ROC Building Instructions

**Materials to be ordered:**

**-** Enclosure Case (Protocase)

- Circuit Boards (PCBWay) \*Normally supplied by Dave Jabson\*

- Additional wires/connectors (Fischer, Kensington)

- Bulk internals and wirings (DigiKey,McMaster)

**Useful/necessary Dropbox links:**

Updated BOM:

https://www.dropbox.com/home/strateole2\_private/docs\_system/logs\_lozano?preview=updated\_bom.xlsx

ROC Enclosure: <https://www.dropbox.com/home/strateole2_private/docs_system/roc_hardware_design/Enclosure/roc2_enclosures_rev02.2>

ROC 2.3 gerbers:

<https://www.dropbox.com/home/strateole2_private/docs_system/roc_hardware_design/interface_board/roc2_interface_rev03/gerber>

ROC Manual: <https://www.dropbox.com/preview/strateole2_private/docs_system/oper_manual/STR2_zephyr_roc2_manual_2018-02-21.docx>

ROC 2.3 interface folder (Altium files, logs, step files, schematics):

<https://www.dropbox.com/home/strateole2_private/docs_system/roc_hardware_design/interface_board/roc2_interface_rev03>

ROC general diagram:

<https://www.dropbox.com/preview/strateole2_private/docs_system/logs_lozano/altium_and_sw/roc2.3_general_diagram.pdf>

ROC diagram connection to Zephyr:

<https://www.dropbox.com/preview/strateole2_private/docs_system/roc_hardware_design/roc2_zephyr_system/roc2_j4_to_zephyr_rev03.pdf>

J4 Cable Connection:

<https://www.dropbox.com/preview/strateole2_private/docs_system/roc_hardware_design/connectors/J4/J4_cable_connection.docx>

ROC J4 to Zephyr connection (detailed):

<https://www.dropbox.com/preview/strateole2_private/docs_system/roc_hardware_design/connectors/J4/roc2_j4_to_zephyr_connection.pdf>

**General Steps**

Note: Depending on what parts are needed, pay attention to lead times for manufacturers. Fischer/Kensington take the longest (2-3 months in our experience). Enclosure has second longest lead time from Protocase.

1. Order all necessary materials.
2. Use above files to help with purchasing of materials and determining what you need.
3. “readme.txt” in enclosure files contains order number. Don’t bother ordering a completely new case, safer to just order based off previous order number.
4. Order circuit boards with gerber files.
5. Use DigiKey BOM to order all parts needed, take out parts you may already have.
6. For DigiKey, most, if not all, of the wires and sleeves (FEP TEFWIRE) can be done in shop. Much cheaper this way.  
     
   **Construction Steps**
7. Unscrew top of enclosure using Allen wrench (8 screws total)
8. Begin by placing J1-J8 outlets and LED light first. Do not screw on the boards yet.
9. Put spacers before connecting the plugs. Make sure all dots are aligned.
10. Place antennas in and screw in hex nut.
11. Much of the plugs require finesse and some force.
12. Screw in hex nuts to secure the plugs.
13. Screw in spacers on the boards first.
14. Attach antennas to GPS board.
15. Screw in the boards to the enclosure.
16. Place micro fit receptacles onto the board.
17. Begin wiring of the board using crimps from DigiKey BOM.
18. Once all wiring is completed, begin tedious task of connecting ribbon cable across the board.
19. Zip tie everything in place.
20. Test the device.

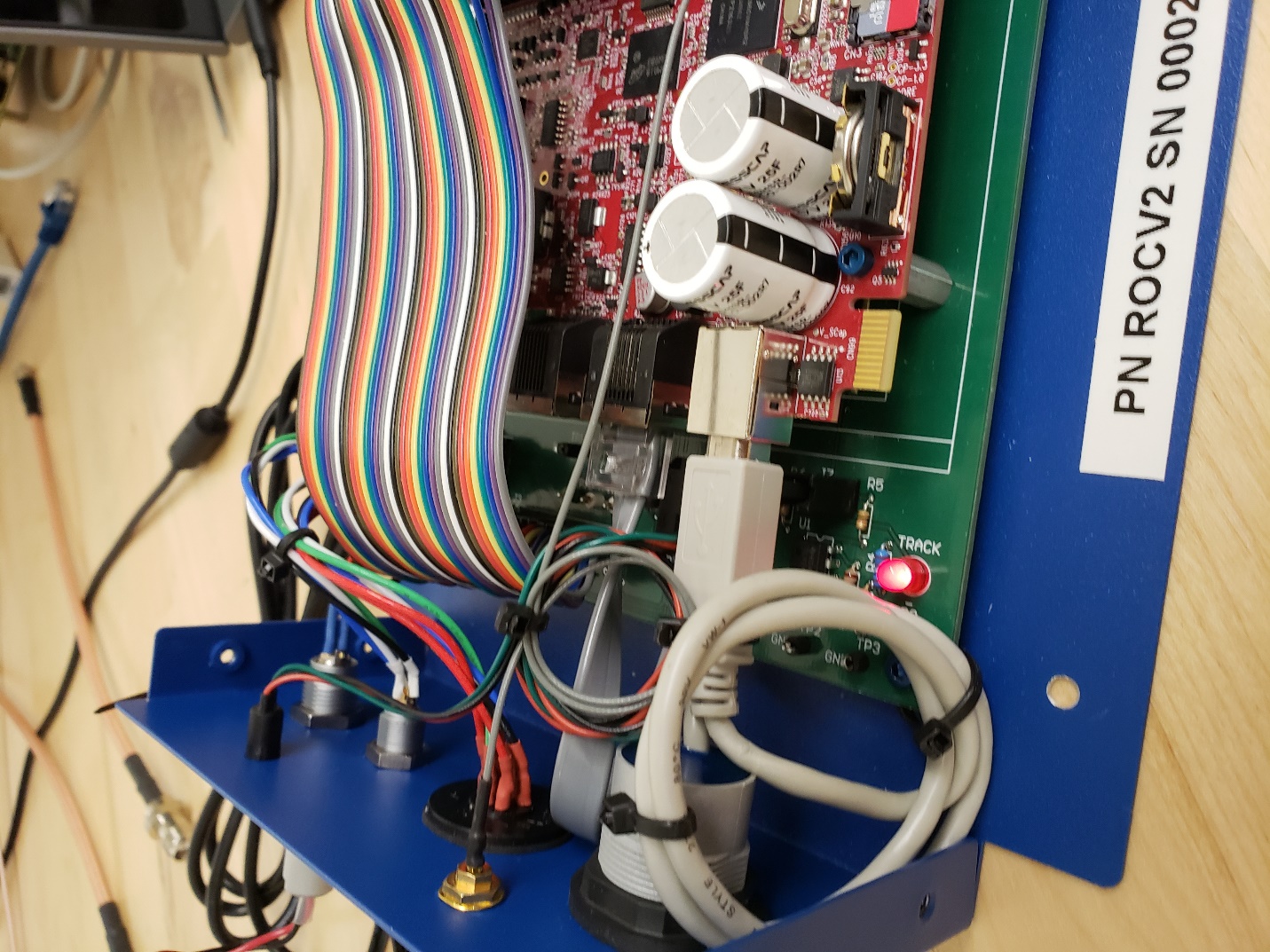
**Additional Notes:**

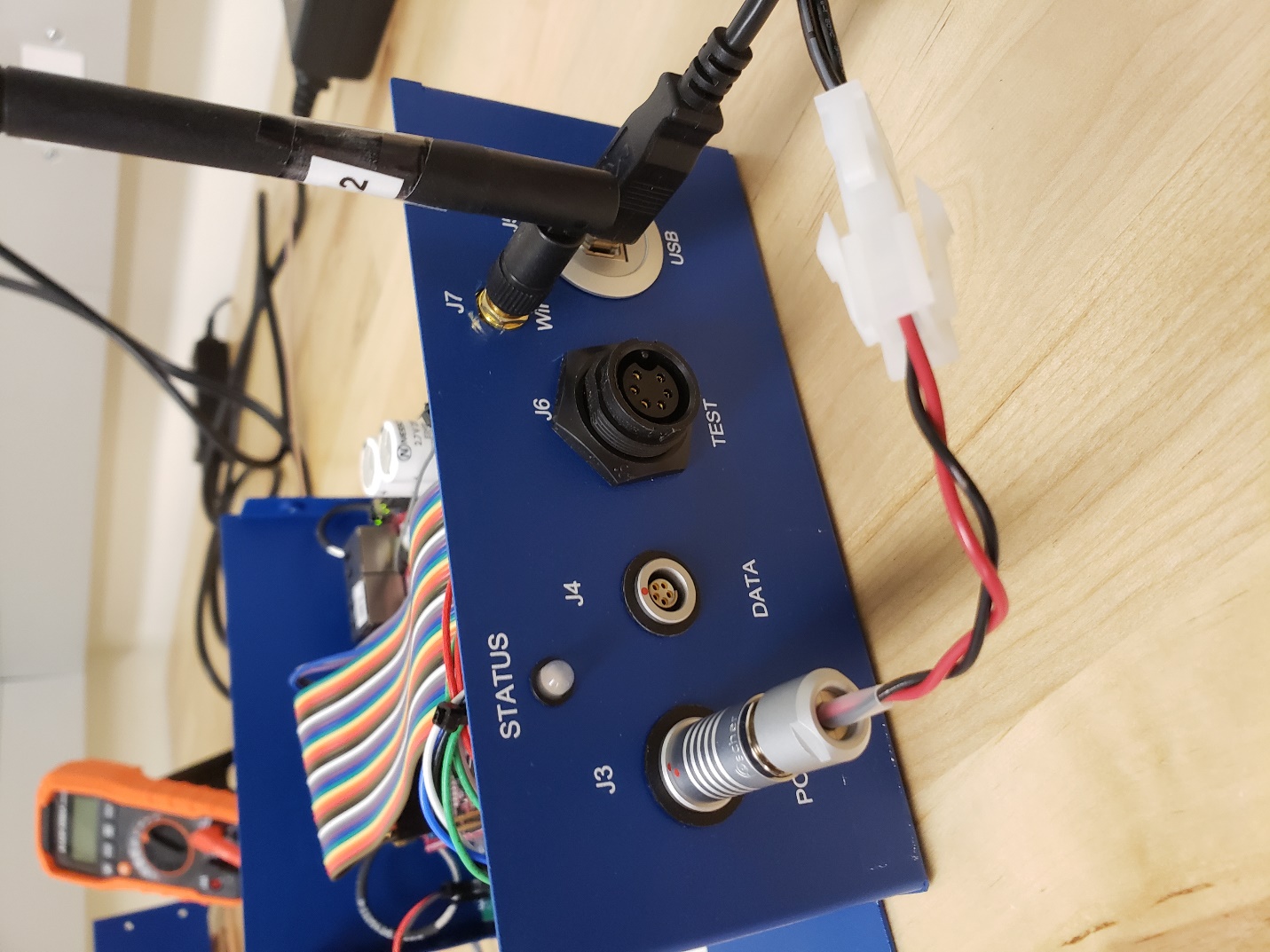
Get enclosure holes drilled for flight: picture of this in logs\_lozano

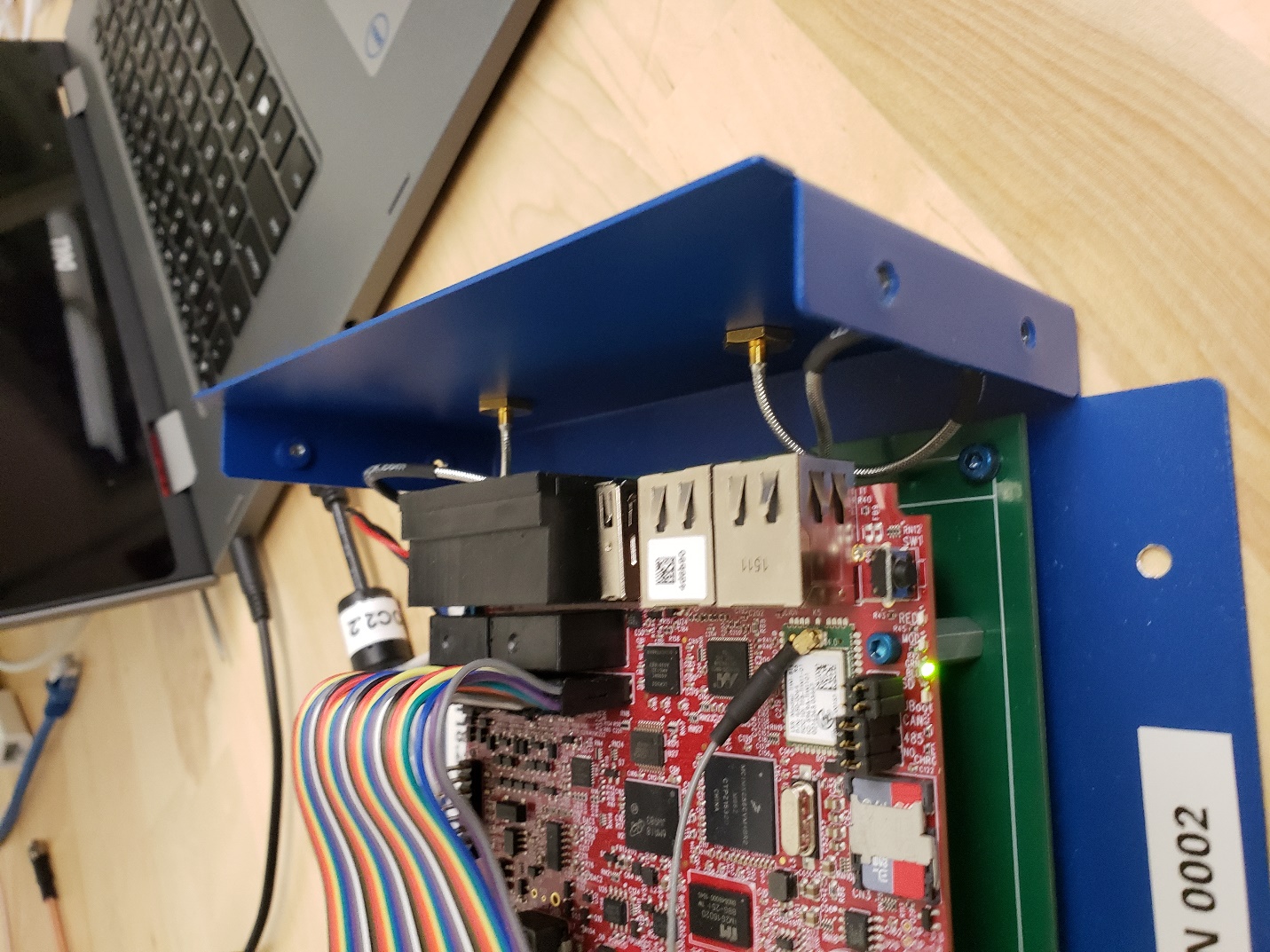
J5 does not fit snugly.

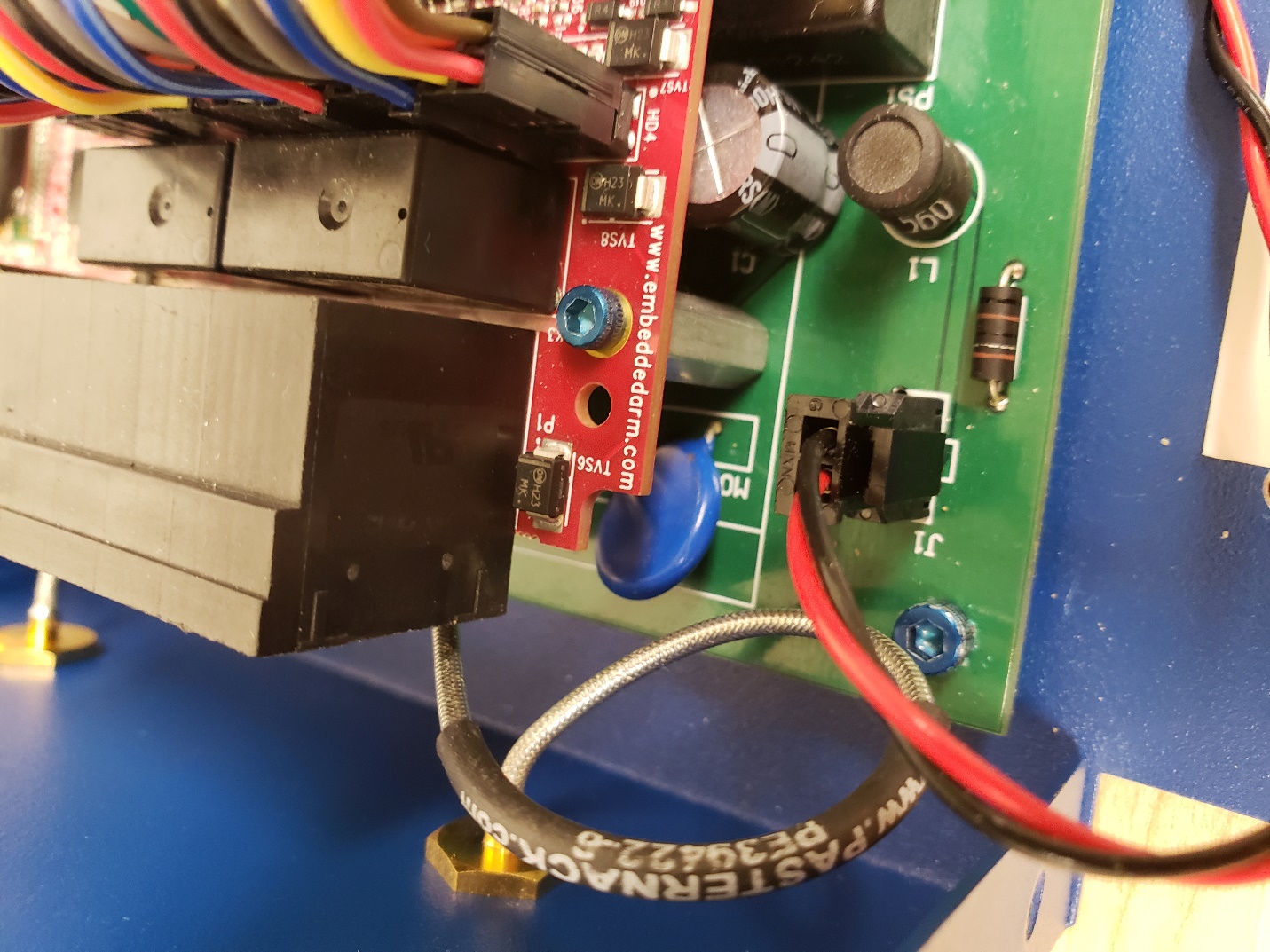
Problem with J3 power cable. Wires may be loose. Black and red. Power goes off when we move it. (Fixed)

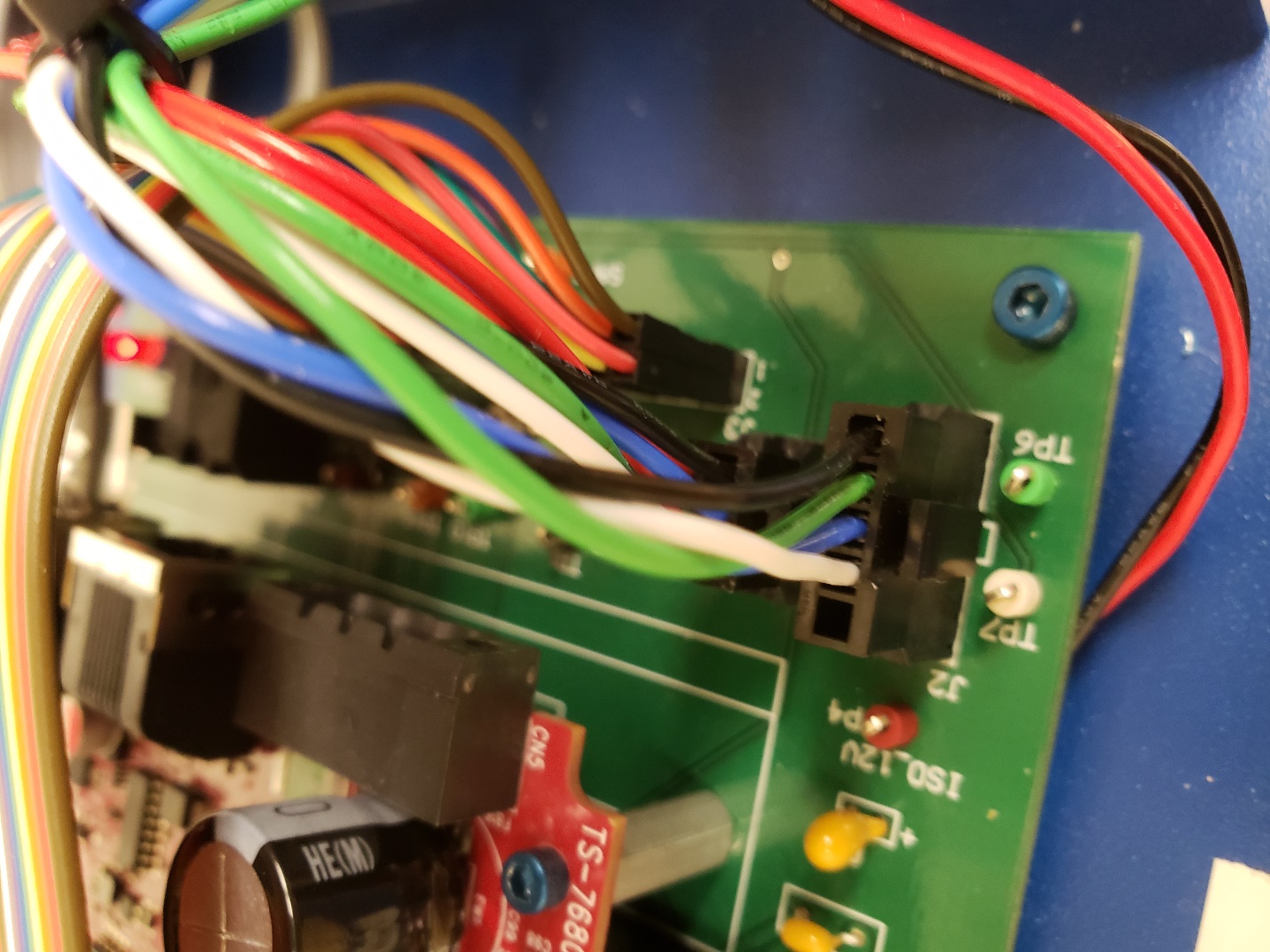
**Pictures:**

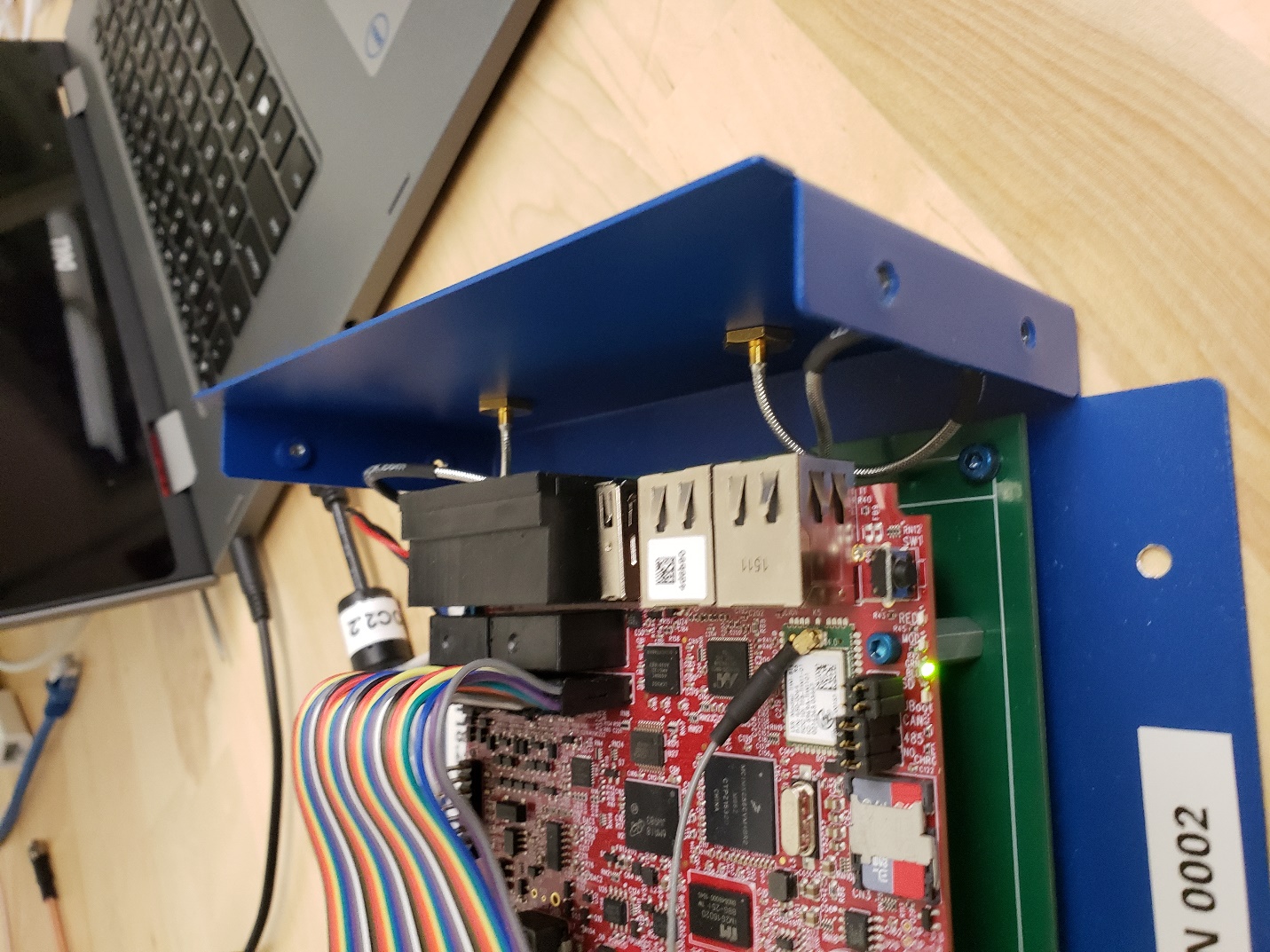
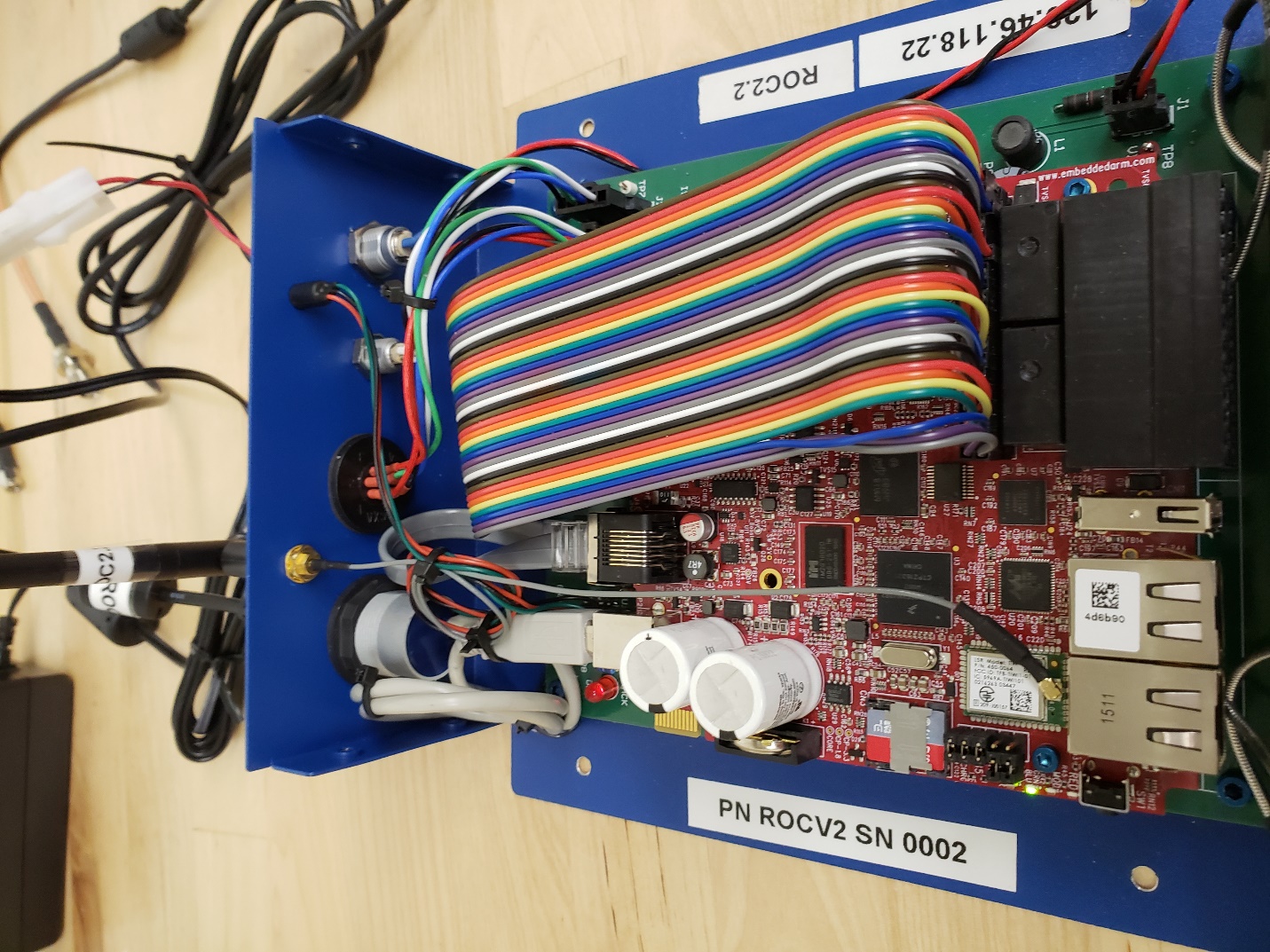
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