- Receiving Inspection
- Documentation
- Outgassing
- Magnetic Cleanliness
- Parts Selection / Screening
- EEE Parts
- Schematic Layout Review
- Mechanical Part Handoff
- Nonconformance Control and Failure Review
· All major components of ELFIN Project will be noted in the materials and parts list.

· Inspection will be performed on major components.

· Special characteristics for components, such as limited-life and ESD-sensitive, will be noted. These components will be kept in more controlled areas.

· Shelf life and manufacture temperature rating.
- **Redmine Hardware Tracking**
  - A list of hardware issues and flow is kept track of in Redmine.

![Hardware Item #266](image-url)

- **He-100 Radio 1**
  - Added by Kyle Colton 12 months ago. Updated 11 months ago.
  - Status: New
  - Priority: Normal
  - Assignee: Franklin Zhang
  - Category: 
  - Target version: 
  - Engineer Contact Information: franklin.zhang.fund@gmail.com
  - Location in Facilities: EE-Lab / Dry Locker
  - Part Number: 
  - Serial Number: 
  - PO Number: 
  - Hardware Receiving Status: 
  - Safe-to-Mate Status: 
  - Expected Mass: 78g
  - As-Measured Mass: 74.6g
  - Expected Current Draw: 
  - Start date: 03/13/2015
  - Due date: 
  - As-Measured Current Draw: 
  - Operational Temperature Limits: -30C to +70C
  - Storage Temperature Limits: 
  - Safe Handling Requirements: ESD, RF, Visually Clean
  - Safe Storage Requirements: 
  - Safe Cleaning Requirements: 
  - Nuances: 
  - Design Reviewer: 
  - Design Approved: 
**Description**

He-100 Radio from AstroDev.

Datasheets: COMM/Radios/He100ProgrammingPack3pt10

- 20150224_141246.jpg (4.55 MB) Ryan Caron, 03/06/2015 04:48 PM
- 20150224_140958.jpg (3.5 MB) Ryan Caron, 03/06/2015 04:48 PM
- 20150224_141037.jpg (3.91 MB) Ryan Caron, 03/06/2015 04:48 PM
- 20150224_141042.jpg (3.89 MB) Ryan Caron, 03/06/2015 04:48 PM
- 20150224_141104.jpg (4.09 MB) Ryan Caron, 03/06/2015 04:48 PM
- 20150224_141115.jpg (4.29 MB) Ryan Caron, 03/06/2015 04:48 PM
- 20150224_141630.jpg (4.33 MB) Ryan Caron, 03/06/2015 04:49 PM
- 20150224_141315.jpg (4.58 MB) Ryan Caron, 03/06/2015 04:49 PM
- 20150224_141352.jpg (3.9 MB) Ryan Caron, 03/06/2015 04:49 PM
- 20150224_141534.jpg (3.76 MB) Ryan Caron, 03/06/2015 04:49 PM
- 20150224_142013.jpg (4.83 MB) Ryan Caron, 03/06/2015 04:50 PM
- 20150224_142025.jpg (3.95 MB) Ryan Caron, 03/06/2015 04:50 PM
- 20150224_142044.jpg (4.72 MB) Ryan Caron, 03/06/2015 04:50 PM
- 20150224_141710.jpg (4.7 MB) Ryan Caron, 03/06/2015 04:50 PM
- he100-2.png (2.41 MB) Ryan Caron, 03/06/2015 04:53 PM
- he100-1.png (2.83 MB) Ryan Caron, 03/06/2015 04:53 PM
- he100-3.jpg (1.86 MB) Ryan Caron, 03/06/2015 04:53 PM
Helium Radio Acceptance

Humidity is 92%, 88%

- Test OFF receiver when finished

Started 2/24/115 14:10

- no
- aluminum shield is stacked

made 746g

- cold solder joints

Closed 19:30

Franklin Zhang
Outgassing

- TML < 1.0%
- CVCM < 0.1%
- Minimizing the outgassing of any volatiles
  - Adhesives and epoxy
MAGNETIC CLEANLINESS

- Requirement: Total magnetic moment produced by the spacecraft at magnetometer (75cm away from the center of the satellite) must be less than 1nT.

- Material Selection: Non-magnetic materials recommended; Materials Screening Procedure in place with Pass Criteria for magnetic materials
**Magnetic Cleanliness**

- **Solar Panel Design**: All traces on board routed on top of each other to minimize current loops, cells mounted in opposite pairs; Verification of current loops in process

- **Batteries**: Mounted in opposite orientations to one another, steel casing

- **Harness**: Harnesses carrying large current shall be twisted to minimize current loops; gold and nickel are present

- Entire spacecraft shall be de-permed on a subsystem level before assembly
Most selected components have flight experience, or are similar in design to components with flight experiences.

Purchased raw materials are required to have Material Certification from the supplier.
- DM Vibe 3, in-house QA Plan

Limited-life products are kept track of to make sure they do not interfere with any procedures.

Parts are listed and submitted to the Materials Review Board (MRB) for approval.

The MRB will assess materials’ flight experience, radiation data, thermal limits, etc.
EEE Parts Identification List
- The list will include hardware used, including other details about them

- Certain parts will get more scrutiny and will have more documentation
  - inhibits

- Acceptance tests will be done on boards as a whole
Schematic Review

- Schematic review for each board
- Layout and review
- Part Placement AIDS
Meeting with the Fabrication team, the designer of the part, and the Structures lead

Ensure the part fits into the CAD model

The Fabrication team takes the design and engineering drawings

Once part is fabricated, a brief meeting happens to make sure the part will not interfere in any way in the full model assembly
**Design and Screening**

**Design**
Design to minimize unwanted inherent or produced magnetic fields (material selection/current loops)

**Fabrication**
Ensure design is implemented correctly

**Verify**
Sub-assembly will be screened individually before integration, and at the spacecraft level

**Handling**
Avoid mechanical shock, magnetized tools, magnets, magnetic personal items, etc.

**Conops**
Spacecraft operations will be scheduled to avoid interference with science measurements
Nonconformance Control and Failure Review

- Nonconformance:
  - Any nonconformance discovered will be resolved prior to acceptance of product for delivery.
  - The process for identification, tracking, and reporting anomalies are documented on Redmine.
  - Dispositions for nonconformances will be decided by the Management Team and cognizant engineers
  - Chassis

- Failure Review:
  - A Failure Review Board will decide whether a failure will be closed.
  - DM Vibe 1 and DM Vibe 2