ELFIN
Electron Losses and Fields Investigation

Mission Critical Design Review
Systems Overview

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Los Angeles, California
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<table>
<thead>
<tr>
<th>Table of Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ ETC Board Overview</td>
</tr>
<tr>
<td>▪ Inhibits</td>
</tr>
<tr>
<td>▪ Harnessing</td>
</tr>
<tr>
<td>▪ Grounding</td>
</tr>
</tbody>
</table>
# Systems Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>
LETC1

- Provide s/c interface with External Access Cable (EAC), flight computer RAC, and other external GSE
- Hook up with RBF Pin
- Interface between deployment switch #1 and SBPCBs
- Provide multi-master interface for the TMP275 temperature sensor chain
  - To flight computer
  - To EAC
- Interface avionics with SIPS and IDPU

LETC2

- Logic circuit to control battery heaters
  - Automatically
  - Or by command
- Accommodates battery holder and spacing between boards
**ETC Board Overview**

**BETC**
- Card edge interface with solar panel PCB.
- Routes power to SBPCBs
- Contains 2 of 3 inhibits for RF transmission and deployment
- Interface between avionics and radio
- Voltage conversions
  - 5V logic shift to 3.3 V radio logic
  - Boost converter to 9V for deployments and radio operations
- Required to have 3 inhibits to prevent RF transmission while stowed
- Deployments after inhibits to avoid late redesigns
• Ensuring all connectors and cables are compatible

• Majority of cables are twisted pairs or flat flexi cables

• Complete 3D Harnessing Model

• All cables and interfaces tracked and documented
  ▪ List of Cables
  ▪ Spacecraft Block Diagram
Avionics are grounded to the Central Grounding Point on BETC

- Single grounding point to the chassis
  - Prevents current flow
- Solar panel ground planes overlap with chassis for Faraday cage effect
- Tracked in grounding schematic