

CubeSat

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## Design Review 0 Meeting Agenda

1. Technical content of DR0
  - a. Updates to system since HLD
    - i. Software
      1. Multiple tables, intermediate phase to data structure
    - ii. Hardware updates
      1. Option to include or not include I/Q demodulator
      - 2.
  - b. Schafer feedback
    - i. Start early on board & layout rough guess to start characterizing
    - ii. Start looking at last year's IrishSat board - 4 layer boards
      1. No blind vias
        - a. Some board houses
    - iii. Use dual core processor (like an S3 series) - there are Espressif dev boards we can use for now
2. Content of previously held meetings
  - a. IrishSat CubeSat Team
    - i. Motor issues to foresee: stepper, **encoder**, gearing appropriate, torque, step size, etc.
    - ii. Schafer says we'll prob want a ball screw not a lead screw
    - iii. Development: use a socket for motor driver, but prob not for actual implementation (vibrations)
  - b. Chisum
3. Current plan of action
  - a. Parts acquisition
    - i. Ordering chips and eval boards for finalized parts
    - ii. Confirming specs of predetermined parts fit 22GHz & space framework
    - iii. Confirming availability of parts and eval boards for predetermined parts
      1. Via issue, make like a coax
      2. Worst case scenario: use an RF board house that has the capability to do it, it'll just cost more
      3. 1 path board fabbed as early test
  - b. Luke meeting with NASA Goddard Friday 02/02/2024 (8AM)
    - i. Determine I/Q demodulator selection
    - ii. Finalize related decisions, ie sweep bandwidth, channel width

- c. Initial software development
  - i. Begin writing data structure for dummy complex weights to communicate with BFIC via SPI
  - ii. Further familiarize with PSO code & complex weight production
- 4. Thinking ahead...
  - a. Finding a board manufacturer that can meet the substrate conditions for a layer of RF circuitry (Chisum will aid)
  - b. Implement external USB connect for power without IrishSat elements?
  - c. Stepper motor control deployment of payload, need to confirm dimensions with team once parts are selected and Chisum finalizes lens design thickness
- 5. Other questions, if there are!