Cooling Circuit for GE2/1 Front Chamber Feedback

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1 Fit

Florida Tech is currently using v1 GE2/1 GEBs[1], which results in some alignment issues. All figures are listed in the appendix. Notes on the out-of-the-box fit are listed below:

- There are no issues with the mounting brackets fixed to the longitudinal bars; all of the holes are within the tolerances given by the holes on the cooling circuit mount points (see Figs. 1 and 2).
- There are some problems with aligning the copper plates with the FEASTs. E.g., once the copper plates for all FEASTs on one GE2/1 module are aligned (Fig. 3), all of the other copper plates for the FEASTs on other modules are misaligned (see Fig. 4).
- The 2V5 FEAST on the M6 module is not aligned at all (see Fig. 5).
- Overall, the OH copper plates are well aligned with the OHs (see Fig. 6).
- Good alignment for the VTRx/VTTx cooling plate attached to OH (Fig. 7).
- **We might want to consider some support for the bar on the cooling circuit that runs across the top of the M8 module, as it collides with the fibers. Currently, we have a support of packing bubble wrap to keep it off of the fibers, but for production, this might be an issue.**

2 Modifications to Cooling Circuit & Skeleton at FIT

After discussion with Michele, we have made the following modifications to the cooling circuit/mechanics at FIT:

- Through holes drilled in the longitudinal stiffeners according to schematics (Fig. 1).
- Through holes drilled and tapped in the M5 and M8 crossbars (manually located); see Fig. 8.
- Elongated/enlarged holes on the copper plates for the FEASTs (see Fig. 9).
- Resoldered the cooling plate for the 2V5 FEAST on the M6 module (see Fig. 10).

[1] Version 2 preproduction GEBs have not been produced for GE2/1 front chambers.

Appendix

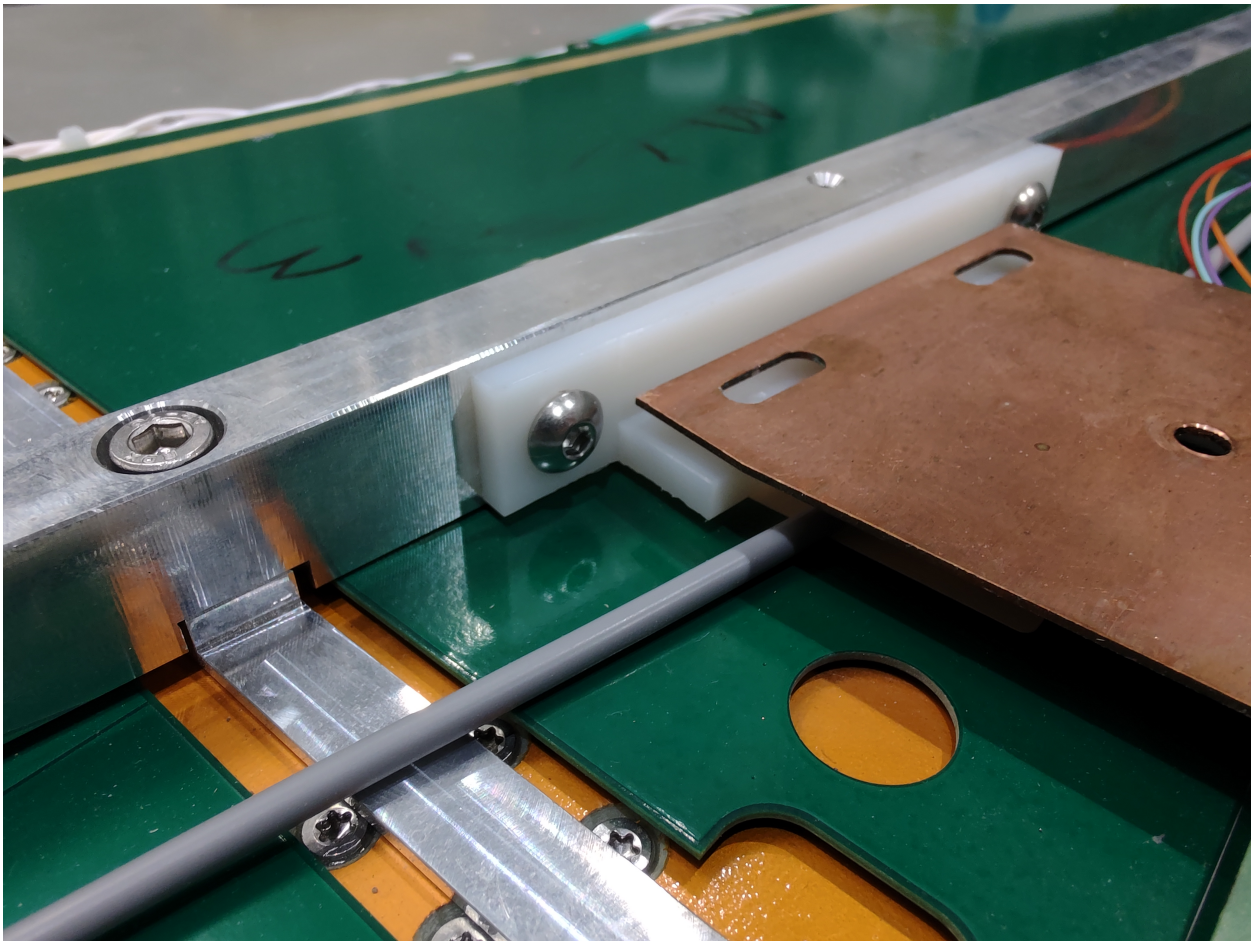


Figure 1: Brackets mounted on the longitudinal stiffeners.

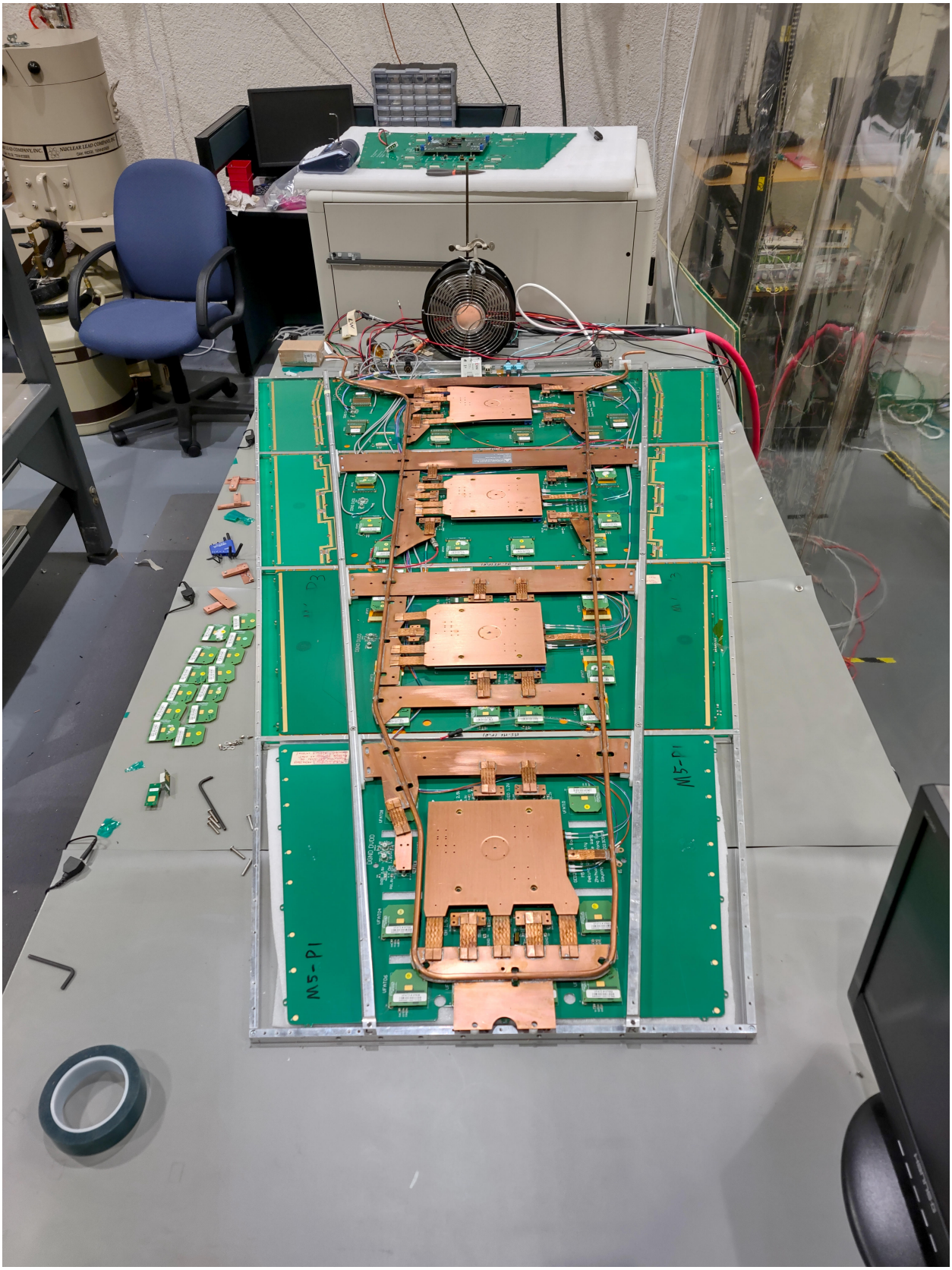


Figure 2: Cooling circuit mounted on the GE2/1 front chamber.

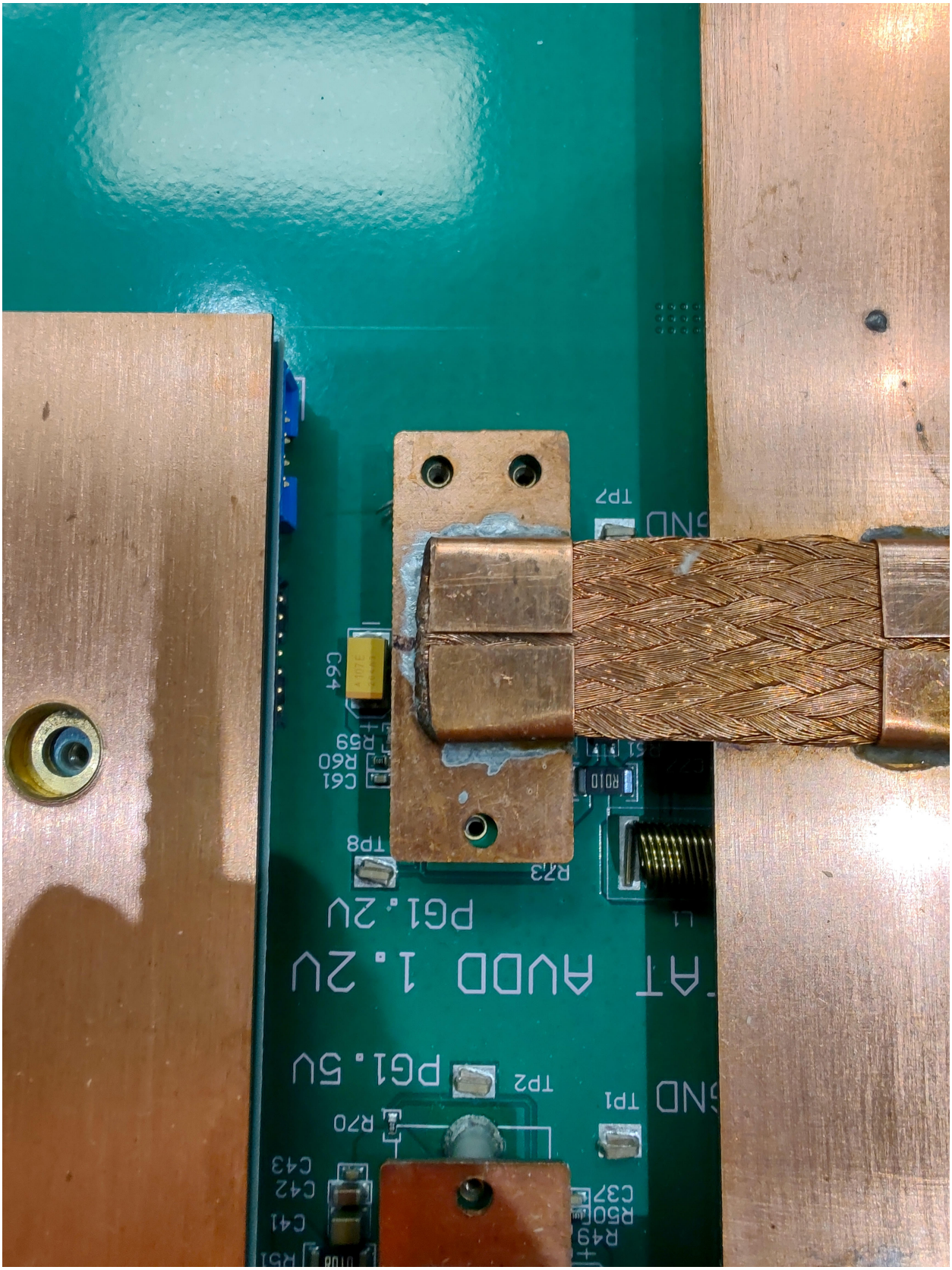


Figure 3: Example of good alignment for the FEAST cooling copper plates on one module.

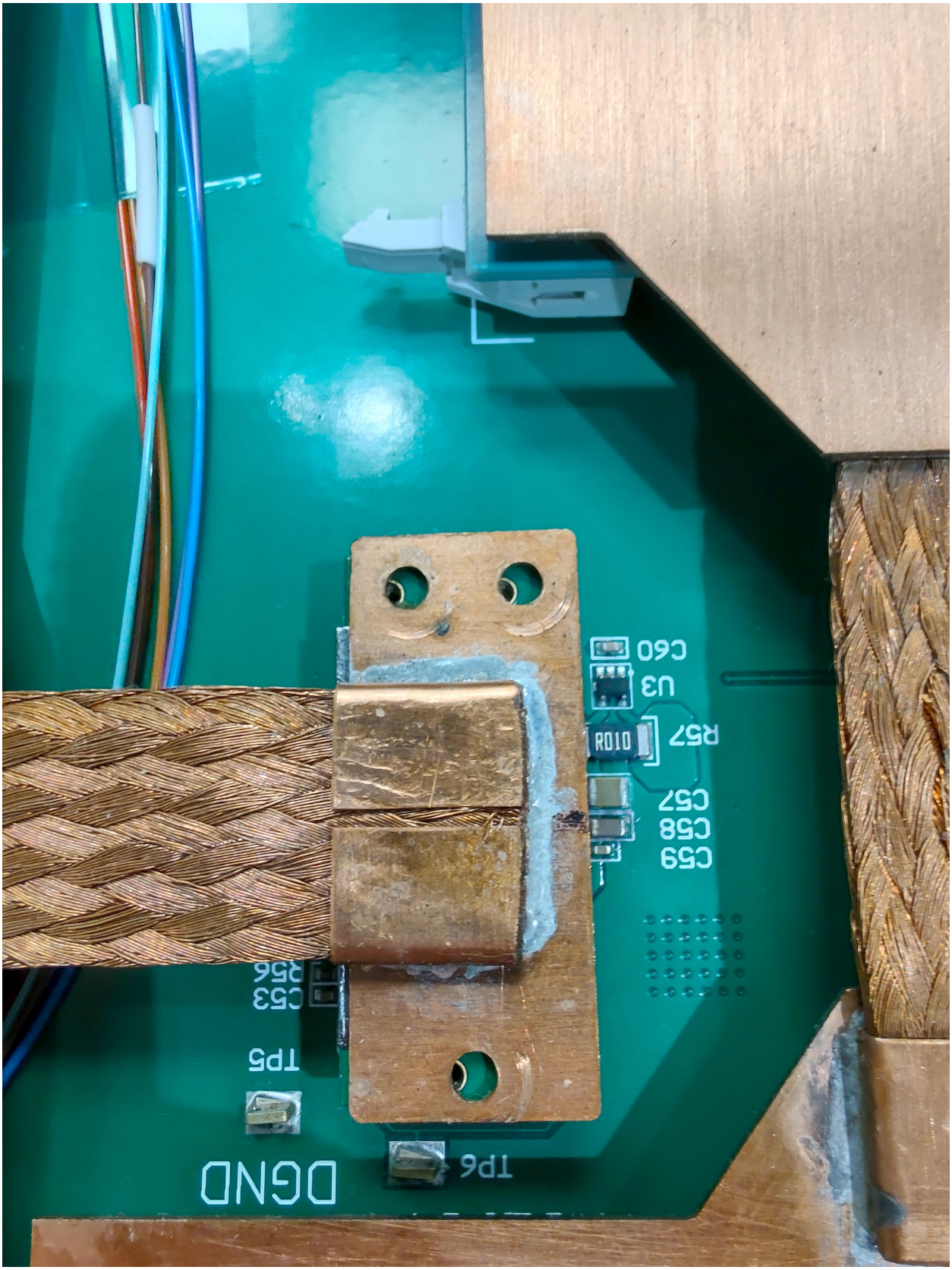


Figure 4: Example of poor alignment for the FEAST cooling copper plates for the other three modules.

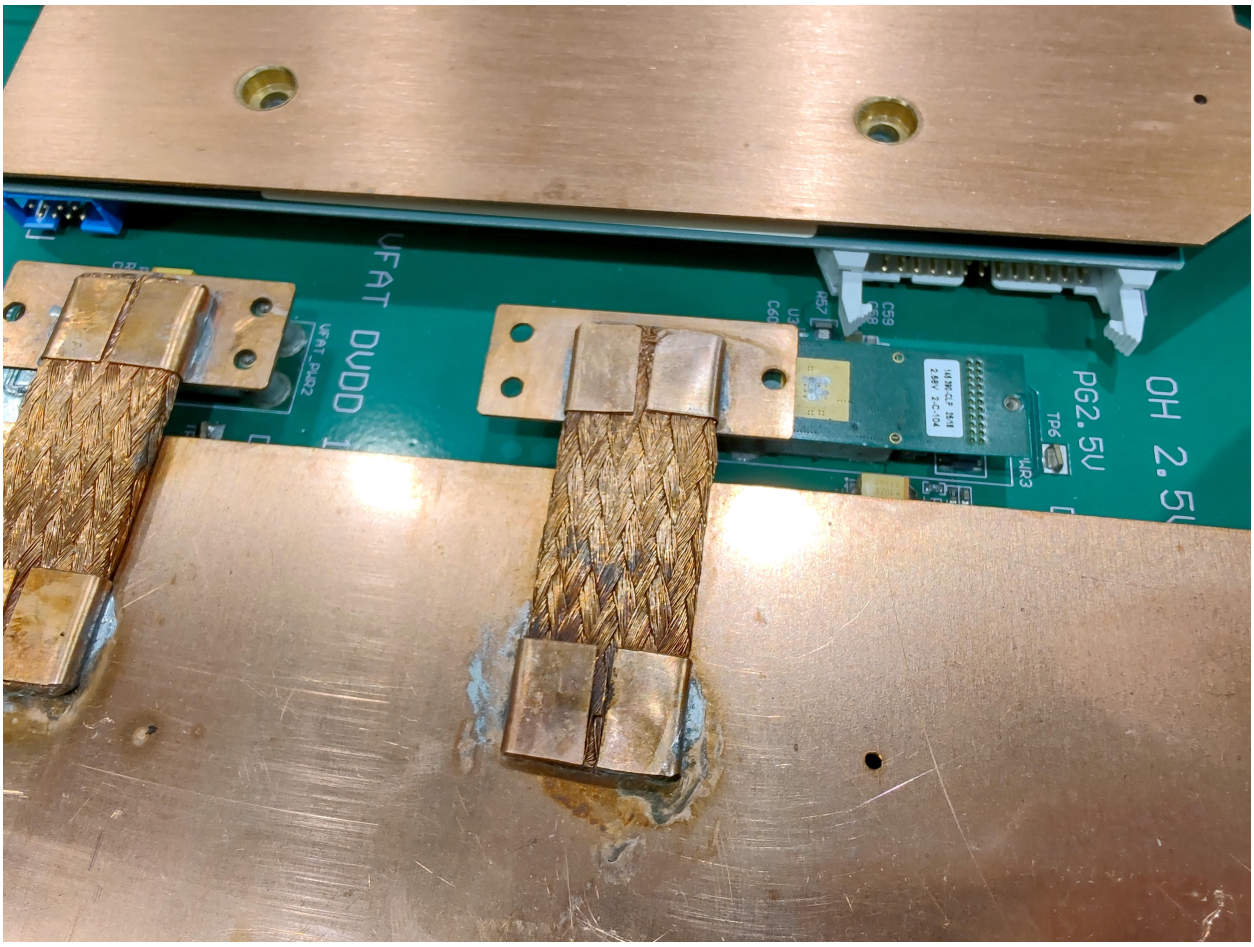


Figure 5: The copper cooling plate for the 2V5 FEAST on the M6 module.

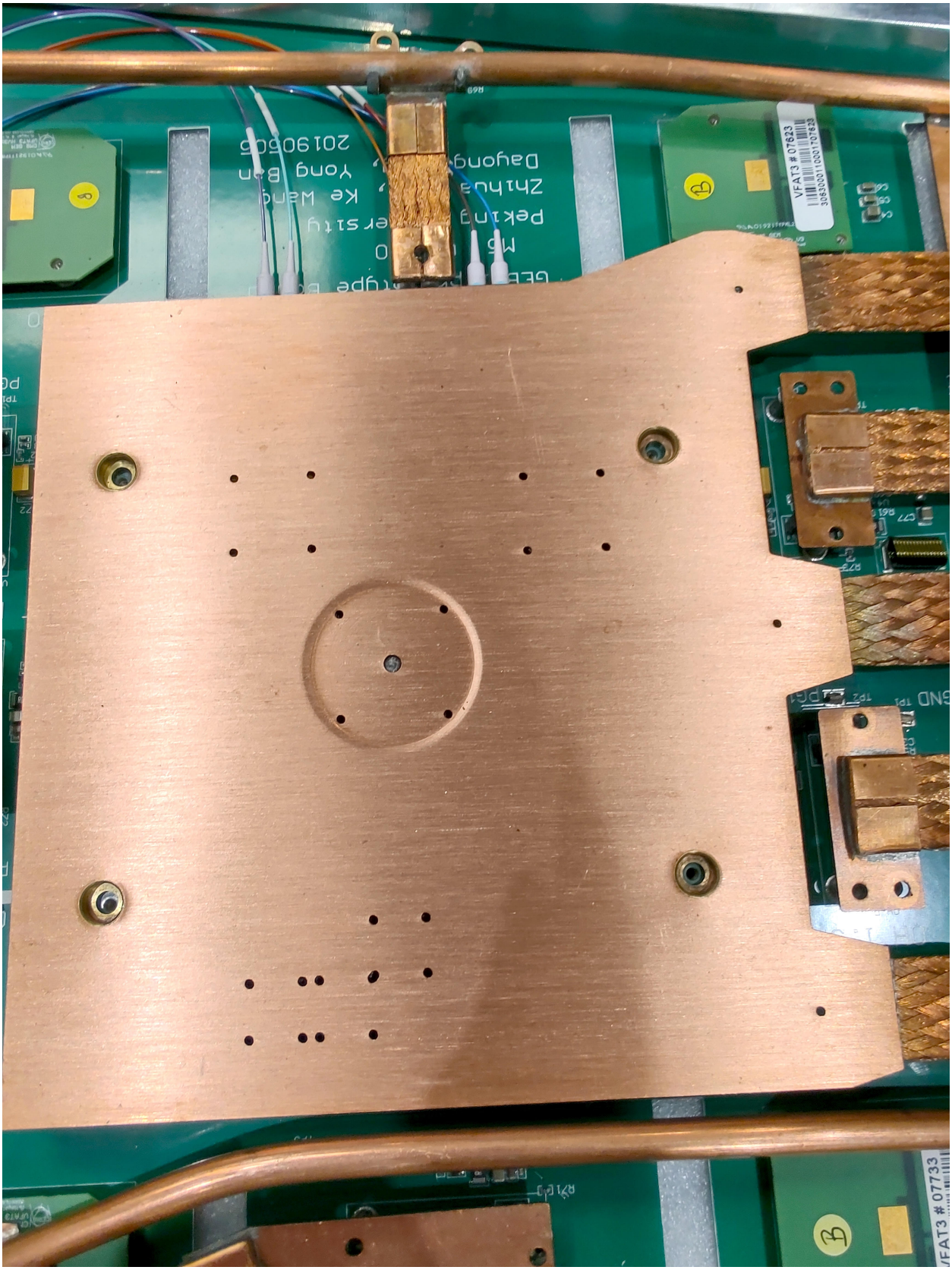


Figure 6: Example of the alignment of the copper cooling plate for the OH.

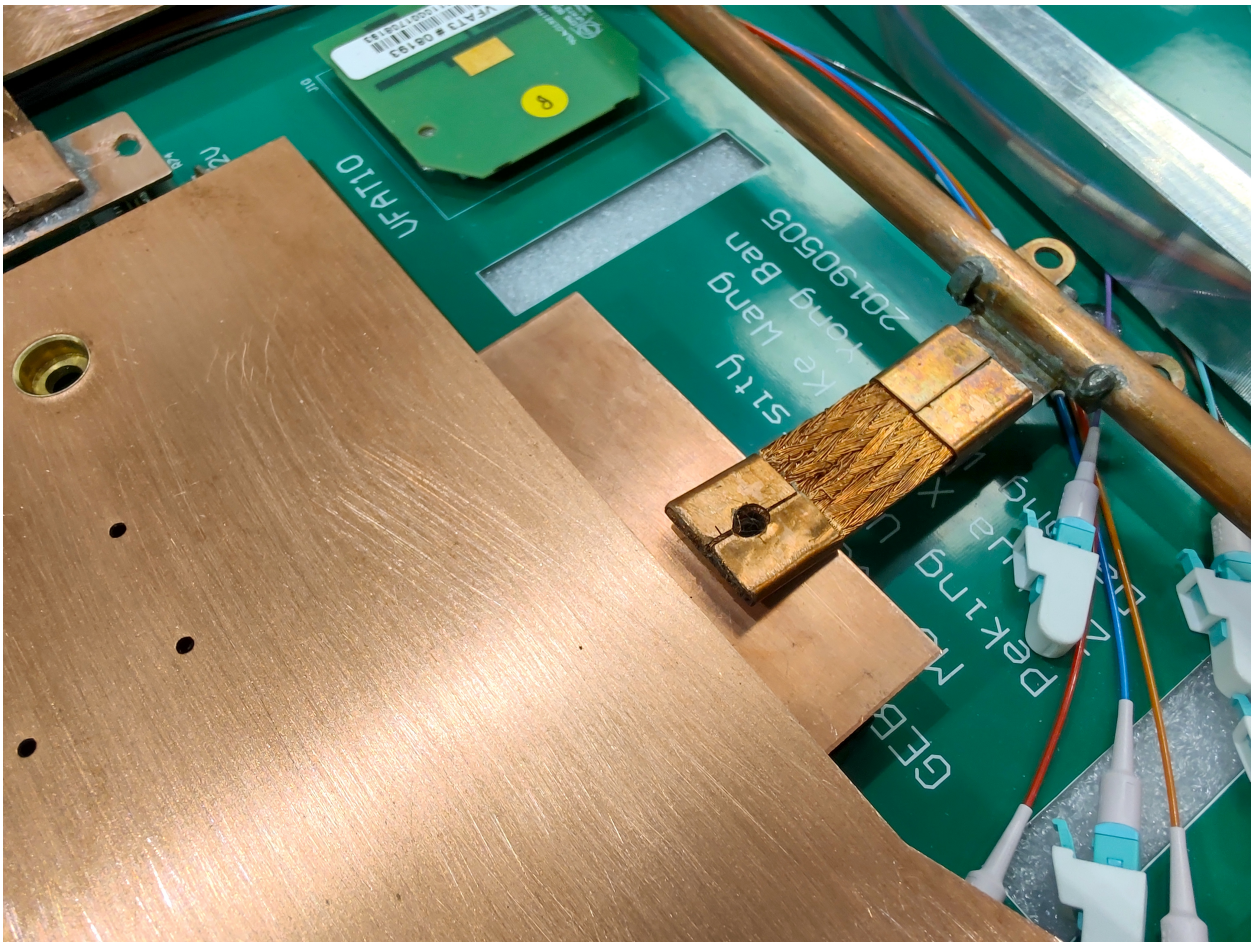
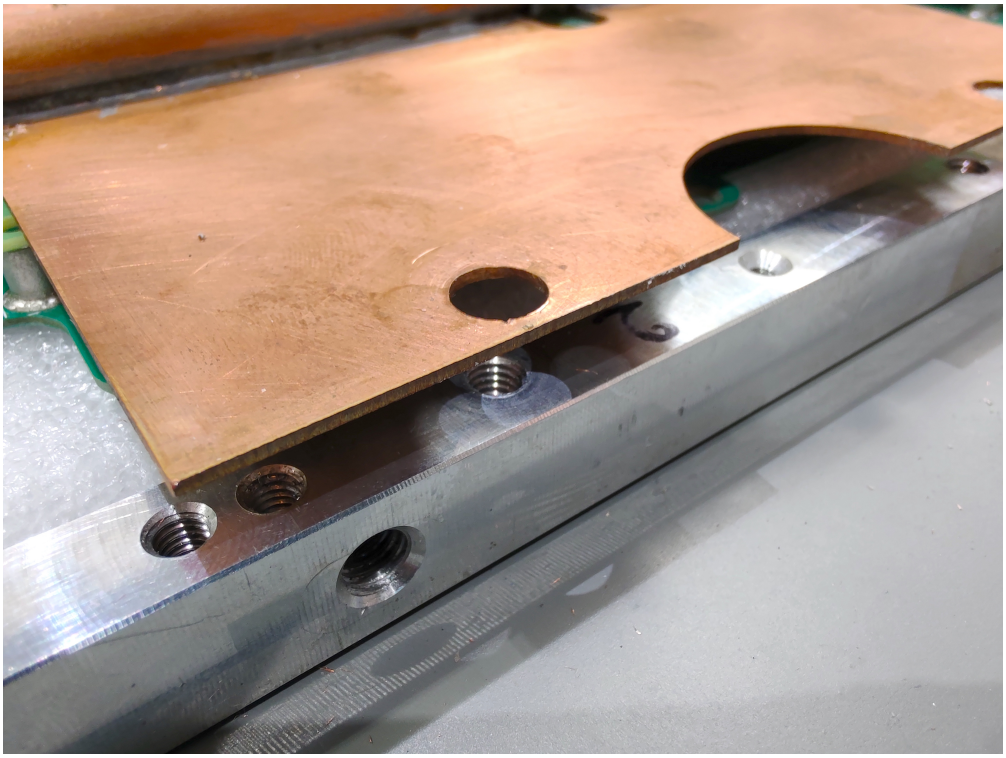
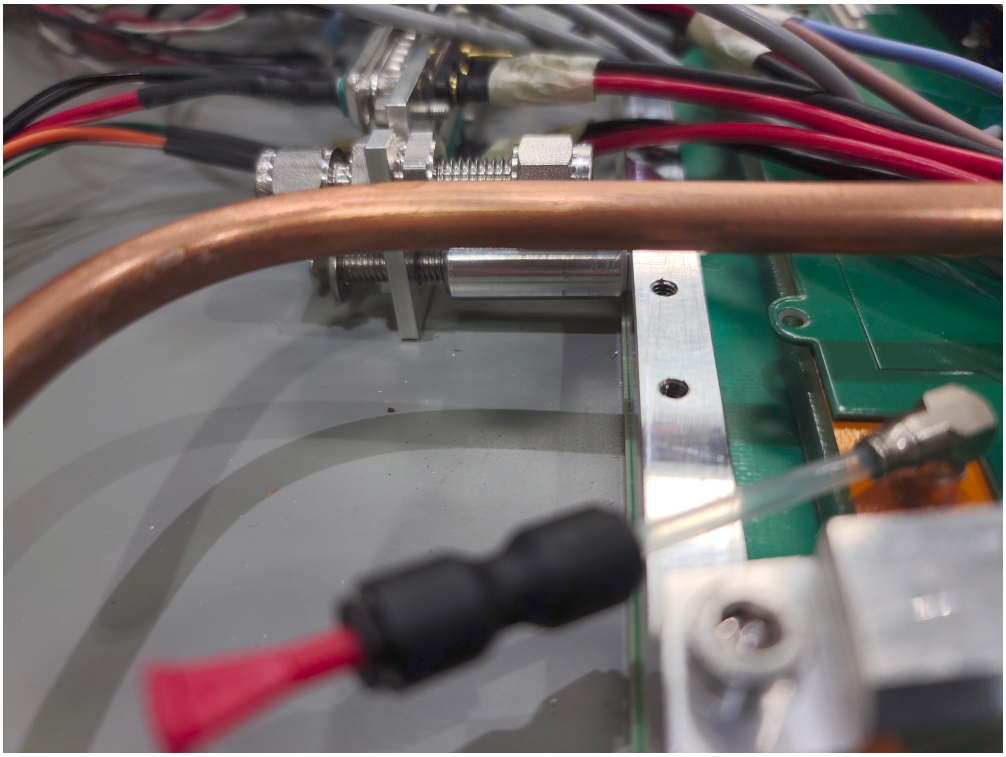


Figure 7: Cooling plate for the VTRx/VTTx.



(a) Drilled and tapped holes in the M5 cross bar.



(b) Drilled and tapped holes in the M8 cross bar.

Figure 8: The drilled and tapped holes in the M8 and M5 crossbar. Note that these were not positioned according to the schematics.

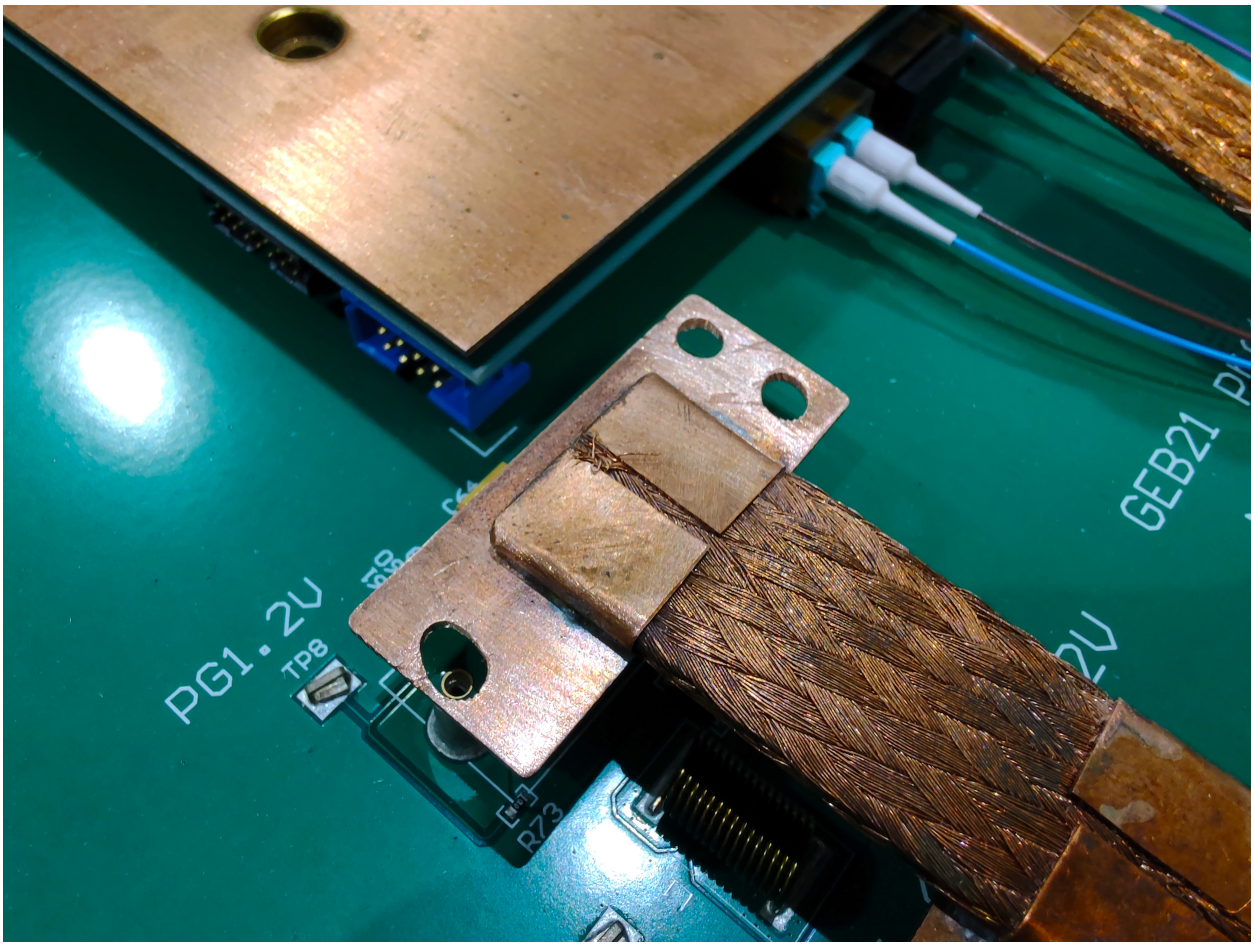


Figure 9: Example of the elongated holes in the FEAST cooling plates.

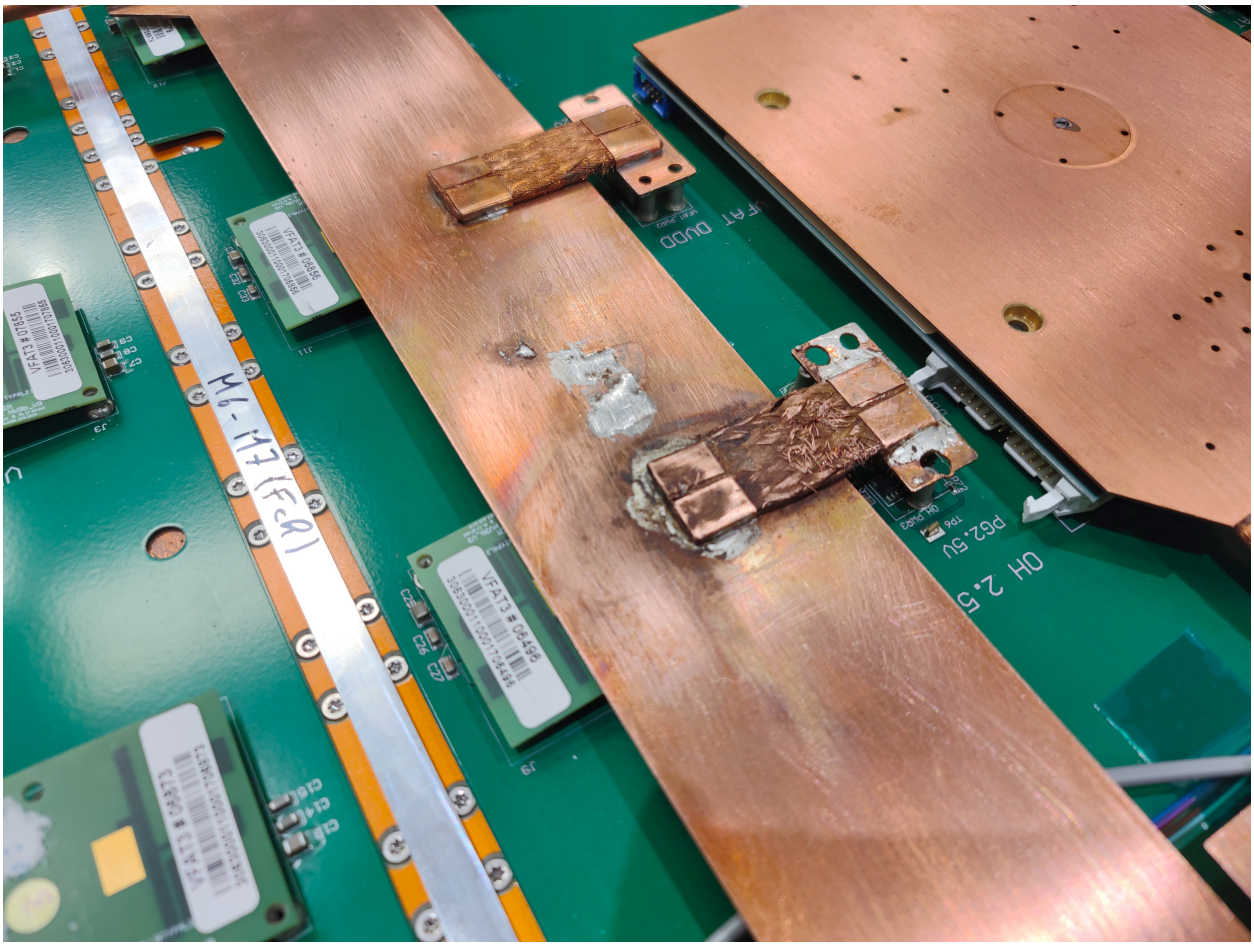


Figure 10: The resoldered 2V5 FEAST cooling plate for the M6 module.