- Random Vibration (new test)
- High Level Sine Vibration (new test)
- High Level Mechanical Shock (new test)

Note 1 also permits an additional measurement (of drift parameters) prior to the test in question in order to facilitate the drift calculation.

Add new items 19 & 20 as follows:

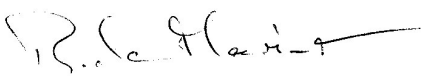
New Item 19) Para 4.5.1, Marking, item (a) & Para 4.5.2, Terminal Identification is deleted from the list of mandatory marking items (Terminal identification is actually specified by reference to the position of the case tab, as specified in Para 1.6).
Note - The Manufacture is still permitted to mark a circuit schematic on the body of the relay, if space permits, under the Marking category of ‘Manufacturer’s Own Marking’.

New Item 20) Figure 3. Notes are added (to clarify connections)

In the Justification section amend ‘d) Implement drift measurement’ to read as follows:

d) Implement drift measurement for Pick-up Voltage & Drop-out Voltage during Screening (over Run-in) and during Qualification and Periodic Testing on specific tests (see items 7 & 18 above). Limits have not been specified at this time due to lack of applicable performance data. Measurements will now be recorded for information purposes so that suitable drift value limits can be specified at a later date in a further revision of this specification. This change has been agreed with the ESCC QPL Manufacturer REL-STPI/F.

Approval signature:



Date signed:

2013-12-05