ENGINEERING PRACTICES STUDY

TITLE: THE FUTURE STANDARDIZATION OF MIL-PRF-15160

FUSES: INSTRUMENT, POWER, AND TELEPHONE

November 6, 2008

PROJECT NUMBER 5920-2008-043

FINAL REPORT

Study conducted by Fred W. Lester
Electronics Technician
Electronics Component Branch
DSCC-VAT

Prepared by:

Fred W. Lester

Engineering Practices Study
The Future Standardization of MIL-PRF-15160

I. Objective.

The object of this study is to determine future support for our military, DoD and industry users of MIL-PRF-15160, instrument, power, and telephone type fuses.

II. BACKGROUND.

MIL-PRF-15160 has been losing qualified sources without any expectations of requalification or cultivation of new ones. This loss has not occurred over an entire specification sheet value range, but with several dash numbers under many specification sheets, leaving zero source situations. In time, more and more dash numbers will be left without a qualified source.

To provide for our military/industry customers, and find a solution for this situation, an EP study was initiated by DSCC-VAT on August 22, 2008. On September 11, 2008 a military/industry letter was sent out outlining the procurement hardships of MIL-PRF-15160 and asking for input from all interested parties in the electronics community, in order to make an informed decision on future instrument fuse procurements. Using the Defense Supply Center, Columbus (DSCC) military and industrial electronic distribution lists, we e-mailed this letter to over 157 recipients; 168 industry points of contact (POC) and 55 military activities. DSCC-VAT received 6 replies; 1 from industry and 5 from military activities (See attachment A for information request, attachment B for industry response and attachment C for military responses).

We asked that all respondents be definitive in discussing their choice of the proposed solutions and state their opinion for or against pure tin prohibition. Any available supporting data was also requested. We proposed three options to sustain procurement of MIL-PRF-15160 type fuses. The options were as follows:

1. Revise MIL-PRF-15160 to reduce the costs of maintaining qualification for this mature, stable product by redefining and streamlining the qualification and group test requirements, if possible.

2. Develop DSCC drawings for zero source dash numbers, eventually replacing MIL-PRF-15160. DSCC drawings require no qualification, only group A and group B testing, or other scaled back testing.

3. Write Commercial Item Descriptions (CIDs) on commercial versions of MIL-PRF-15160 fuses.

Options 2 and 3 could either prohibit or allow the use of pure tin finishes externally.

III. RESULTS.

Only one industry user responded. They indicated that they have not used MIL-PRF-15160 fuses and do not plan to use them in their equipment in the future. They also added that if they were to use these fuses, they would conduct a lead free assessment on the finish of the components.

Five responses were received from military activities, one indicating “no comment,” one offering no opinion on the issue, two opting for developing DSCC drawings for zero source dash numbers and eventually replacing MIL-PRF-15160 and one suggesting that writing CIDs would be the most beneficial vehicle to use.

1. DSCC-LSA and HAZMIN reviewed the information request and had no comment.

2. NASA indicated that they do not use these fuses for space applications so they have no opinion on what would be the best course of action.

3. ARMY-AV and MI recommended that DSCC drawings for zero source dash numbers, eventually replacing MIL-PRF-15160 should be developed. DSCC drawings would require no qualification, only group A and group B testing, or some other scaled back testing.

4. NAVSEA feels that revising MIL-PRF-15160 to reduce the costs of maintaining qualification for this mature, stable product by redefining and streamlining the qualification and group test requirements may provide some relief from the situation but do not recommend this solution. They feel that this is not a long term solution and qualification costs would still be present

NAVSEA recommends that a better, longer lasting solution would be to develop DSCC drawings for zero source dash numbers eventually replacing MIL-PRF-15160. DSCC drawings require no qualification, only maintenance of individual drawings which would provide cost savings in the long term. This solution is considered the lowest cost while permitting DOD to retain control over the product.

NAVSEA can see the benefits of writing CIDs for commercial versions of MIL-PRF-15160 fuses but they do not recommend this option. They feel the commercial items, which the CIDs are written around can be changed, become obsolete items or discontinued by the manufacturer at any time. The Government would not have control over any commercial item.

5. The Air Force custodian (AF-85) at Wright-Patterson AFB recommends that CIDs would be the most beneficial vehicle for both the companies and the Government in the future procurement of MIL-PRF-15160 type fuses. The companies would realize the savings of not having to qualify an item or group of similar items to the expensive testing dictated in the MIL-Spec. Most of the commercial items already carry UL and/or CSA listing and show they are tested to a variety of MIL-STD-202 methods. They do not foresee the companies doing any less for their commercial items than they do now, and they must assure themselves and the Non Government Organizations (NGOs) that their products meet some threshold limits. The cost to the Government for maintenance of a CID should be less than the maintenance cost for a drawing and would be far less than the maintenance cost of the specification, slash sheet, and QPL. Validation of compliance to an NGO specification should be required and stipulations for pure tin finishes and RoHS compliance/non-compliance can be incorporated into the CID.

Since the implementation of the 1994 Perry doctrine the Air Force has seen many companies drop their QPL listings across the spectrum of MIL-Specs, some doing it piecemeal while others across the entire line, citing the cost of maintenance of their listing as a primary factor. (QPL-15160-50 had four sources listed and QPL-15160-69 has two). Multiple part numbers inside the aggregate listings have gone obsolete/non-procurable for the two remaining companies.) Air Force does not see this exodus diminishing. The Air Force works many 339 projects where they advised Defense Logistics Agency (DLA) to procure the straight commercial equivalent because the company was no longer offering the MIL-Spec item.

The issue of using pure tin and RoHS compliance have been increasingly important topics. Pure tin finishes should be disallowed on the exterior of the fuses. We have no way to know where any given fuse is installed in all cases or what the dimensions between conductive elements are within proximity of the fuse. Tin whiskers have been shown to gap and short some impressive distances with catastrophic results. RoHS compliant items present a separate and seemingly thornier issue. Not enough information exists about RoHS solders but they are known to be more brittle than tin/lead solders and require significantly higher temperatures to melt and flow. We have not seen much information concerning material compatibility, so direct replacement does not seem appropriate at this time. Processes using RoHS products fall into this last statement concerning materials compatibility, not enough is yet known. Having said that, some companies are not advertising whether their parts are or are not RoHS compliant and we've already seen instances of mixing of RoHS and non-RoHS compliant parts. For our part, until some clear direction emerges, we do not want to see RoHS compliant parts. Some statement regarding supplying non-RoHS compliant parts should be incorporated where there could be an issue of materials compatibility.

IV. CONCLUSIONS.

With more and more MIL-PRF-15160 fuses becoming obsolete/non-procurable, the Government must find a way to support our military/industry customers. We have surveyed a large number of interested parties and have received only a few responses giving solutions on how to fix this situation. The resounding theme from all respondents is to develop a procurement vehicle, other than MIL-PRF-15160 and/or alleviate the antiquated, severe group A, B, C and qualification testing requirements in MIL-PRF-15160. Also, this procurement vehicle shall require that any external tin finish be at least 3 percent lead by mass.

V. RECOMMENDATIONS.

a. CIDs appear to be the best solution. DSCC-VAT acknowledges that DSCC drawings would be a cost savings over a full qualification document. However, in the long term, they would afford less cost savings than CIDs. Additionally, any attempt to increase test requirements beyond that prescribed by a CID would eventually lead to manufacturers dropping out due to the very reason they have abandoned the military specification program. Therefore, DSCC-VAT recommends developing CIDs covering commercial equivalents on the entire MIL-PRF-15160 family of fuses. Furthermore, these CIDs will have a requirement that any external tin finish be at least 3 percent lead by mass. Once developed, these CIDs will provide a viable procurement vehicle for the Government to turn to when/if a zero source situation arises under MIL-PRF-15160.

b. Simultaneously, in an attempt to stave off future loss of qualified parts, it is recommended that MIL-PRF-15160 be revised to reduce the costs of maintaining qualification for this mature, stable product by redefining and streamlining the qualification and group A, B, and C test requirements.

DEFENSE LOGISTICS AGENCY
DEFENSE SUPPLY CENTER, COLUMBUS
POST OFFICE BOX 3990
COLUMBUS, OH 43218-3990

IN REPLY REFER TO DSCC-VAT

September 11, 2008

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: The Standardization of Cartridge Fuses; Project Number 5920-2008-043

MIL-PRF-15160 has been losing qualified sources without any expectations of requalification or cultivation of new ones. This loss has not occurred over an entire specification sheet value range, but with several dash numbers under many specification sheets, leaving zero source situations. In time, more and more dash numbers will be left without a qualified source. Therefore, to provide for our military customers, we are proposing three options to sustain procurement of MIL-PRF-15160 type fuses:

1. Revise MIL-PRF-15160 to reduce the costs of maintaining qualification for this mature, stable product by redefining and streamlining the qualification and group test requirements, if possible.

2. Develop Defense Supply Center, Columbus (DSCC) drawings for zero source dash numbers, eventually replacing MIL-PRF-15160. DSCC drawings require no qualification, only group A and group B testing, or other scaled back testing.

3. Write Commercial Item Descriptions (CIDs) on commercial versions of MIL-PRF-15160 fuses.

Options 2 and 3 could either prohibit or allow the use of pure tin finishes externally.

We need input from you, and from all interested parties in the electronics community, in order to make an informed decision on future cartridge fuse procurements. We ask that all respondents be definitive in discussing their choice of the proposed solutions and state their opinion for or against pure tin prohibition. Any available supporting data should be included.

Your comments and suggestions are required at this Center no later than 45 days from the date of this letter. Comments from military departments must be identified as either "Essential" or "Suggested". Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians or this office, as applicable, in sufficient time to allow for consolidating the department reply. All Navy review activities are requested to send their comments to this center in lieu of the Navy - EC custodian.

Please forward your comments or concurrence to the project engineer listed below. Any future coordination concerning this document will be circulated only to firms and organizations that furnish comments or reply that they have an interest.

The point of contact for this document is Mr. Fred W. Lester, DSCC-VAT. The preferred method of contact is via e-mail: fred.lester@dla.mil. Mr. Lester can also be reached at 614-692-0548/DSN 850-0548, or by facsimile 614-692-6939/DSN 850-6939.

/SIGNED/

MICHAEL A. RADECKI
Chief
Electronic Components Team

Federal Recycling Program Printed on Recycled Paper

ATTACHMENT A

Lester, Fred W (DSCC)

From: Edwards, Robert [robert.h.edwards@Goodrich.com]
Sent: Monday, September 29, 2008 4:15 AM
To: Lester, Fred W (DSCC)
Cc: Edwards, Robert
Subject: RE: The Standardization of Cartridge Fuses MIL-PRF-15160

Dear Mr Lester,

Thank you for your enquiry about cartridge fuses to MIL-PRF-15160. We are based in Birmingham, England, and we do not use or have any plans to use this type of fuse to MIL-PRF-15160 in our equipment. On the question of lead free finishes on components we would conduct a lead free assessment on the finish of the component before use had we any intention to use these parts.

Best regards

Robert H Edwards
Technology Consultant

GOODRICH

Engine Control and Electrical Power Systems

York Road, Hall Green

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From: Lester, Fred W (DSCC) [mailto:Fred.Lester@dla.mil]
Sent: 12 September 2008 13:46
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Cc: Sindelar, William E (DSCC); Rudd, Kevin A (DSCC); Carucci, Carmen K (DSCC)
Subject: The Standardization of Cartridge Fuses MIL-PRF-15160

DSCC-VAT is conducting an Engineering Practice (EP) study on the standardization of cartridge fuses (MIL-PRF-15160). See attached letter for details.

Because you and your company or activity deals with government and industry electronic component issues, we are asking for your help by soliciting input from you or any of your associates who have knowledge and interest in these type fuses.

We ask that all respondents be definitive in discussing their involvement with these type fuses and that they include any supporting data available.

Responses are required at DSCC no later than 45 days from the date of this email.

Forward your responses electronically to the project engineer listed below. This can be in the form of a return email, with or without an attached file. If an electronic response is not possible, we will accept comments via letter or facsimile.

The Point of contact for this study is Mr. Fred W. Lester, DSCC-VAT.

Best Regards,

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<<15160 Cartridge Fuse Standardization Study Ltr.pdf>> ATTACHMENT B

Goodrich Control Systems Limited.

Registered Office: Stratford Road, Solihull, West Midlands, B90 4LA.

Registered in England No. 04482312.

Lester, Fred W (DSCC)

From: Carucci, Carmen K (DSCC)
Sent: Monday, October 20, 2008 3:55 PM
To: Lester, Fred W (DSCC)
Subject: RE: The Standardization of Cartridge Fuses MIL-PRF-15160
Signed By: carmen.carucci@dla.mil

LSA and HAZMIN have reviewed the engineering practice study and has no comments.

Thanks,

Carmen K. Carucci
Standardization Program Manager
DSCC-VSC
Phone: (614) 692-7760 DSN: 850-7760

-----Original Message-----
From: Lester, Fred W (DSCC)
Sent: Friday, September 12, 2008 8:46 AM
To: 'jeffrey.carver@us.army.mil'; 'Christopher.paquette@navy.mil';
'bradley.steiner@wpafb.af.mil'; 'Spec99@wpafb.af.mil';
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ATTACHMENT C

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Cc: Sindelar, William E (DSCC); Rudd, Kevin A (DSCC); Carucci, Carmen K
(DSCC)
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Best Regards,

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mailto:Fred.Lester@dla.mil
Voice: 614-692-0548 FAX: 614-693-1644
http://www.dscc.dla.mil/programs/milspec/

Lester, Fred W (DSCC)

From: Sampson, Michael J. (GSFC-300.0) [Michael.J.Sampson@nasa.gov]
Sent: Thursday, October 23, 2008 6:10 PM
To: Lester, Fred W (DSCC)
Subject: FW: The Standardization of Cartridge Fuses MIL-PRF-15160

Attachments: 15160 Cartridge Fuse Standardization Study Ltr.pdf

15160 Cartridge Fuse Standardi...

Fred,

NASA does not use these fuses for space so we offer no opinion on the course of action which should be taken.

Michael J. Sampson,

Manager NASA EEE Parts Program

GSFC Alert Coordinator

Code 300 NASA Goddard Space Flight Center

Greenbelt, MD 20771

Office: Building 32, Room E110B

Phone: 301-614-6233

Mobile: 240-595-1746

Fax: 301-614-5599

e-mail: michael.j.sampson@nasa.gov

NOTE: The opinions expressed in this message are my own and do not represent the policy or opinions of NASA, or the Goddard Space Flight Center.

From: Marco A Garcia [mailto:Marco.A.Garcia@aero.org]
Sent: Thursday, October 23, 2008 2:11 PM
To: Anna C Tai; beermann@msn.com; bmackie@avxtantalum.com; caleb.santiago@lmco.com; Salazar, Carlos G. (KSC)[USA]; cdenham@geia.org; Casas, George M. (KSC)[USA]; dave.toomey@vishay.com; david.l.roberts@navy.mil; david.richardson@vishay.com; david_moore@dscc.dla.mil; dhoover@deutsch.net; dwight.tabit@navy.mil; fernando.amaton@escg.jacobs.com; glen_o_corman@raytheon.com; henry.c.livingston@baesystems.com; herinron@aol.com; jack.h.freimann@boeing.com; jack.thompson@wpafb.af.mil; James F Bockman; james.moffett@ngc.com; James N Martin; Brusse, Jay A. (GSFC-560.0)[QSS]; jay.kratz@dla.mil; jay_d_martin@raytheon.com; jeffrey.landfair@navy.mil; joe.p.flarity@boeing.com; john.mccarrick@dla.mil; joshua.mischler@navy.mil; jwnirsch@rockwellcollins.com; Jeffrey H Sokol; Jocelyn P Siplon; Joseph_F_Zayonc@raytheon.com; kan@hirec.co.jp; kendall.cottongim@dla.mil;

kinn.roopwah@boeing.com; laurim@us.ibm.com; maria.a.ptak@baesystems.com; mary.j.lombard@boeing.com; matsuoka.takeshi@jaxa.jp; mdavis1@kcp.com; michael.j.sampson.1@gsfc.nasa.gov; michael_cozzolino@raytheon.com; mikami@hirec.co.jp; Marco A Garcia; Matsuda.sumio@dc.MitsubishiElectric.co.jp; Michael.radecki@dla.mil; Mike.mosier@vishay.com; pcall@geia.org; rafresch@raytheon.com; randy.townley@lmco.com; richard.yannitti@wpafb.af.mil; rkarpen@cscnorco.com; Russell C Cykoski; shana.r.kelly@boeing.com; shinozaki.koichi@nasda.go.jp; shoji.tanaka@tnkspace.com; smhammon@rockwellcollins.com; steven.a.masters@boeing.com; sugimoto@hirec.co.jp; suzuki-takar@avio.co.jp; Orton, Thomas M. (JSC-OB3)[BOE]; tim.h.shipe@lmco.com; toda.kazuhiro@jaxa.jp; toda.kazuhiro@nasda.go.jp
Cc: Fred.lester@dla.mil
Subject: Fw: The Standardization of Cartridge Fuses MIL-PRF-15160

FYI,
Marco

----- Forwarded by Marco A Garcia/West/Aerospace/US on 10/23/2008 11:10 AM -----

"Lester, Fred W (DSCC)" <Fred.Lester@dla.mil>

09/26/2008 04:25 AM

To

Marco A Garcia <Marco.A.Garcia@aero.org>

cc

"Sindelar, William E (DSCC)" <William.Sindelar@dla.mil>

Subject

The Standardization of Cartridge Fuses MIL-PRF-15160

Marco,

I discussed this in the G-11 meeting this week. Would you send this letter to everyone in the G-11 committee?

Thanks so much for your help.

Best Regards,

Fred W. Lester
DSCC/VAT
P.O. Box 3990
Columbus, OH 43218-3990
mailto:Fred.Lester@dla.mil
Voice: 614-692-0548 FAX: 614-693-1644 http://www.dscc.dla.mil/programs/milspec/

DEPARTMENT OF THE ARMY
UNITED STATES ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
AVIATION AND MISSILE RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
5400 FOWLER ROAD
REDSTONE ARSENAL ALABAMA 35898-5000

REPLY TO
ATTENTION OF:

AMSRD-AMR-SE-TD 23 Oct 08

MEMORANDUM FOR Defense Logistics Agency, Defense Supply Center Columbus (DSCC-VAT/Mr. Fred Lester), 3990 East Broad Street, Columbus, OH 43218-3990

SUBJECT: The Standardization of Cartridge Fuses MIL-PRF-15160

1. Reference message, E-Mail, Defense Supply Center Columbus, DSCC-VAT, Mr. Fred Lester, 12 Sep 08, subject as above.

2. Standardization codes AV and MI nonconcur with the subject review action as an essential comment. We are not able to determine the airworthiness or safety impact of the proposed change; therefore, we must nonconcur. However, the following suggested comment is provided following our non-technical review:

We recommend the second option (Develop Defense Supply Center, Columbus (DSCC) drawings for zero source dash numbers, eventually replacing MIL-PRF-15160. (DSCC drawings require no qualification, only group A and group B testing, or other scaled back testing).

3. Point of contact is Ms. Malinda Allcorn, (256) 876-6994, DSN 746-6994, E-Mail malinda.allcorn1@us.army.mil.

/signed/
RUSSELL F. MILLER
Chief, Technical Data
Management Division

CF:
U.S. Army Communications-Electronics Life Cycle Management Command
(AMSEL-LC-LEO-AV/Mr. Jeffrey Carver), Fort Monmouth, NJ 07703-5023

Lester, Fred W (DSCC)

From: Kallinikos, John S CIV NAVSEA HQ, SEA 05 [john.kallinikos@navy.mil]
Sent: Friday, September 26, 2008 7:13 AM
To: Lester, Fred W (DSCC)
Cc: Strawser, Donald E CIV NAVSEA HQ, SEA 05
Subject: RE: The Standardization of Cartridge Fuses MIL-PRF-15160

Attachments: 15160 Cartridge Fuse Standardization Study Ltr.pdf

15160 Cartridge Fuse Standardi...

Fred,

Please review below NAVSEA's response to your three options.

John Kallinikos
NAVSEA Standardization
Code 05M2
202-781-3729

-----Original Message-----
From: Strawser, Donald E CIV NAVSEA HQ, SEA 05
Sent: Wednesday, September 24, 2008 14:49
To: Kallinikos, John S CIV NAVSEA HQ, SEA 05
Cc: Strawser, Donald E CIV NAVSEA HQ, SEA 05
Subject: RE: The Standardization of Cartridge Fuses MIL-PRF-15160

John,

I have the following comments in response to the situation related by DSCC for MIL-PRF-15160:

1. Revising MIL-PRF-15160 to reduce the costs of maintaining qualification for this mature, stable product by redefining and streamlining the qualification and group test requirements may provide some relief from the situation. However, this is not a long term solution. Qualification costs are still present and as suggested by DSCC, this is a mature, stable product. There is a better, longer lasting solution. I do not recommend this solution.

2. Developing Defense Supply Center, Columbus (DSCC) drawings for zero source dash numbers, which would eventually replace MIL-PRF-15160, is the recommended solution. DSCC drawings require no qualification, only group A and group B, or other scaled back testing. Preparation and maintenance of individual drawings should also provide cost savings in the long term. This solution is considered the lowest cost while permitting DOD to retain control over the product. If this is an acceptable solution to all interested parties, I request NAVSEA be continued as a reviewing activity.

3. Writing Commercial Item Descriptions (CIDs) for commercial versions of MIL-PRF-15160 fuses is also a solution. However, the commercial items which the CID are written around can be changed, become obsolete or discontinued by the manufacturer at any time. We have no control over any commercial item. Therefore, I do not recommend this solution.

V/r,

Donald E. Strawser

Naval Sea Systems Command
Attn: 05Z32, Electrical Systems
1333 Isaac Hull Ave SE Stop 5216
Washington Navy Yard, DC 20376-5216
Telephone: 202.781.3808
Fax: 202.781.4545
donald.strawser@navy.mil

-----Original Message-----
From: Kallinikos, John S CIV NAVSEA HQ, SEA 05
Sent: Wednesday, September 24, 2008 9:28
To: 'Mitchell, Nicole'; 'kdaiber@deltaresources.com'; 'Mitchell, Nicole'; M_WNYD_HQ_SEA05M SIB; 'paul.fry@fe.navy.mil'; 'gentilejd@supship.navy.mil'; 'hedgepethsa@supship.navy.mil'; 'porter.dobbins@supshipgc.navy.mil'; 'warrenrl@supship.navy.mil'; 'kdaiber@deltaresources.com'
Subject: FW: The Standardization of Cartridge Fuses MIL-PRF-15160

The subject study for a custodian document is forwarded for review and comment. Please respond back to me by 10 October with your comments/no comments, "no interest", or concurrence.

Request 05Z SIB member provide input to the questions raised in the study.

v/r
John Kallinikos
NAVSEA Standardization
Code 05M2
202-781-3729

-----Original Message-----
From: Paquette, Chris C CIV NAVSEA HQ, SEA 05
Sent: Tuesday, September 23, 2008 12:44
To: Archie, Hope CIV NAVSEA HQ, SEA 05; Brian Gallagher (Brian.Gallagher@itt.com); 'elaine.fournier@itt.com'; Fournier, Elaine J CTR NAVSEA HQ, SEA 05; Kallinikos, John S CIV NAVSEA HQ, SEA 05; Konen, Thomas R CIV NSWCCD Philadelphia, 9460; Leach, Sandra D CIV NAVSEA HQ, SEA 05; Ngo, Nguyen D CIV NAVSEA HQ, SEA 05; Paquette, Chris C CIV NAVSEA HQ, SEA 05; Ruth Butler (ruth.butler@itt.com); Turner, Cheryl A CIV NAVSEA HQ, SEA 05
Subject: FW: The Standardization of Cartridge Fuses MIL-PRF-15160

Has anybody seen this? If I'm the only one getting e-mails like this, we're in trouble :)

r/
Chris Paquette
Office of the CHENG (SEA 05)
Technical Policy and Standards Div.Hd (SEA 05M2)
202-781-3576 (w) 703-801-0760 (c)
WNY Bldg 197 Rm 2E 3622

-----Original Message-----
From: Lester, Fred W (DSCC) [mailto:Fred.Lester@dla.mil]
Sent: Friday, September 12, 2008 8:46
To: jeffrey.carver@us.army.mil; Paquette, Chris C CIV NAVSEA HQ, SEA 05; bradley.steiner@wpafb.af.mil; Spec99@wpafb.af.mil; david.davis@losangeles.af.mil; mark.napolitano@us.army.mil; ardecstdzn@conus.army.mil; DAMI_STANDARDIZATION@conus.army.mil; daniel.ojeifoh@us.army.mil; Kenneth.Koziol@ssa.gov; streview@amrdec.army.mil; william.smith30@us.army.mil; Hattie.J.Strong@us.army.mil; Gray, Lee, (CO) (J6C);

Nancy.B.Readus@us.army.mil; malinda.allcorn1@us.army.mil; Freeman, James NAVAIR; Tabit, Dwight USNUNK NAVAIR 120, , n/a; Levandusky, Carl NAVAIR; Chin, Terence CIV NAVAIR 4.1.4.2; Abanto, Richard CIV NAVAIR 4.1.4.2; Sikora, Michael CIV NAVAIR; jmello@nctrf.natick.army.mil; groy@nctrf.natick.army.mil; jdeblase@nctrf.natick.army.mil; mcarscallen@gwpx.uscg.mil; Kholton@arsc.uscg.mil; pdugger@elcbalt.uscg.mil; sdiedrich@comdt.uscg.mil; arider@comdt.uscg.mil; Thompson, Margo (USCG); pcarment@aeroflex.com; steve_bakke@atk.com; eugene.moore@rdec.redstone.army.mil; rsloan@datts.wsmr.army.mil; george.youngman@baesystems.com; scott.a.hatch@baesystems.com; dawn.a.onsgard@baesystems.com; jodi.nappi@baesystems.com; suzanne.m.sanders@boeing.com; brian.h.jones@boeing.com; ronald.a.froman@boeing.com; donald.t.dike@boeing.com; doris.c.bingo@boeing.com; kevin.h.milton@boeing.com; john.w.mathisiv@boeing.com; darrell.c.devance@boeing.com; john.w.mathisiv@boeing.com; brian.h.jones@boeing.com; starzyk@c2t.com; fredell@cmccinci.com; bpeck@seistl.com; james.flynn@gd-ais.com; paul.peterson@gd-cs.com; damm@hazeltine.com; neseral@hsd.utc.com; hgornto@harris.com; william.m.ash@honeywell.com; mark.dunn@honeywell.com; rick.mowrey@honeywell.com; joe.scalise@cas.honeywell.com; spencer.elliott@honeywell.com; lesley.g.schulz@honeywell.com; jhopper@de.ittind.com; don.gagnon@itt.com; dayr@kaisere.com; homme@kearfott.com; thomas.r.biedke@L-3com.com; harold.palmquis@ngc.com; kevin.hoelzle@lmco.com; peter.g.leigh@lmco.com; clark.b.evans@lmco.com; george.r.miner@lmco.com; ming.huang@lmco.com; william.a.tock@lmco.com; steven.ingardia@lmco.com; gary.koskovich@lmco.com; robert.h.edwards@goodrich.com; frances.rogers@navair.navy.mil; john.fracalossi@ngc.com; pwhallgren@northropgrumman.com; carmine.capriglione@ngc.com; tinavon@oscsystems.com; bzmickelopoulos@raytheon.com; william_l_finley@raytheon.com; whha@raytheon.com; fjdonohoe@raytheon.com; dguerrero@raytheon.com; samuel.calloway@robins.af.mil; prbricco@rockwellcollins.com; brian.kocher@frco.com; james.riegling@smiths-aerospace.com; ed.durgadin@sypris.com; tom.johnston@demosystems.com; joan.tynda@udlp.com; carl.hickey@jorge-ga.com; keith.barnes@wkakti.com; phil.jordan@smithsind-aerospace.com; susan.earley@indsys.ge.com; james.c.weiler@jpl.nasa.gov; ron.oles@lmco.com; anthony.vu@lmco.com; ming.huang@lmco.com; roger.wechter@gd-ais.com; pennlf@ih.navy.mil; william.smith@rdec.redstone.army.mil; flefever@navcom.com; Reynolds, Jack T Civ OO-ALC/LGMR ; lhamiter@cti-us.com; richard.b.olson@lmco.com; jocelyn.p.siplon@aero.org; andis_k@atd.crane.navy.mil; wburgett@kcp.com; tcooper@utcdayton.com; rpowell@pica.army.mil; dtrivett@eldec.com; dave.chang@ngc.com; juliann.warnes@ngc.com; jim.hoyle@gdds.com; dlh@rocket.com; john.puckett@l-3com.com; trent.griffin@msfc.nasa.gov; jim.heck@honeywell.com; ken@aeco.com; hayesr@dtc.army.mil; jschutt@tracelabs.com; tracelab@connext.net; lwitt@contechresearch.com; mel@consolidatedlaboratories.com; billf@garwoodtestlabs.com; thernandez@eatest.com; dahesselroth@mmm.com; stctestlab@aol.com; engineering@elitetest.com; william.maitland@honeywell.com; matt.wood@sypris.com; jean.snider@sypris.com; nbustos@texascomponents.com; dsudol1@aol.com; karl.klipping@honeywell.com; dwildason@comdt.uscg.mil; martha.tawadrous@usmc.mil; lan-thanh.truong@usmc.mil; jeffrey.w.gibbs@usmc.mil; kevin.mcconnell@usmc.mil; jerry.mazza@usmc.mil; alice.stanley@usmc.mil; robert.l.cooney@usmc.mil; Collier, Zelda (USMC); silverma@hqmc.usmc.mil; cldavis@egginc.com; pankaj.guha@usmc.mil; kelly.gibson@usmc.mil; Penn, Amanda M CIV NAVSURFWARCENDIV; Kersten, Carl E CIV NAVFAC Lant
Cc: Sindelar, William E (DSCC); Rudd, Kevin A (DSCC); Carucci, Carmen K (DSCC)
Subject: The Standardization of Cartridge Fuses MIL-PRF-15160

DSCC-VAT is conducting an Engineering Practice (EP) study on the standardization of cartridge fuses (MIL-PRF-15160). See attached letter

for details.

Because you and your company or activity deals with government and industry electronic component issues, we are asking for your help by soliciting input from you or any of your associates who have knowledge and interest in these type fuses.

We ask that all respondents be definitive in discussing their involvement with these type fuses and that they include any supporting data available.

Responses are required at DSCC no later than 45 days from the date of this email.

Forward your responses electronically to the project engineer listed below. This can be in the form of a return email, with or without an attached file. If an electronic response is not possible, we will accept comments via letter or facsimile.

The Point of contact for this study is Mr. Fred W. Lester, DSCC-VAT.

Best Regards,

Fred W. Lester
DSCC/VAT
P.O. Box 3990
Columbus, OH 43218-3990
mailto:Fred.Lester@dla.mil <mailto:Fred.Lester@dla.mil>
Voice: 614-692-0548 FAX: 614-693-1644
http://www.dscc.dla.mil/programs/milspec/
<http://www.dscc.dla.mil/programs/milspec/>

<<15160 Cartridge Fuse Standardization Study Ltr.pdf>>

403 SCMS/GUED REPLY: The Standardization of Cartridge Fuses; Project Number 5920-2008-043

ESSENTIAL COMMENT 1

1. This office as Air Force code 85 is the Custodian for MIL-PRF-15160 and its subsequent slash sheets. We also correspond with DLA on Request for Engineering Assistance (DLA Form 339) and Item Reduction Studies (EIRSL) and work with end users for resolution of Product Quality Deficiency Reports (PQDRs) that do involve projects in this Mil-Spec. Air Force code 99 is listed as a Reviewer and has concurred with the following answer in paragraph 3.

2. Since implementation of the 1994 Perry doctrine we have seen many companies drop their QPL listings across the spectrum of Mil-Specs, some doing it whole sale and others doing it piece meal, citing the cost of maintenance of their listing as a primary motive. (QPL-15160-50 had four sources listed and QPL-15160-69 had two. Multiple part numbers inside the aggregate listings have gone obsolete/non-procurable for the two remaining companies.) We do not see this exodus diminishing. We have worked many 339 projects where we advised DLA to procure the straight commercial equivalent because the company was no longer offering the Mil-Spec variant. The following are offered as examples of that type reply (these are not the only examples, just the ones easily found):

NIIN	339 CASE NUMBER	MIL-SPEC P/N
00-163-4112	DSCC-FM-06-56157	F77A125V1A
00-167-1391	DSCC-FM-08-02898	F02B250V1/10A
00-681-5732	DSCC-FM-08-85882	F02B250V1/32A

3. With the above in mind and after reviewing the three presented options it is our considered opinion that Commercial Item Descriptions would be the most beneficial vehicle for both the companies and the Government. The companies would realize the savings of not having to qualify an item or group of similar items to the expensive testing dictated in the Mil-Spec. Most of the commercial items already carry UL and/or CSA listings and show they are tested to a variety of MIL-STD-202 methods. We do not foresee the companies doing any less for their commercial items than they do now, they must assure themselves and the NGOs that their products meet some threshold limits. The cost to the Government for maintenance of a CID should be less that the maintenance cost for a drawing and would be far less than the maintenance cost of the specification, slash sheet, and QPL. Validation of compliance to an NGO specification should be required and stipulations for pure tin finishes and RoHS compliance/non-compliance can be incorporated into the CID.

4. The issues of using pure tin and RoHS compliance have become increasingly important topics. Pure tin finishes should be disallowed on the exterior of the fuses. We have no way to know where any given fuse is installed in all cases or what the dimensions between conductive elements within proximity of the fuse are. Tin whiskers have been shown to gap and short some impressive distances with catastrophic results. RoHS compliant items present a separate and seemingly thornier issue. Not enough information exists about RoHS solders but they are known to be more brittle than tin/lead solders and require significantly higher temperatures to melt and flow. We have not seen much information concerning material compatibility, so direct replacement does not seem appropriate at this time. Processes using RoHS products fall into this last statement concerning materials compatibility, not enough is yet known. Having said that, some companies are not advertising whether their parts are or are not RoHS compliant and we've already seen instances of mixing of RoHS and non-RoHS compliant parts. For our part, until some clear direction emerges, we do not want to see RoHS parts comingled with previously supplied non-RoHS parts. Some statement regarding supplying non-RoHS compliant parts should be incorporated where there could be an issue of materials compatibility.

Bryan R. Ullery
Equipment Specialist
403 SCMS/GUED
Air Force code 85

L. G. Traylor
401 SCMS/GUMB
Air Force code 99