Review PacSat Design

- Most current schematic is Rev D 240614
- No work done to update the Rev C PCB layout
- Included reference documents in the same folder.
- Bill of materials for Rev C included.
  - Needs to be reviewed carefully with final layout.

General Comments

- Schematic pages component numbers assigned and noted at bottom left so parts will be grouped on PCB layout.
- PCB is currently six layers will probably need more to support eliminating jumpers.
- Differential connections used on receiver inputs.
  - Provide 2X more input signal and lower noise.
  - Some testing of RSSI has show this to be a benefit.
  - Wire for each signal must be equal length to maintain phase relation.
  - Option is use on single ended connections.
    - Reduces wires needed.

General Comments

- Some parts are considered obsolete.
  - Review parts to see current status and availability.
  - Ideal crystal was not available at fab time so layout footprint setup for two types and a alternate was used.
- Crystal should be TCXO with low tolerance specified.
- Custom footprint library and symbol library are included in design files. If not we can work on this.
- I let KiCad update and and not seen issues. Updates had some benefits in layout that were compelling. May not be the case going forward as they seem to be slowing development.

PCB Layout goals

- All Design Rule check errors and warnings should be resolved before fab.
- Review footprint used for all parts vs expected purchase parts.
  - Footprint for T601 in KiCAD supplied library was incorrect. This one in particular needs changing.
- Memory chip footprint is difficult to hand solder. Best to enlarge pads to help in case parts have to be replaced.

General Comments

- There is a metal trace outline in Rev C for a shielding box around each Rx device and the Rx preamp.
  - I tried to work with off the shelf parts but could not
  - I identified a supplier that can supply custom shields.
  - Also would be possible to have a sheet etched in beryllium copper and plated for all shield. I spoke with etch house in Chicago about doing this.

General Comments

- Refer to a document called LTM-1 Generic ICD.pdf in github Docs folder under reference for some guidance on design.
- Refer to a document in the KiCad Rev D 240614 folder called “pinouts.ods” for a comparison of PC104 pins and LTM-1.
- Refer to a document called PacSat Changes and Corrections for the changes needed.