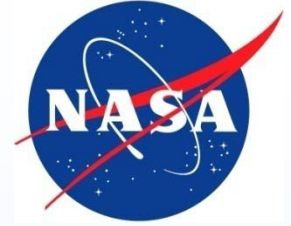


***NEPP Electronic Technology Workshop***  
***June 22-24, 2010***

National Aeronautics  
and Space Administration

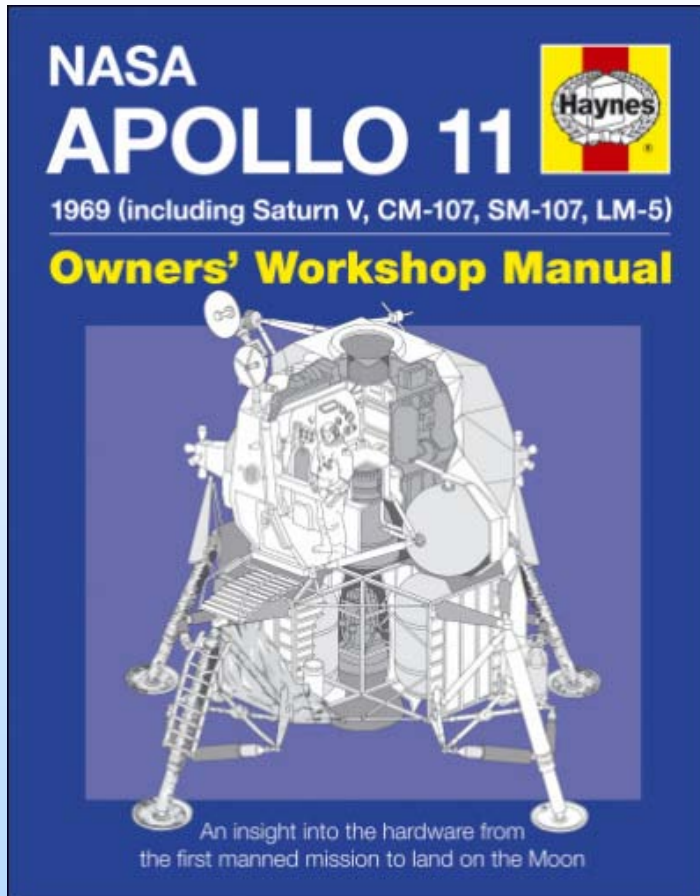


***NEPP on the Web***  
***Information Management and Dissemination (IMD)***

***Carl M. Szabo, Jr. / Dell***

***NASA Goddard Space Flight Center***  
***Greenbelt, MD 20771 USA***

# Pre-Introduction



***“Man is the best computer we can put aboard a spacecraft, and the only one that can be mass produced with unskilled labor”***

***– Werner von Braun***



# *Introduction 1/2*

## *Information Management and Dissemination (IMD)*

- *Public Website*
  - » ***<http://nepp.nasa.gov>***
- *Knowledge Acquisition and Dissemination*
- *Conferences*
- *Standards and Specifications*



# Introduction 2/2

## *Knowledge Acquisition and Dissemination*

*Through this effort the primary function is to facilitate information distribution and archiving by way of the NEPP web site. This includes maintenance and upkeep of the site and preexisting information, as well as providing links to all resources that reside on the NEPP web server.*

## *Standards and Specifications*

*The NEPP web site hosts various NASA standards and specifications, all of which are important to the space community at large. As such, links to these resources must be readily available throughout the duration of the projects that rely on them.*

## *Conferences*

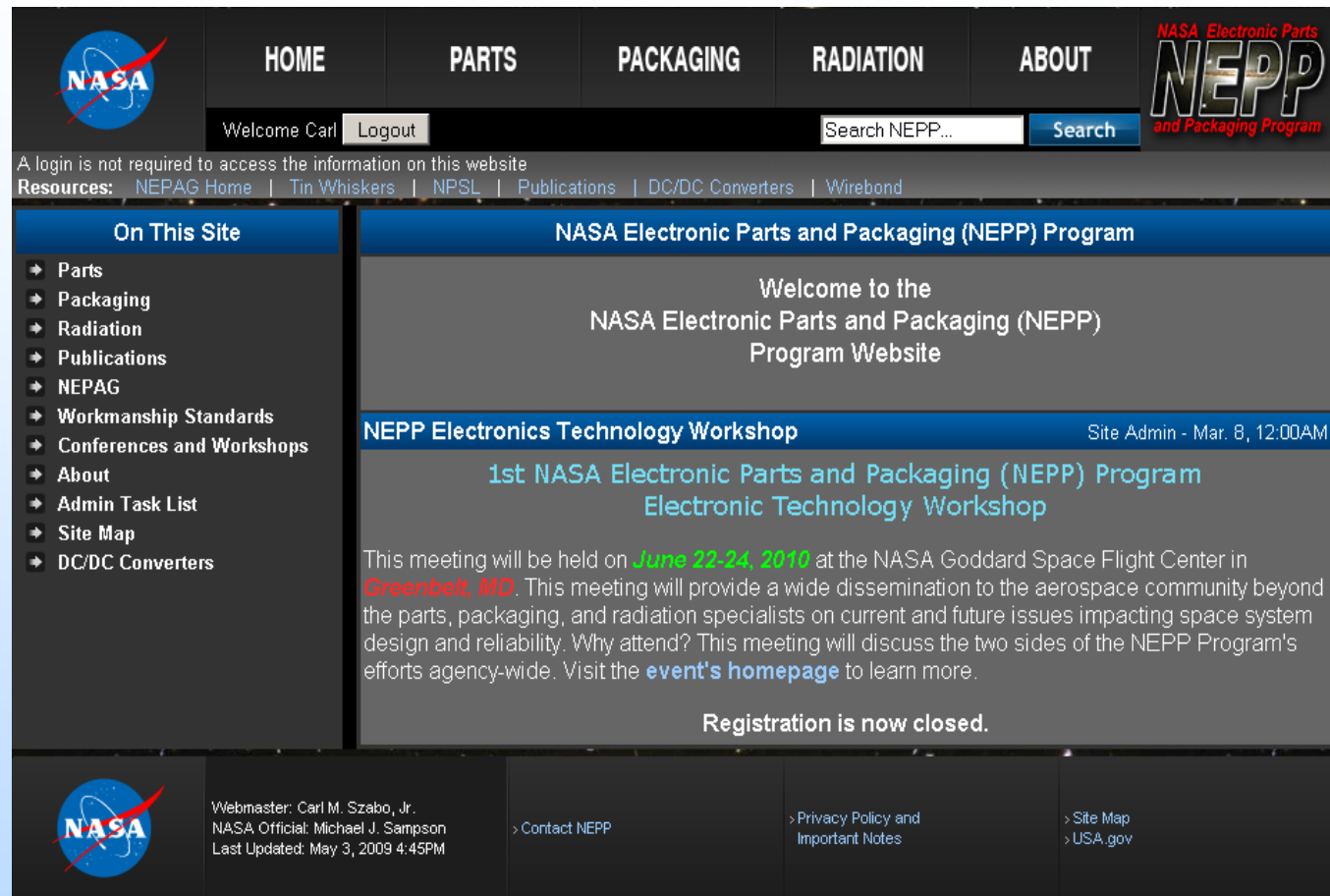
*Provide a forum for the exchange of information related to new and advanced electronic parts and packaging technologies for space and aeronautic applications, including radiation characterization. This enables NEPP to identify and explore trends in specific, key technology areas, which also diversifies the knowledge we ultimately disseminate.*

## *Public Web Site*

*<http://nepp.nasa.gov>*



# Public Website



The screenshot shows the NASA NEPP Program Website. At the top is a navigation bar with links: HOME, PARTS, PACKAGING, RADIATION, and ABOUT. To the right of these links is the NASA logo and the NEPP logo (NASA Electronic Parts and Packaging Program). Below the navigation bar is a search bar with the text "Search NEPP..." and a "Search" button. A welcome message "Welcome Carl" and a "Logout" button are also present. A message states "A login is not required to access the information on this website". Below this is a "Resources" section with links: NEPAG Home, Tin Whiskers, NPSL, Publications, DC/DC Converters, and Wirebond. The main content area is divided into two columns. The left column, titled "On This Site", contains a list of links: Parts, Packaging, Radiation, Publications, NEPAG, Workmanship Standards, Conferences and Workshops, About, Admin Task List, Site Map, and DC/DC Converters. The right column, titled "NASA Electronic Parts and Packaging (NEPP) Program", contains a welcome message, a section for the "NEPP Electronics Technology Workshop" (dated Mar. 8, 12:00AM), and a announcement for the "1st NASA Electronic Parts and Packaging (NEPP) Program Electronic Technology Workshop". The announcement text states: "This meeting will be held on **June 22-24, 2010** at the NASA Goddard Space Flight Center in **Greenbelt, MD**. This meeting will provide a wide dissemination to the aerospace community beyond the parts, packaging, and radiation specialists on current and future issues impacting space system design and reliability. Why attend? This meeting will discuss the two sides of the NEPP Program's efforts agency-wide. Visit the **event's homepage** to learn more." Below the announcement, it says "Registration is now closed." At the bottom of the page is a footer with the NASA logo, contact information for Carl M. Szabo, Jr. (NASA Official: Michael J. Sampson, Last Updated: May 3, 2009 4:45PM), and links to "Contact NEPP", "Privacy Policy and Important Notes", "Site Map", and "USA.gov".

**Public Website**

**Navigation:** HOME, PARTS, PACKAGING, RADIATION, ABOUT

**Search:** Search NEPP... Search

Welcome Carl Logout

A login is not required to access the information on this website

**Resources:** NEPAG Home | Tin Whiskers | NPSL | Publications | DC/DC Converters | Wirebond

**On This Site:**

- Parts
- Packaging
- Radiation
- Publications
- NEPAG
- Workmanship Standards
- Conferences and Workshops
- About
- Admin Task List
- Site Map
- DC/DC Converters

**NASA Electronic Parts and Packaging (NEPP) Program**

Welcome to the  
NASA Electronic Parts and Packaging (NEPP)  
Program Website

**NEPP Electronics Technology Workshop** Site Admin - Mar. 8, 12:00AM

**1st NASA Electronic Parts and Packaging (NEPP) Program  
Electronic Technology Workshop**

This meeting will be held on **June 22-24, 2010** at the NASA Goddard Space Flight Center in **Greenbelt, MD**. This meeting will provide a wide dissemination to the aerospace community beyond the parts, packaging, and radiation specialists on current and future issues impacting space system design and reliability. Why attend? This meeting will discuss the two sides of the NEPP Program's efforts agency-wide. Visit the **event's homepage** to learn more.

**Registration is now closed.**

**Footer:**

NASA

Webmaster: Carl M. Szabo, Jr.  
NASA Official: Michael J. Sampson  
Last Updated: May 3, 2009 4:45PM

[Contact NEPP](#)

[Privacy Policy and Important Notes](#)

[Site Map](#)  
[USA.gov](#)

<http://nepp.nasa.gov>

# Knowledge Acquisition and Dissemination

## - 1/5



Past and Present NEPP Tasks - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://nepp.nasa.gov/index.cfm?listItemID=5177&sortField=2&sortOrder=ASC

Search NEPP... Search

Welcome Carl Logout

Location: Home | About | Past and Present NEPP Tasks

Past and Present NEPP Tasks

Fiscal Year: 09 Sort By: Title ASC Submit

Task Name	Lead Name	Lead Center
09_005_GSFC_Williams_Liu Characterization of Aluminum Polymer Capacitors	Liu, David	Goddard Space Flight Center
09_040_3 Microelectronics Nonvolatile memory	Oldham, Timothy	Goddard Space Flight Center
09_041_3 Microelectronics T&E, FPGA	Berg, Melanie	Goddard Space Flight Center
09_042_3 Microelectronics, Volatile Memory SDRAM, DDR	Ladbury, Raymond	Goddard Space Flight Center
09_043_3 Microelectronics, Scaled CMOS	LaBel, Ken	Goddard Space Flight Center
09_044_3 Radiation Physics Modeling	Xapsos, Mike	Goddard Space Flight Center
09_048_3 Mixed Signal	Marshall, Paul	Goddard Space Flight Center
09_050_2 Microelectronics, Scaled CMOS	Xapsos, Mike	Goddard Space Flight Center
09_052_2 Microelectronics, RHA, Transistor TID characterization method	Xapsos, Mike	Goddard Space Flight Center
09_053_2 Microelectronics, RHA, Impact of TID on SEE Performance	Buchner, Stephen	Goddard Space Flight Center
09_054_2 Microelectronics, RHA, Effectiveness of Cold Temperature Storing to Minimize Annealing	LaBel, Ken	Goddard Space Flight Center

Done

- *Annual Proposal Submissions*
- *FY09: 58 tasks awarded*

# Knowledge Acquisition and Dissemination

## - 2/5



Publications Listing - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://nepp.nasa.gov/index.cfm/12753

NASA HOME PARTS PACKAGING RADIATION ABOUT

Welcome Carl Logout Search NEPP... Search

Location: Home | Publications

Also on this page:

- EEE Links

Publications Listing

- 0607 Xilinx/NASA: Meeting Schedule  
Author: Ken LaBel | Conference Proceeding | File Size: 19k | Document Date: 07/13/06
- 0607 Xilinx/NASA: Activities Associated with Working with Xilinx...  
Author: Author Non-NEPP | Presentation | File Size: 87k | Document Date: 07/13/06
- 0607 Xilinx/NASA: Aerospace Status Review (slides)  
Author: Author Non-NEPP | Presentation | File Size: 9k | Document Date: 07/13/06
- 0607 Xilinx/NASA: Assembly Reliability for Two CCGA Packages (sl...  
Author: Reza Ghaffarian | Presentation | File Size: 3454k | Document Date: 07/13/06
- 0607 Xilinx/NASA: Attendance List for GFSC June 26, 2006 Meeting  
Author: Ken LaBel | Conference Proceeding | File Size: 38k | Document Date: 07/13/06
- 0607 Xilinx/NASA: Design for Performance Optimization of Virtex ...  
Author: Author Non-NEPP | Presentation | File Size: 741k | Document Date: 07/13/06
- 0607 Xilinx/NASA: Xilinx Space Heritage (slides)  
Author: Author Non-NEPP | Presentation | File Size: 3482k | Document Date: 07/13/06

Done

- *Task Deliverables & Publications*
  - *White-papers, test results, presentations*

# Knowledge Acquisition and Dissemination

## - 3/5



**NASA Parts Selection List (NPSL)**

Includes Electrical, Electronic, and Electromechanical (EEE) Parts and Advanced Interconnect Technologies

This site has been developed to serve as a parts selection tool for design engineers and parts engineers supporting NASA space flight programs. This site provides a detailed listing of EEE part types which the NASA EEE Parts Assurance Group (NEPAG) recommends for NASA flight projects based on evaluations, risk assessments and quality levels. In general, the parts listed in the NPSL:

- Have established procurement specifications
- Have available source(s) of supply
- Are capable of meeting a wide range of application needs
- Have been assessed for quality, reliability, and risk and found to meet the criteria for listing

For the benefit of the user, information regarding the use of this document is provided in the Introduction.

**NASA Parts Selection List (NPSL)**

- Long-time resource
- Edited by Jay Brusse



# Knowledge Acquisition and Dissemination

## - 4/5



NASA Goddard Tin Whisker Homepage - Mozilla Firefox

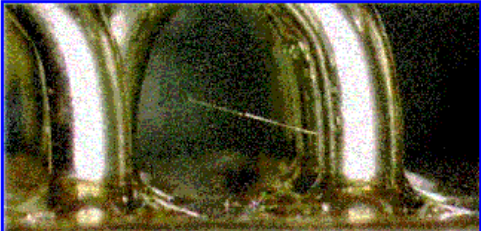
File Edit View History Bookmarks Tools Help

http://nepp.nasa.gov/whisker/

### NASA Tin Whisker (and Other Metal Whisker) Homepage

Home	Basic Info/FAQ	Other Metal Whiskers	Literature References	Whisker Failures	Whisker Anecdotes
Photo Gallery	Video Gallery	GSFC Experiments	Related Links	What's New	Contact Us

#### Tin Whisker Growing from Pure Tin Plated Relay Terminal



Motion depicted in this image is for simulation purposes only

#### Hot Topics

May 2010

- Videos: "[Real-Time Growth Videos of Whiskers and Hillocks in Tin Over Copper Structures](#)", Brown University

March 2010

- [Whisker Photo Gallery Updated](#)
- [Whisker Anecdotes Added](#)

February 2010

- "[Evaluation of Environmental Tests for Tin Whisker Assessment](#)", L. Panashchenko, Univ. of Maryland Thesis, Dec. 2009

September 2009

- "Examination of Nickel Underlayer as a Tin Whisker Mitigator", L. Panashchenko, M. Osterman, ECTC, May 2009
  - [Presentation](#) (modified for tin whisker telecon)

August 2009

- "Examination of Nickel Underlayer as a Tin Whisker Mitigator", L.

#### Photo of the Month

April 2010

Limitations

- **Tin Whiskers**
  - Popular specialty resource
  - Edited by Jay Brusse

# Knowledge Acquisition and Dissemination

## - 5/5



Search the NASA Electronic Parts and Packaging Program Website - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://nepp.nasa.gov/srch/neppframesearch.cfm?q=Search+NEPP...&btnG.x=22&btnG.y=9&btnG=Go

NASA HOME PARTS PACKAGING RADIATION ABOUT

NASA Electronic Parts and Packaging Program NEPP

Google For NEPP

workmanship standards NEPP Search Advanced Search Search Tips

Search Results 1 - 10 of about 112 for workmanship standards. Search took 0.74 seconds.

Next> Sort by date / Sort by relevance

**Workmanship Standards**

... Workmanship Standards. NASA Workmanship Standards Project. The NASA Workmanship Standards Project provides technical recommendations ...

nepp.nasa.gov/index.cfm/5511 - 17k - [Cached](#)

[Links To Required Workmanship Standards](#)

... Links To Required Workmanship Standards. Links to Required Workmanship Standards. NASA Policy Directive NPD 8730.5, NASA Quality Assurance ...

nepp.nasa.gov/index.cfm/5544 - 39k - [Cached](#)

[ [More results from nepp.nasa.gov/index.cfm](#) ]

[EEE Links Vol. 2, No. 3](#)

... Maintain-ability and Quality Assurance Manual; or more simply, the set of 8 NASA Handbooks (NHB 5300.4(3-\*)) for flight hardware workmanship standards. ...

nepp.nasa.

MS POWERF 5/27/10. N/ 5/27/10. N/ nepp.nasa.

- **NEPP Search Feature**
- Utilizes popular Google search interface

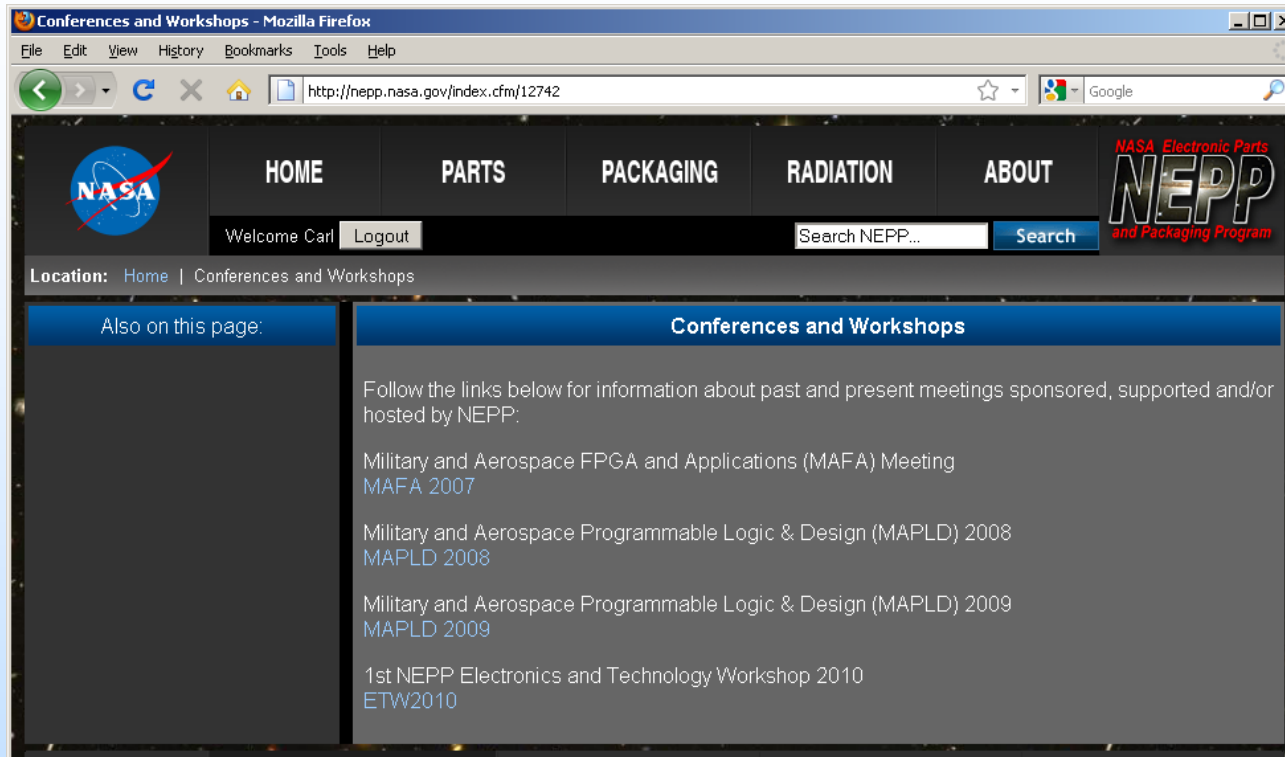
Done



## Conferences - 1/2

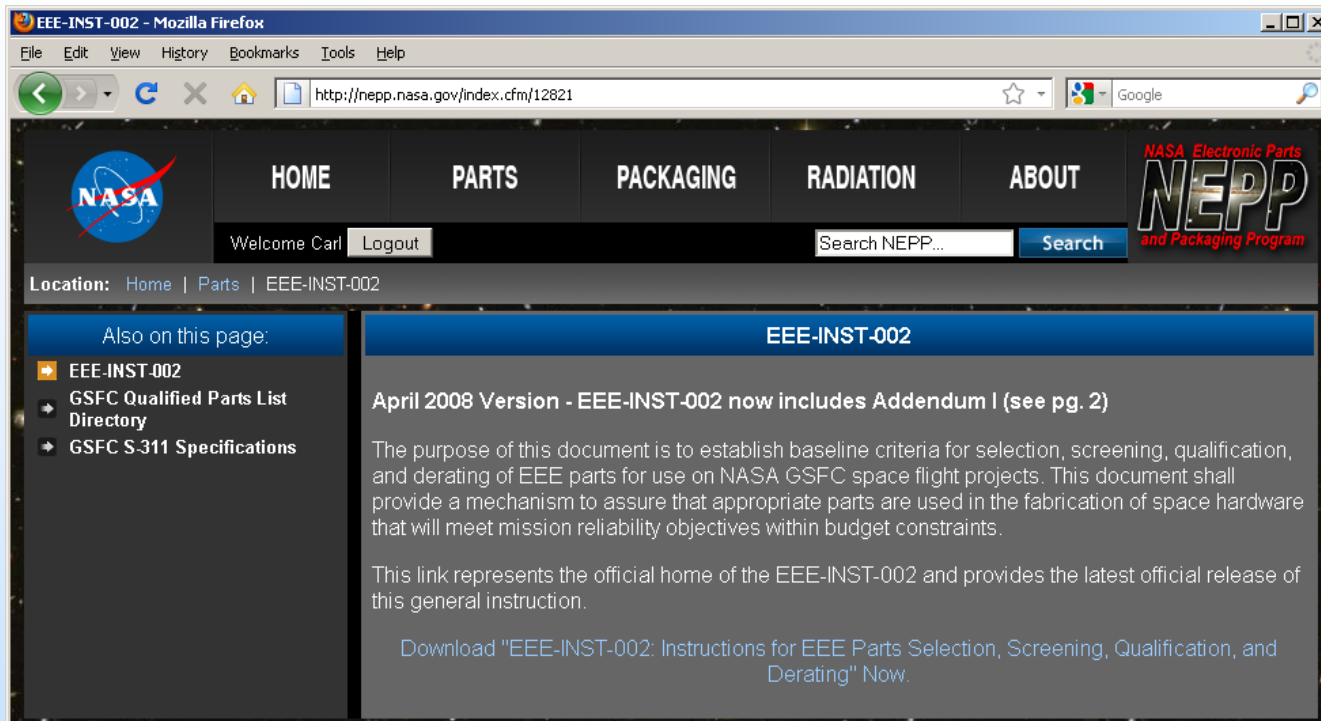
- *NEPP Awareness and Outreach*
  - *Booths at events*
  - *Posters*
  - *“Goodies”*
  
- *Sponsorship and Support*
  - *Provide forums for exchange of information*
  - *Conference coordination (A/V, Registration)*
  - *MAPLD, NSREC, MAFA, ETW2010, others*

# Conferences - 2/2



- *Proceedings*
  - *Posted to the web site*

# Standards and Specifications - 1/3



- **EEE-INST-002**
  - *Instructions for EEE Parts Selection, Screening, Qualification, and Derating*
  - <http://nepp.nasa.gov/index.cfm/12821>

# Standards and Specifications - 2/3

GSFC S-311 Specifications - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://nepp.nasa.gov/index.cfm/13597

NASA Electronic Parts and Packaging Program

HOME PARTS PACKAGING RADIATION ABOUT

Welcome Carl Logout Search NEPP... Search

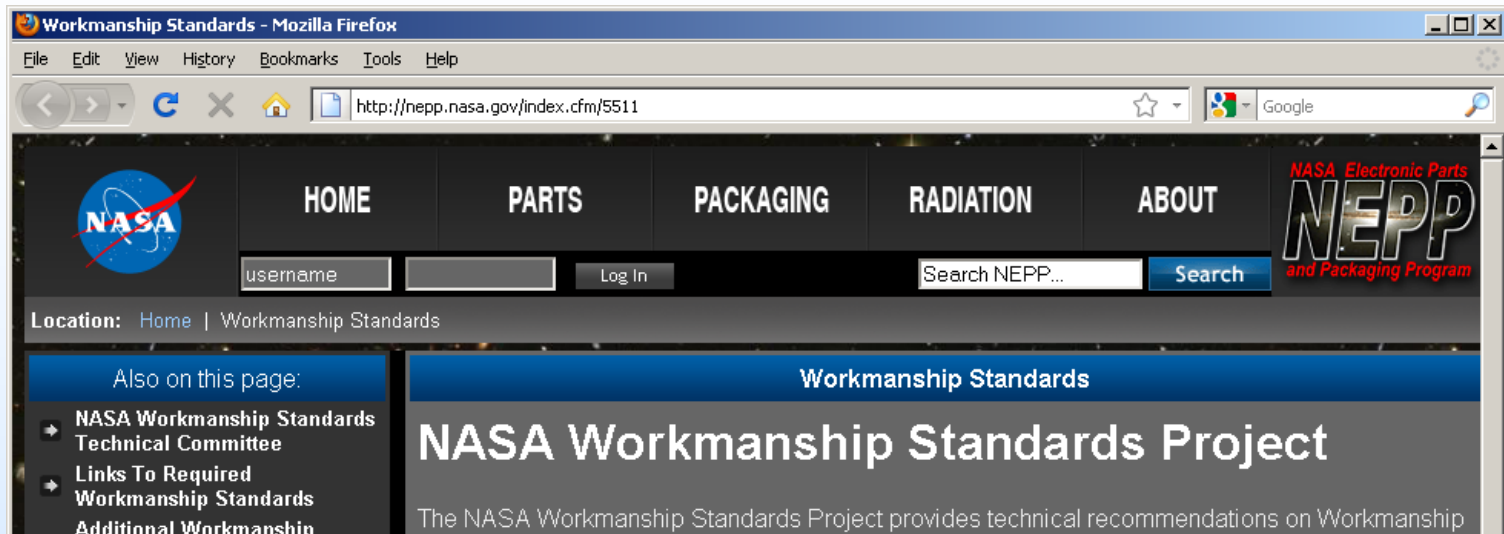
Location: Home | Parts | GSFC S-311 Specifications

GSFC S-311 Specifications

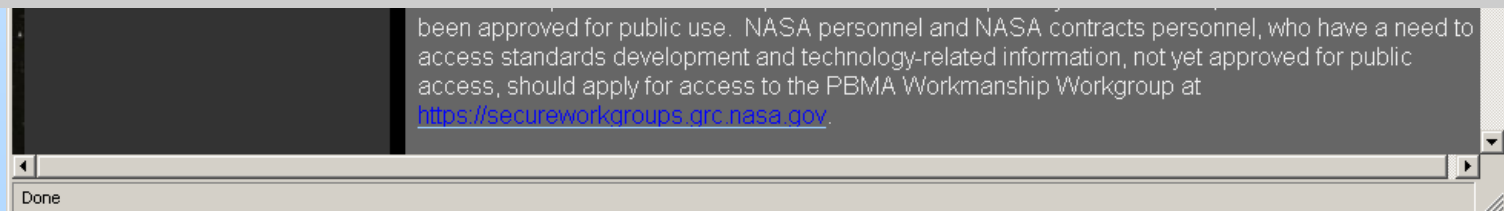
Title	Specification	Rev.	FSC Code	Part Type	QPLD?	NPSL?
Capacitor, Ceramic, Multilayer Chip, Space Applications	<a href="#">S-311-P-829</a>	C	5910	Capacitor	No	No
Capacitor, Fixed, Axial-Lead, Metallized Polycarbonate Dielectric, Hermetically Sealed in Metal Cases. For use on the Hubble Space Telescope	<a href="#">S-311-P-785</a>		5910	Capacitor	No	No
Connector, Electrical, RF, Twinaxial, Microminiature	<a href="#">S-311-P-835</a>		5935	Connector	No	No
Triaxial Connector, Ultraminiature	<a href="#">S-311-P-826</a>		5935	Connector	No	No
Connectors, PWB, 2 mm cPCI style, High Reliability	<a href="#">S-311-P-822</a>	A	5935	Connector	No	No

- **GSFC S-311 Specifications**
  - Capacitors, connectors, crystals, fiber optics, heaters, magnetics, microcircuits, relays, resistors, semiconductors, switches, thermistors, and wire & cable
  - <http://nepp.nasa.gov/index.cfm/13597>

## Standards and Specifications - 2/3



- **NASA Workmanship Standards**
  - *Provide access to the NASA Workmanship Standards, training information and other important Workmanship-related data.*
  - *<http://nepp.nasa.gov/index.cfm/5511>*



# NEPP IMD Task

## Description:

*This effort will manage the information received from researchers funded by NEPP and other EEE Parts experts throughout the commercial and academic community using the web-based NEPP database. The NEPP server will be maintained on its own stand alone system, and performance will be continuously verified and improved if needed. The goal is to update the NEPP website as information becomes available, and widely disseminate information of interest to the EEE Parts, Packaging, and Radiation Characterization communities.*

## FY10 Plans:

- Continue improvements of NEPP website to use the maximum capabilities of the content system, including search capability
- Provide as-needed support of conferences, workshops, telecons
- Unveil new DC/DC Converter resource
- Redesign the NEPAG homepage
- Sustain the NEPP Website, perform routine maintenance, and backups

## Schedule:

NEPP/IMD	2009			2010								
	O	N	D	J	F	M	A	M	J	J	A	S
Maintenance & Upkeep												
Site Improvements												
Conference Support												
DC/DC Converter Resource Dev												

## Deliverables:

- ETW 2010 Registration / Conference Proceedings Posted to Web
- Coordination of A/V for NSREC
- Posting of NEPP Task Deliverables to web site
- Server Uptime





# Goals

- *Goals (FY10):*
  - *DC/DC Converters Homepage Development*
    - *LaRC Participation*
      - *Peter Majewicz, John Pandolf*
  - *NEPAG Homepage Development*
    - *Needs to reflect current NEPAG interests*
  - *Refinement of the Publications Listing*
    - *Add enhancements for ease of use, such as*
      - *Sorting by author name, title, year*



## *Expected Impact to Community*

- ***Collaborations inspired by conference interaction***
- ***Varied task proposals for future NEPP tasks***
- ***Further enhanced understanding of Tin (and other metal) Whiskers, DC/DC Converters, and Parts Assurance issues***
- ***NEPP shall maintain its commitment to the successful development and application of space electronics***



# Status/Schedule

- *Minor downtime earlier in FY10 due to the NEPP Web Server being moved*
  - *No control over scheduled infrastructure outages, such as network or power upgrades/changes*
- *DC/DC Converter Page Development*
  - *Efforts underway by Peter Majewicz / LaRC*
- *NEPAG Page Development*
  - *Potentially by end FY10 – mid FY11*
- *Publication list enhancements*
  - *FY11*



# *Highlights/Accomplishments*

- *ETW 2010*
  - *We're Here!*
- *Merging of Workmanship Standards to NEPP*
  - *Inspection Pictorial Reference remains at <http://workmanship.nasa.gov>*
  - *Maintained by Jeannette Plante*



# *Plans (FY10/11)*

- *NSREC 2010*
  - *A/V Support*
- *ReSpace/MAPLD 2010*
  - *Sponsored by Configurable Space Microsystems Innovations & Applications Center (COSMIAC) with NEPP Support*
  - *November 1-4, 2010 at the Hyatt Regency Downtown in Albuquerque, NM. <http://www.cosmiac.org/ReSpace2010/>*
- *ETW 2011 (?)*
  - *We'd like to know what you think!*