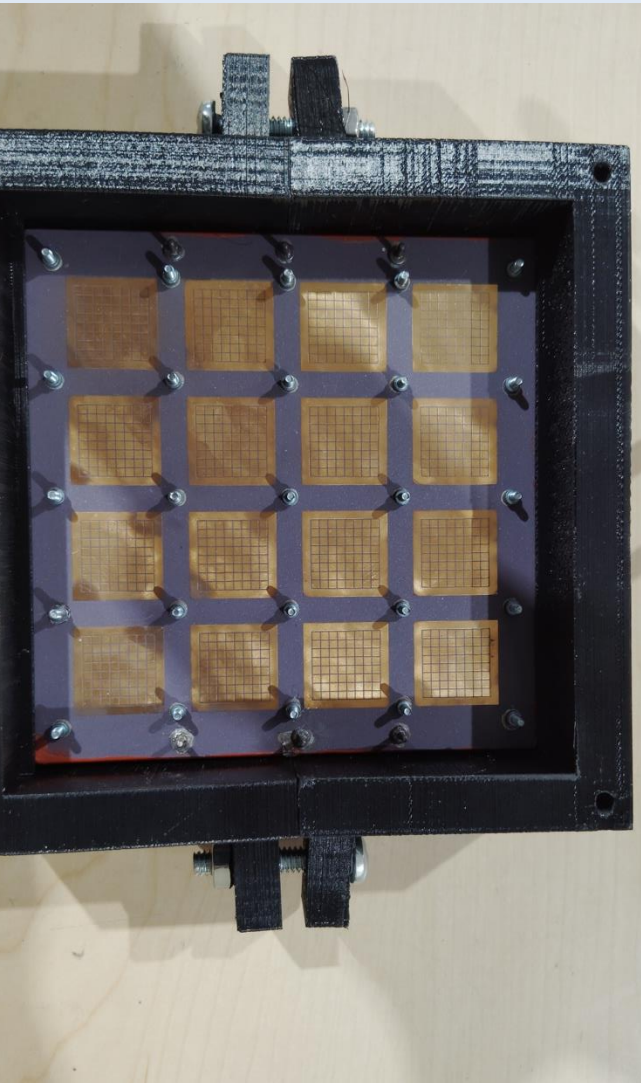
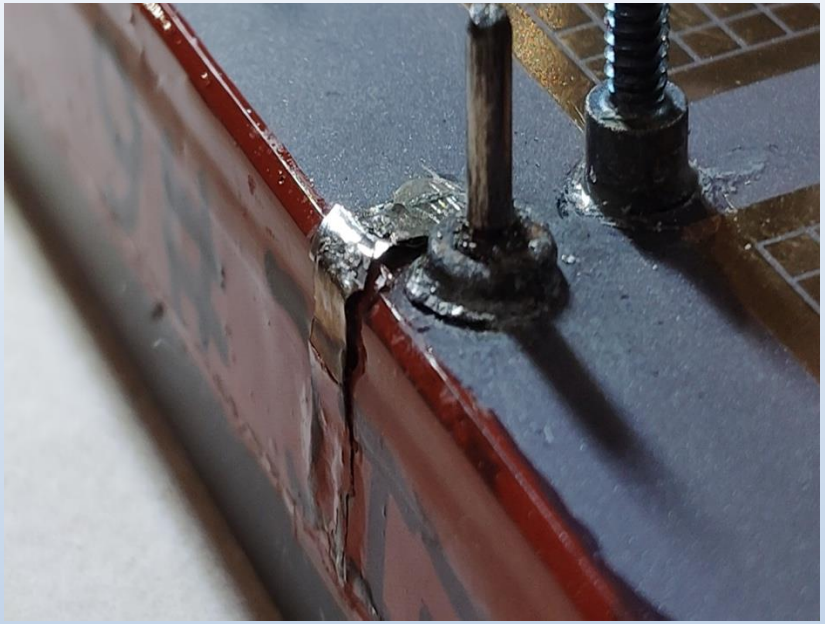
Visual Inspection Report HRPPD #24

Returned from Repair (Visual inspection only – no HV or functional tests performed at this stage)

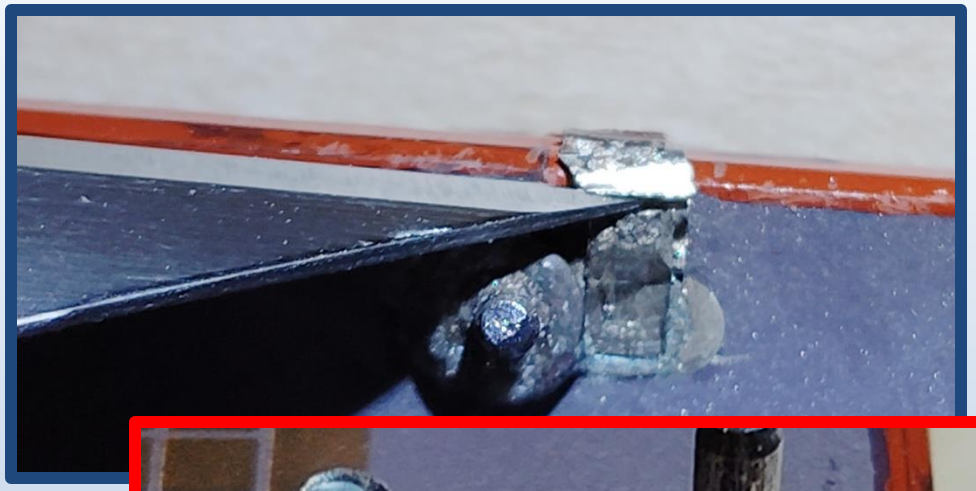
Observations

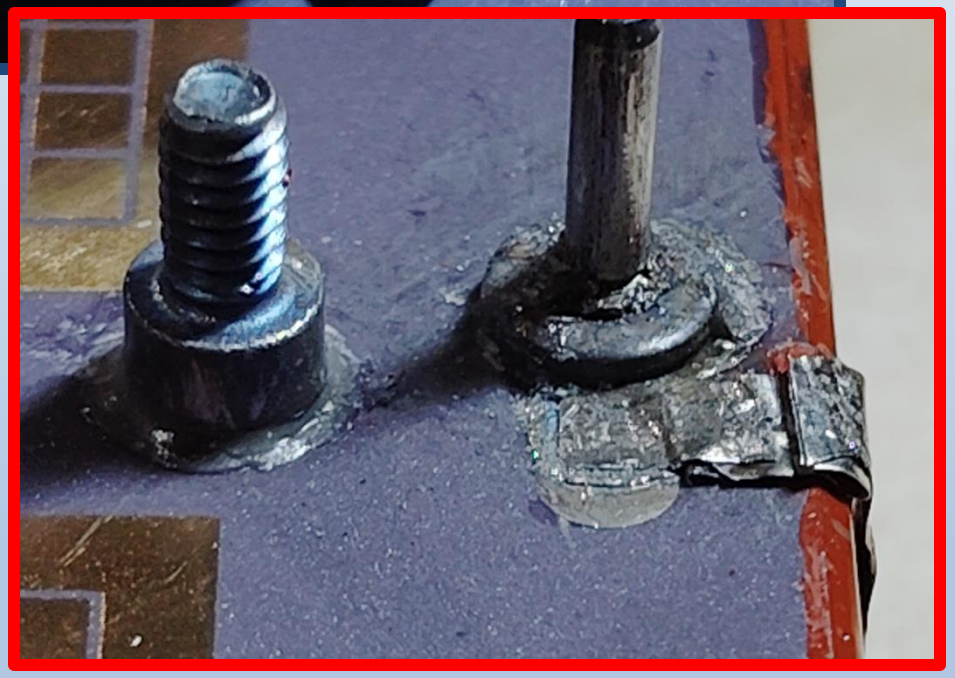


- The shipping box and attached shock sensors were intact, and no physical damage was observed during transport.
- The external body of the module can be considered mechanically stable and free of shipping-related issues.

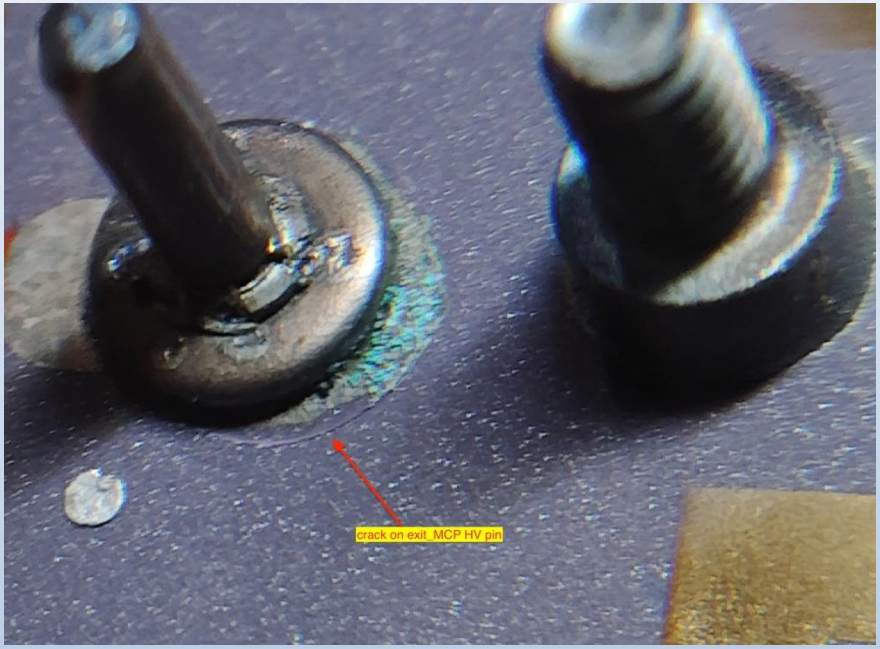


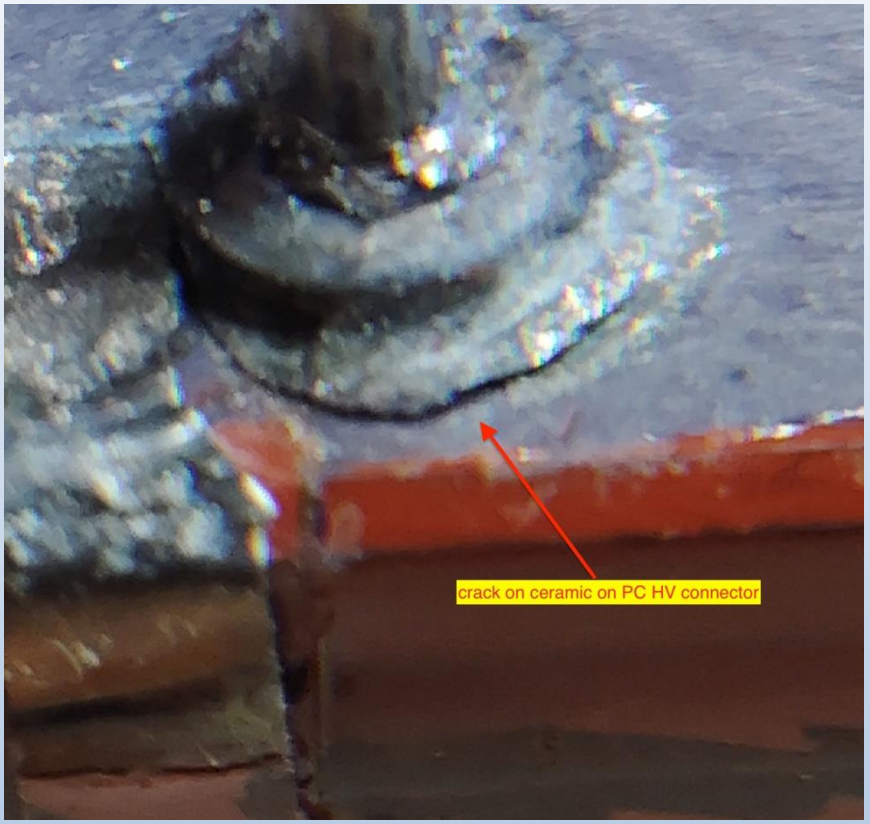
- The photocathode (PC) HV pin showed evidence of repair, but the quality of the rework appeared incomplete.
- Spot welding lacked uniformity, and several attachment points did not look fully bonded.





From pictures, one can clearly see loose ends on the HV stainless strip connector, raising concerns for sparking, micro-discharges, or future oxidation.





Cracks were observed at the interface between the ceramic body and both the exit_MCP and PC HV pins, introducing additional uncertainty regarding long-term performance.

Conclusion

- The overall HRPPD #24 appears intact and stable following shipping, with no visible damage from shipping and handling.
- The repair performed on the PC HV pin is unsatisfactory.
- The stainless-steel strip connector shows loose ends that could serve as points for sparking or oxidation.
- Cracks in the ceramic on both the exit_MCP and PC HV pins.
- Taken together, these issues present a clear risk of unstable operation or potential failure in the future.

Next Steps

- To mitigate immediate risks, I applied Kapton tape to the HV connector strip to prevent any possible shorting with the PCB ground.
- The next step will be to install the HRPPD in the dark box and conduct initial operational tests to verify functionality.
- If the detector passes these initial checks, I will proceed with extended HV biasing and monitoring to evaluate long-term stability.