DOCUMENT CHANGE REQUEST

DCR number 337	Changes required for: Qualification	Originator: JUDE NEYLON
Date: 2007/04/24	Date sent: 2007/04/24	Organisation: Enterprise Ireland
Status: IMPLEMENTED		

Title:	Thermistors (thermally Sensitive Resistors) Range 2000 to 100000 Ohms at +25C with a		
Number:	4006/014	Issue:	4

Other documents affected:

Page:

Page 8, FIGURE 2 - PHYSICAL DIMENSIONS / NOTE 1

Paragraph:

Page 8, FIGURE 2 - PHYSICAL DIMENSIONS / NOTE 1

Original wording:

Proposed wording:

CHANGE FIGURE 2 AND NOTE 1.

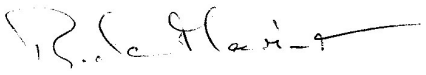
SEE ATTACHED DCR DOCUMENT AND BETATHERM DOCUMENT ON FLATNESS FOR DETAILS.

Justification:

SEE ATTACHED DCR DOCUMENT AND BETATHERM DOCUMENT ON FLATNESS

Existing ESCC Detail specification 4006/014 does not adequately specify the Flatness of the Component. Components with inadequate flatness will cause problems when they are assembled by customers.

Reference Document: Betatherm document of April 18th 2007 / J.Neylon â.. Flatness of ESCC 4006/014 Probesâ.

Attachments:
Flatness_DCR_(4).DOC, Flatness_4006014.doc, DCR337att1.pdf, DCR337att2.pdf, null
Modifications:
The following amendments apply to the details per the original DCR: a) Rather than "datum" the usual ESCC term "mounting plane" be used in Figure 2 b) Amend note 1 per the original DCR to be: Note 1 - Within dimension D (housing /crimp) no part of the housing or the leads shall protrude below the mounting plane by more than 0.13mm.
Approval signature:

Date signed:
2007-04-24

BETATHERM IRELAND LTD.
UNIT 201/202, BALLYBRIT BUSINESS PARK, GALWAY
PHONE 353-91-753238
FAX 353-91-753615

Flatness of ESCC 4006/014 probes.

TO:	**John Howley**	**Enterprise Ireland.**
From:	**Jude Neylon**	**Betatherm / Measurement Specialties.**
CC:	**John Wong**	**ESTEC**
	Olivier Perat	**CNES**
Dated:	**April 16TH 2007**	

Purpose:

The purpose of this report is to highlight an issue with the flatness of the ESCC 4006/014/08 components and to propose a remedy.

Background:

Since the introduction of the ESCC 4006/014/08 component in 2005.(G15K4D489) over 7,000 flight probes have been shipped with no complaints other than the "Capillary Effect" .However in recent weeks CNES have indicated that they had an issue with the flatness of 2 components.

In 2006 Betatherm shipped 30 parts of G15K4D489 to CNES. They discovered two parts that had housings which they considered not to be flat.
(Date Code 0629A)

There is no Specification of Flatness in the ESCC Detail Specifications (4006/014).

Date Code 0629A:

The two components that were found at CNES showed bending where the housing crimps the cable. Betatherm agree that the flatness of these two components is insufficient to allow normal bonding.

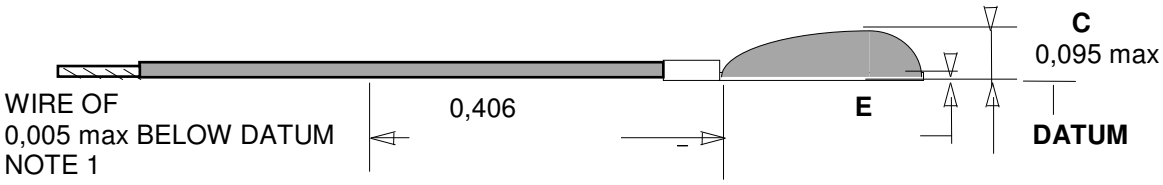
BETATHERM IRELAND LTD.
UNIT 201/202, BALLYBRIT BUSINESS PARK, GALWAY
PHONE 353-91-753238
FAX 353-91-753615

Flatness Definition:

As stated previously “Flatness” is not adequately defined in ESCC 406/014 but can be found in old MMS specifications. The Flatness Specification is set at 0.005”Maximum Deviation.

This means that the part of the housing that is crimping the cable must not drop in excess of 0.005” from the Datum .

Matra Marconi Secification.:



NOTES :

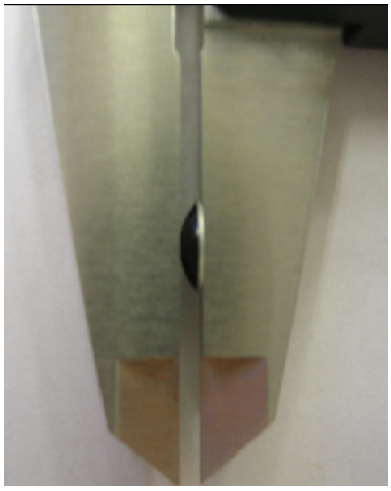
1) The means of fastening the leads must not drop below the mounting plane of the disc by more than 0.005’’.

Measurement:

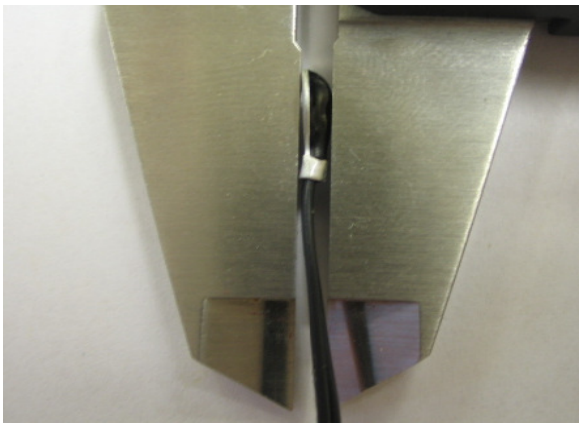
Over the years “Flatness” was discussed many times during Customer Source Inspections but the main issue was to develop an efficient method of measurement. Betatherm have now done this .Basically it involves the use of a Vernier Calipers in two stages.

BETATHERM IRELAND LTD.
UNIT 201/202, BALLYBRIT BUSINESS PARK, GALWAY
PHONE 353-91-753238
FAX 353-91-753615

a) Measure height of housing (Fig A) (crimp part not included)



b) Measure height of housing (Fig B) (crimp part include)



c) Do not zero calipers between first and second measurement
d) Difference between measurements is = flatness measurement.

BETATHERM IRELAND LTD.
UNIT 201/202, BALLYBRIT BUSINESS PARK, GALWAY
PHONE 353-91-753238
FAX 353-91-753615

.

Investigation:

Betatherm has checked the WIP and the process flow and are confident that this specific issue occurred when the housing was attached to the stranded / insulated wire. It is not associated with distorted housings in their un assembled stage.

A batch of parts (Date Code 0709A) was measured 100% and all housings were within a flatness of 0.002”

Other smaller lots were also measured and were also found to be within 0.002”

SUMMARY:

The parts that CNES discovered would appear to be a one off occurrence but there is a need to set a “Flatness Specification” and introduce a check in the Manufacturing Process.
The specification of 0.005” would appear to be sufficient and the Betatherm method of measuring this is accurate and easy to use.

PROPOSAL:

Issue DCR to add Flatness specification of 0.005” to all ESCC 4006/014 variants.

Betatherm have added the “Flatness Checks” to the following specifications.

WS-60-71 ” External Visual Inspection of 4006/014 Components”
MFG-11-72-20 ” External Visual Inspection of 4006/014 Components”

These checks will occur after the potting stage.

DOCUMENT CHANGE REQUEST

European Space Components Coordination

TO BE COMPLETED BY ORIGINATOR

Originator (1)	**Originator signature** (2)	**NSA or ESA representative signature** (3)	**Change request No.** (4)
Jude Neylon Affiliation Betatherm Ireland Ltd.	Date: 18 APRIL 2007	Date: 23 APRIL 2007	Page 1 of [3] (5)

DOCUMENT AFFECTED

Doc. No. (6)	**Status** (7)	**Title** (8)	**Other documents affected** (10)
4006/014	Issue 4, Jul-05	THERMISTORS (THERMALLY SENSITIVE RESISTORS), NCT, RANGE 2 000 TO 100 000 OHMS AT + 25°C WITH A TEMPERATURE RANGE OF – 60 TO + 160 °C	NONE

Paragraph(s) and page(s) affected (9)

Page 8: FIGURE 2 – PHYSICAL DIMENSIONS / NOTE 1

PROPOSED WORDING OF CHANGE (11)

Continuation sheet(s) attached: Yes [x] No [ ]

JUSTIFICATION (12)

Continuation sheet(s) attached: Yes [x] No [ ]

Changes required for: Procurement (project) [ ] Qualification [ ] MRB decision [ ] (13)

General Improvement of Spec. [X] Other [ ]

RESERVED FOR USE BY SCC SECRETARIAT

Date of registration	**Order of priority for Appr. / Impl.:** 1 (high) 2 (medium) 3 (low)
Attachments	**Qualification status:** Qualified In process of qualification

RESERVED FOR USE BY APPROVING AUTHORITY

Approved	**Date and signature**	**Reference to SCCG decision**
[ ] Yes [ ] No Priority [ ]		

Approved wording, if different from box 11 or reason for rejection (14)

Continuation sheet(s) attached: [X] Yes [ ] No

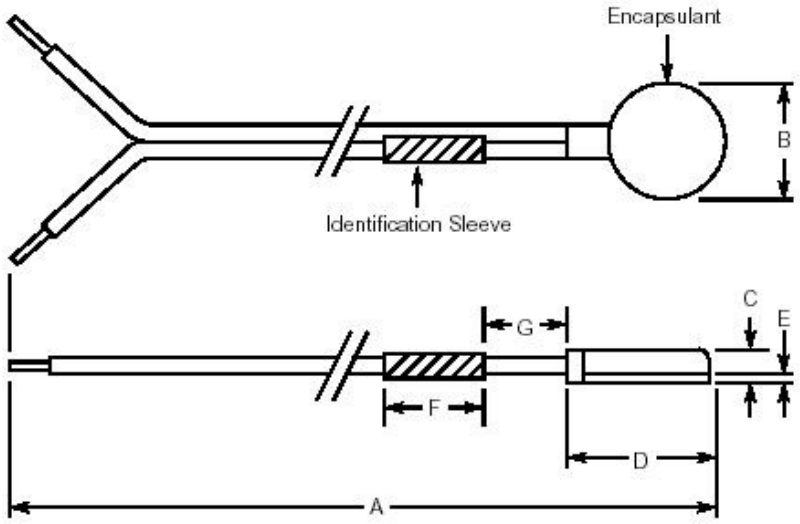
DOCUMENT CHANGE REQUEST

CONTINUATION SHEET FOR BOX [ ]

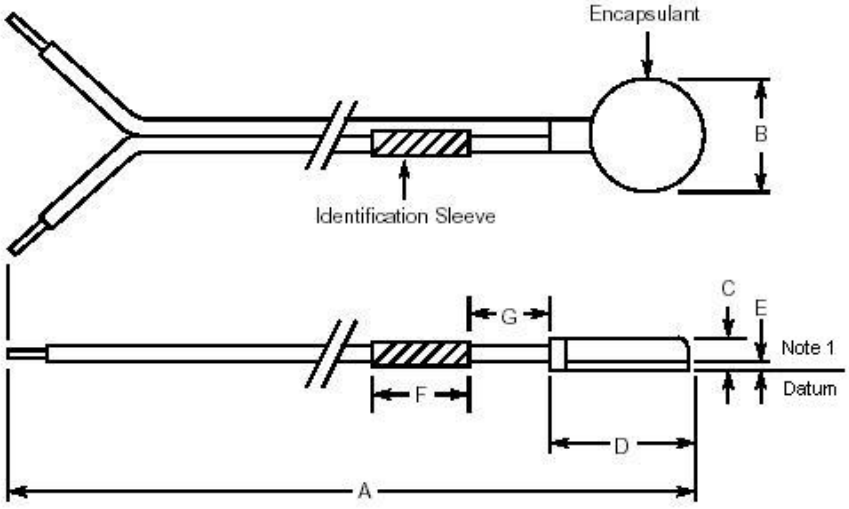
Change request No.)

PROPOSED WORDING OF CHANGE FOR FIGURE 2:

CHANGE FIGURE 2 FROM:



CHANGE FIGURE 2 TO:



JUSTIFICATION FOR CHANGE TO FIGURE 2:

Existing ESCC Detail specification 4006/014 does not adequately specify the Flatness of the Component. Components with inadequate flatness will cause problems when they are assembled by customers.

Reference Document: Betatherm document of April 18th 2007 / J.Neylon **" Flatness of ESCC 4006/014 Probes"**

DOCUMENT CHANGE REQUEST

CONTINUATION SHEET FOR BOX [ ]

Change request No.)

PROPOSED WORDING OF CHANGE FOR NOTE 1:

CHANGE NOTE 1 FROM:

1. The leads shall not be bent, or the means of fastening them cause bending in any direction from the place of the thermistor fastening disc within a distance of 15mm from the centre of the Thermistor.

CHANGE NOTE 1 TO:

1. The housing /crimp that is used to fasten the leads shall not protrude 0.13mm(maximum) below the Datum line. This tolerance is inspected on a GO/NO GO basis.

JUSTIFICATION FOR CHANGE TO NOTE 1:

The wording of current Note 1 is ambiguous .Existing ESCC Detail specification 4006/014 does not adequately specify the Flatness of the Component .Components with inadequate flatness will cause problems when they are assembled by customers.

Reference Document: Betatherm document of April 18th 2007 / J.Neylon **" Flatness of ESCC 4006/014 Probes"**