JPL Counterfeit Parts Avoidance

Presented by:
Lori Risse
Parts Engineer
Jet Propulsion Laboratory

- JPL – who we are and what we do in a nutshell

- JPL – Electronic Parts
  - Guiding Requirements Documents
  - Counterfeit Electronic Parts Control Plan

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An ounce of prevention…..

- Early in design cycle – parts specialists review parts lists for parts considering availability and sources.

- Developing an Institutional Preferred Parts List for engineers to choose qualified and available parts for designs.
## Parts Acquisition and Review System

<table>
<thead>
<tr>
<th>PIN</th>
<th>Generic Part No.</th>
<th>Part Description</th>
<th>Descriptor</th>
<th>Package Type</th>
<th>Manufacturer</th>
<th>Flight Num</th>
<th>RollUp</th>
<th>Parts/ Eng</th>
<th>Special Handling Identified</th>
<th>SEL/ SEGR/ SEB</th>
<th>SEU</th>
<th>SET</th>
<th>SEFI</th>
<th>TID/ELDRS</th>
<th>DD</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>UT69RH051-WPC</td>
<td>MICROCIRCUIT, DIGITAL, RADIATION HARDENED, 8-BIT MICROCONTROLLER, MONOLITHIC SILICON</td>
<td>U</td>
<td>QFP-44</td>
<td></td>
<td>5962R9563801VYC</td>
<td>A</td>
<td>A</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>33</td>
<td>UT9Q512</td>
<td>SRAM, 512K X 8-BIT, 25 NS ACCESS TIME, RAD HARD</td>
<td>U</td>
<td>TBD</td>
<td></td>
<td>5962L0053601TUC</td>
<td>AA</td>
<td>A</td>
<td>No</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>34</td>
<td>BU-61585V</td>
<td>1553 ACE TERMINAL</td>
<td>U</td>
<td>TBD</td>
<td>DDC</td>
<td>BU-63825F2-131W</td>
<td>A</td>
<td>A</td>
<td>Yes Soldering Restrictions; Fragile Parts; Special Handling Details: max lead soldering temperature 10 sec per lead, 300C; max case temp 150C (unpowered). Handle glass seals carefully. gb110513.</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>
And more prevention...

- Preferred source of parts:
  - OCM
  - Authorized/Franchised Distributor

- We know our sources:
  - Approved Suppliers List – surveys, site visits, audits
  - GIDEP, ERAI
  - Quality data analysis
  - Exemptions – require risk assessment and mitigation plan.
# Approved Suppliers List

## Supplier Information

<table>
<thead>
<tr>
<th>Supplier Information</th>
<th>Qualification Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAGE Code:</strong></td>
<td><strong>Approved</strong></td>
</tr>
<tr>
<td><strong>Inc. DBA</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Branch</strong></td>
<td><strong>Expiration Date:</strong> Apr-01-2013</td>
</tr>
<tr>
<td><strong>Irvine, CA 92692</strong></td>
<td></td>
</tr>
<tr>
<td><strong>United States</strong></td>
<td><strong>Approval Scope:</strong> Distribution of military/commercial Semiconductors/IC's, established Reliability/Commercial Passive Components, Connector Products, Military/Commercial Value Add, and Programming/Modification.</td>
</tr>
<tr>
<td><strong>Phone No.:</strong></td>
<td><strong>Quality Management System (QMS):</strong> ISO 9001:2008 Compliant</td>
</tr>
<tr>
<td><strong>Fax No.:</strong> N/A</td>
<td><strong>Audit History:</strong> Admin Notes/Open Audits (0), Closed Audits (5)</td>
</tr>
<tr>
<td><strong>Website:</strong> <a href="http://www">http://www</a>.</td>
<td><strong>Workmanship Standards Assessments:</strong> Assessments (0)</td>
</tr>
</tbody>
</table>

## Performance Information

### Overall Performance Ratings

<table>
<thead>
<tr>
<th>Customer Satisfaction</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrective Action History (5)</td>
<td></td>
</tr>
<tr>
<td>Problems (0)</td>
<td></td>
</tr>
<tr>
<td>Supplier Trust and Recognition (0)</td>
<td></td>
</tr>
<tr>
<td>Supplier Watch List (0 Active, 0 Closed)</td>
<td></td>
</tr>
</tbody>
</table>

### Product Quality Rating

### Qualitative Performance Ratings
Quality Assurance

- Purchase Orders
  - QA Clauses – supply chain traceability, tests, inspections, Quality Management Systems, required documentation (CofC)

- Flow down requirements to Subcontractors
Receiving Inspection

Does everything match up?

- Documentation – traceability to OCM
- Part markings
- Data
Receiving Inspection

- Visual Inspection

authentic vs. counterfeit
Receiving Inspection

- X-ray Fluorescence
  - Performed to verify the presence or absence of lead or other materials

XRF Machine

Example Output
Training

- CogE Training: plan sufficient procurement time for long lead items

- Counterfeit Parts Awareness Training for NASA and other Government Organizations
What if...

....we think we got bit?

- Reliability and Failure Analysis Lab – x-ray, SEM, de-cap, DPA
- GIDEP
- Legal