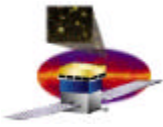


# QA Site Survey at Teledyne

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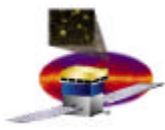
- Survey & Process Review conducted at Teledyne on Nov. 14, 2003
- Purpose: Evaluate TMCM processes and manufacturing capabilities prior to the Flight Production
- Participants
  - **SLAC / GSFC Representative:** Tracy Shepherd
  - **Teledyne Representatives:** Brian Caplen, Rhonda Santiago, Lupe Villegas, Robert Barron
  - **GLAST Representatives:** Darren Marsh, Jerry Clinton, Dave Rich
- Certifications / Qualifications:
  - ISO 9001:2000 Quality Management System (Certified since 1995).
  - D6-82479 Appendix A Advanced Quality Systems.
  - MIL-STD-790 Product assurance program for Electronic and Fiber optics part Specification.
- Action Items
  - All Action Items closed
- Summary
  - Teledyne Microelectronic Technologies has demonstrated their ability to fabricate a flight-worthy product through their process and quality controls.



# QA Site Survey- Highlights of the Survey

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- All manufacturing areas are environmentally controlled depending on the processes performed.
- Defective or non-conforming materials are identified and properly segregated from acceptable products.
- Up to date calibrated machinery is being utilized for fabrication.
- Statistical Process Controls are being utilized in all process applications. SPC data is collected on a daily basis for trend analysis.
- Experienced and trained personnel performing the fabrication processes. Concurrent training provided onsite, and supplemented by local instructors.
- Acceptable workmanship standard for soldering, bonding, and epoxy attach processes. Internal criteria is equivalent to NASA workmanship process stds.
- Daily Destructive testing is performed for the wire bond automated equipment.
- Reliability assurance capabilities include, but are not limited to: Worst case analysis, FMEA, and DPA.
- Monthly process reviews held to maintain fabrication acceptability.



# Findings & Corrective Actions

<b>Findings</b>	<b>Corrective Action Implemented</b>
<ul style="list-style-type: none"><li>Internal Conformal Coating process procedure is very basic and undefined. No thickness or inspection criteria documented for this application process.</li></ul>	<ul style="list-style-type: none"><li>Conformal Coating Requirements including thickness and inspection criteria added to LAT-DS-00898 &amp; -00899 and Teledyne 7108742 Process Instructions.</li></ul>
<ul style="list-style-type: none"><li>The Teledyne (GLAST) Assembly process specification does not specify applicable sections in the reference documents.</li></ul>	<ul style="list-style-type: none"><li>Teledyne 7108742 Process Instructions updated to include applicable sections in reference documents.</li></ul>
<ul style="list-style-type: none"><li>No Receiving Inspection being performed for drop shipped parts. Identification and damage are the only incoming inspections being performed.</li></ul>	<ul style="list-style-type: none"><li>Tape and reel components that were QML or already screened by manufacturer were the only parts drop shipped to Teledyne. Lot numbers provided for all components. In future if required, on-site LAT QA can perform receiving inspection.</li></ul>