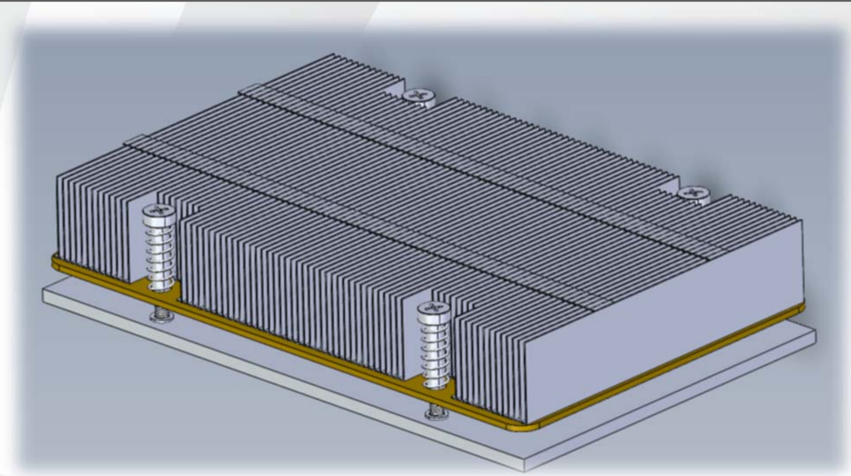


Thermal Solution Test for Y company

Thermal-Design Team: Bryan Lin,
Ken Chen
Dennis Chang

Date: Jul 5th , 2021

Purpose:

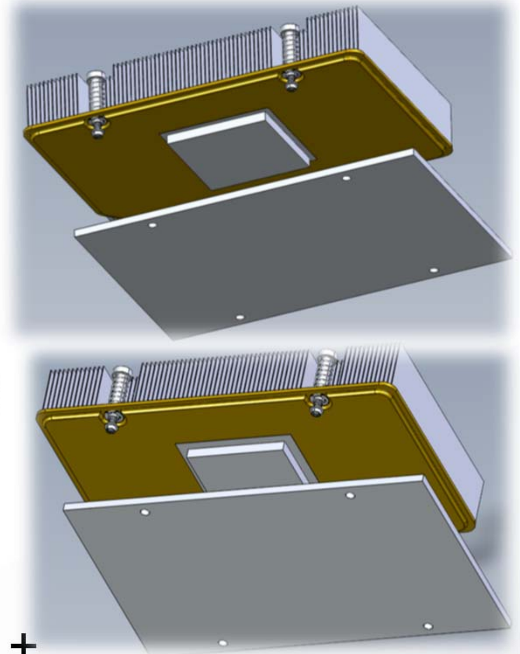
To check if current solution could satisfy TDP as expected by customer.

Method:

To set up the actual TDP to confirm REGO solution could satisfy the demand under the current conditions agreed by Y company at the moment.

Conditions:

1. **TDP** = 122.2W
2. **Chip size** = Package 1 (P1) 37.5x37.5x3.8mm
   Package 2 (P2) 40.5x40.5x3.8mm
3. **Ta** = 55°C (with brief chassis; Air flow : 800lms)
4. **Tcmax shall be < 73.33**°C
5. **HS** = Copper stacked fins (**136x85.5x19mm**) x 1set + Vapor chamber (**140x90x3mm)** x 1pce.



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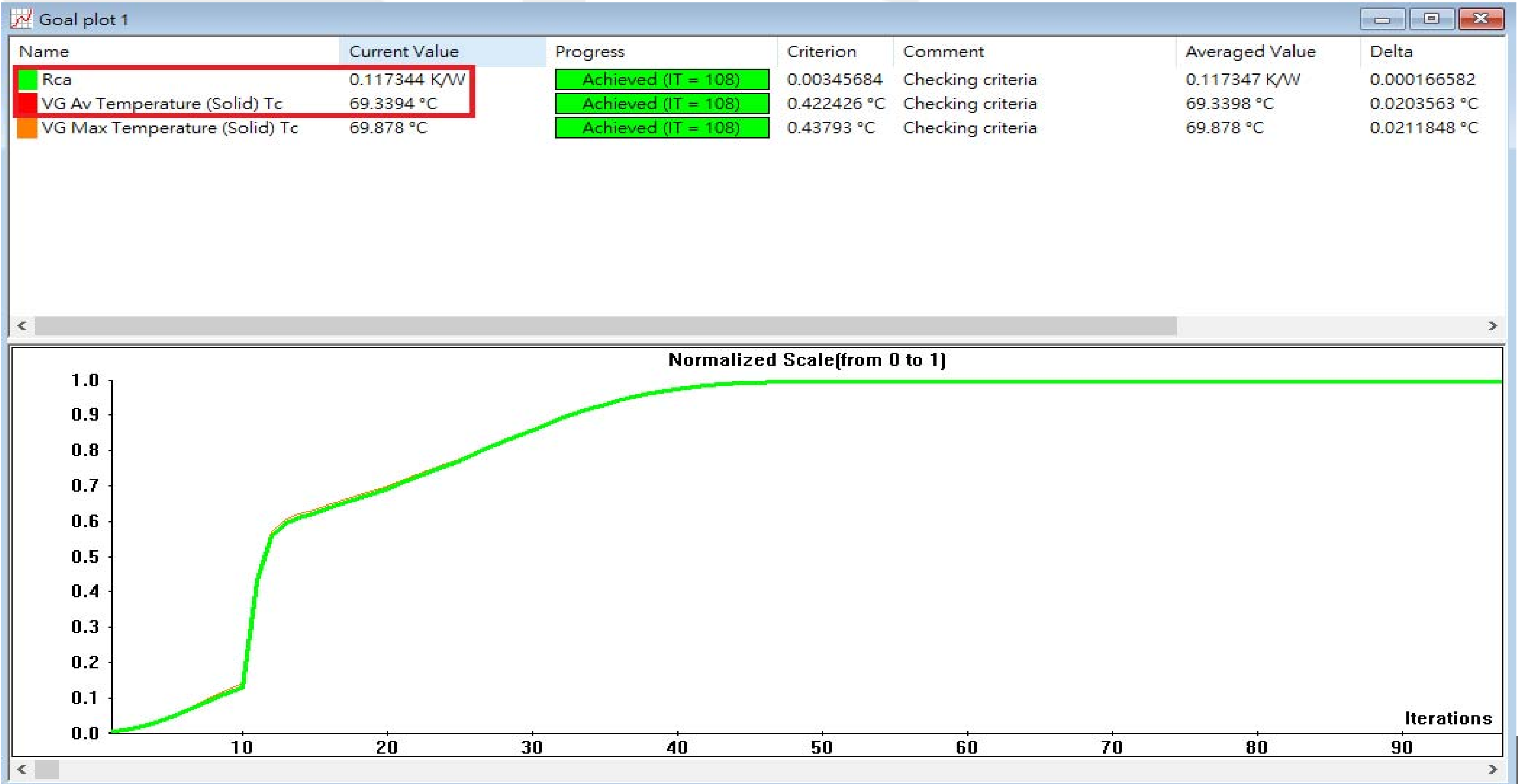
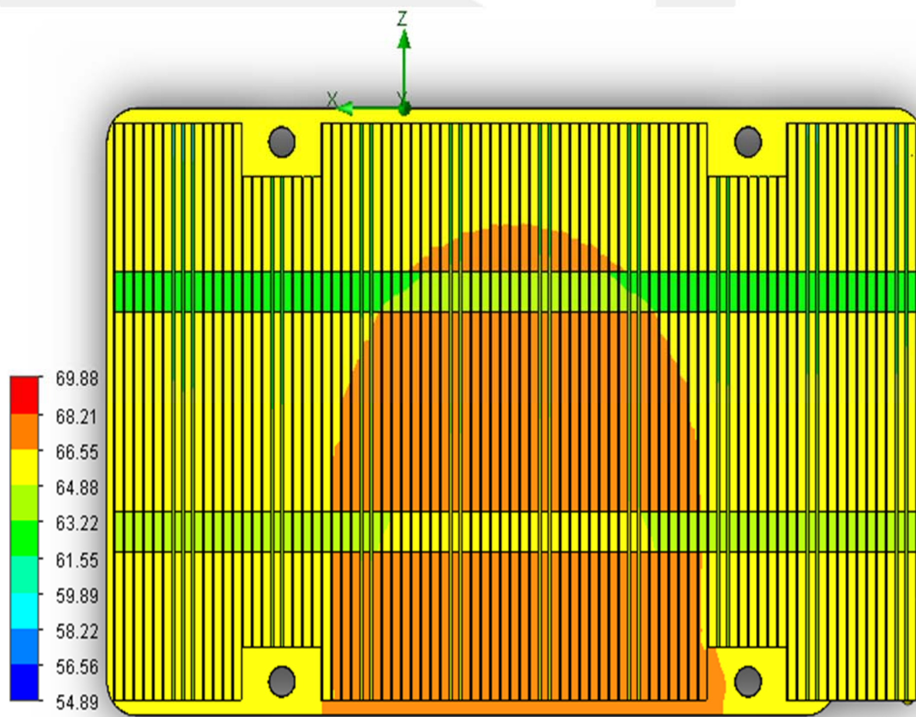
Analysis – Tcase of heat source (Package 1)

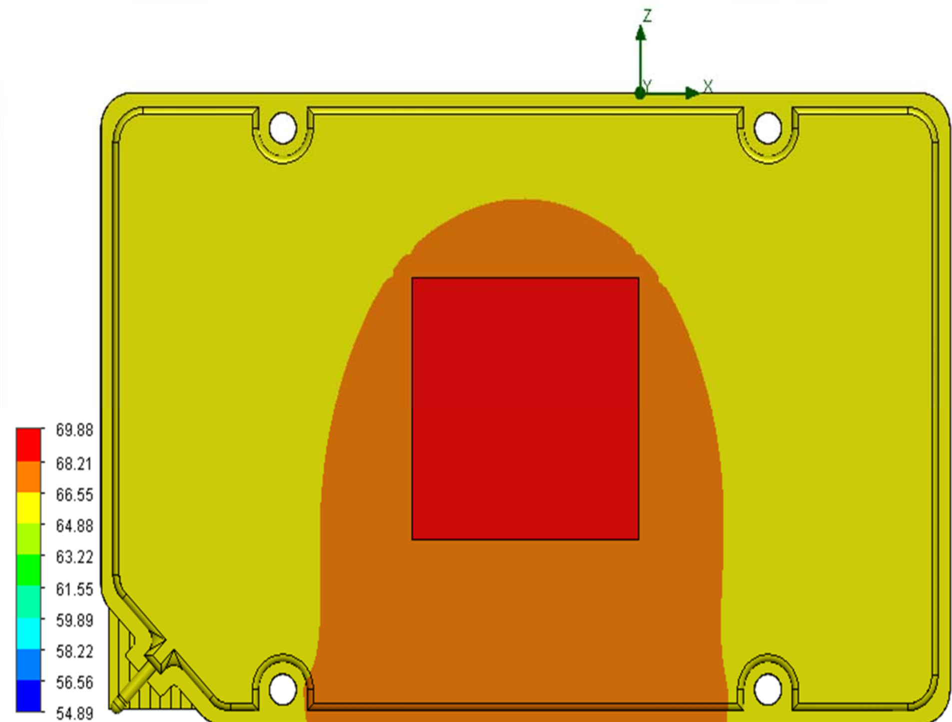
1. The steady Tc1 in average is **69.34°C** < Tcmax 73.33°C， **PASSED**

2. Relatively, thermal resistance is **0.12℃/W** .

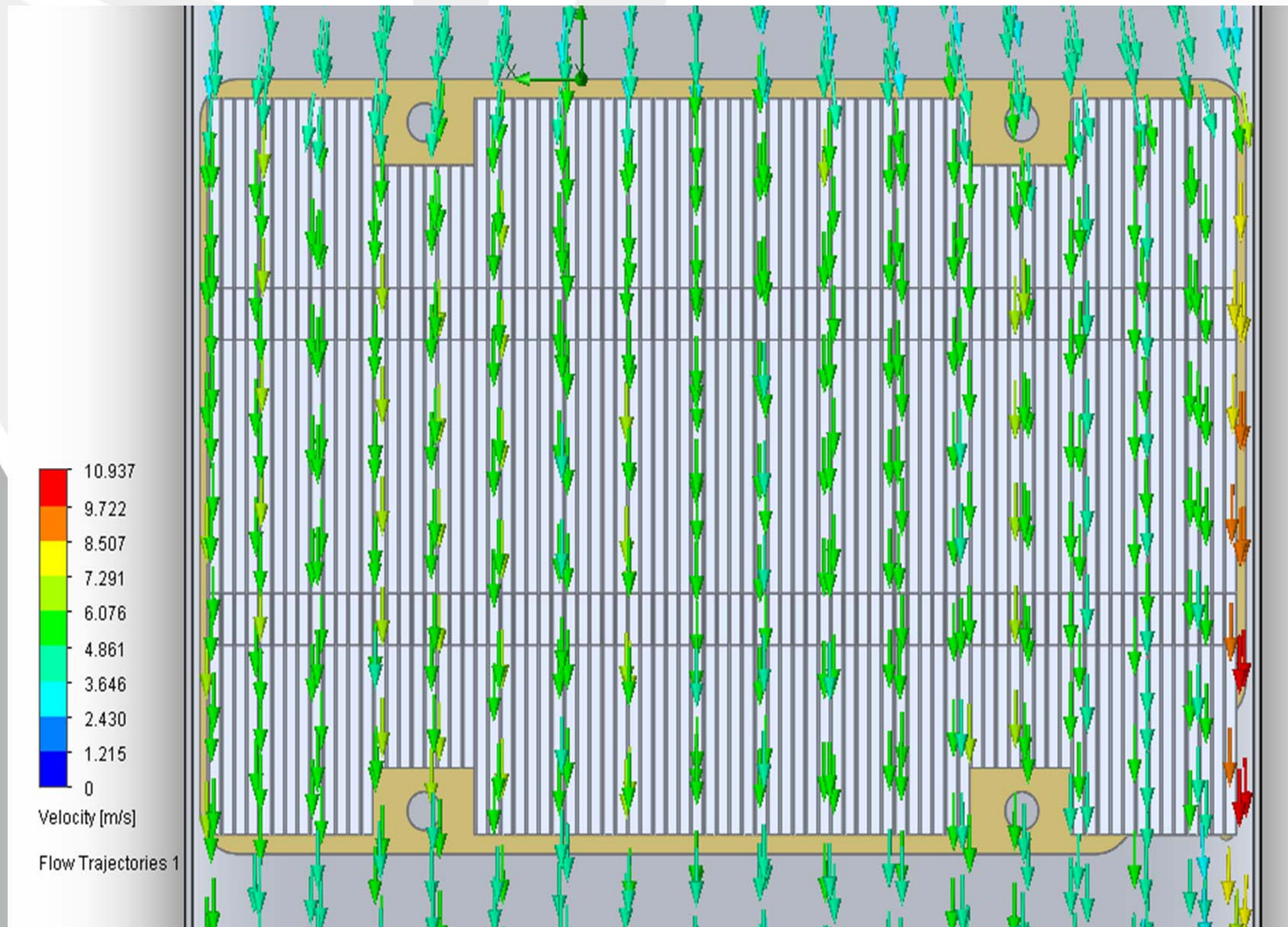


Analysis – Thermal Ranging (P1)





Analysis – Air Flow (P1)



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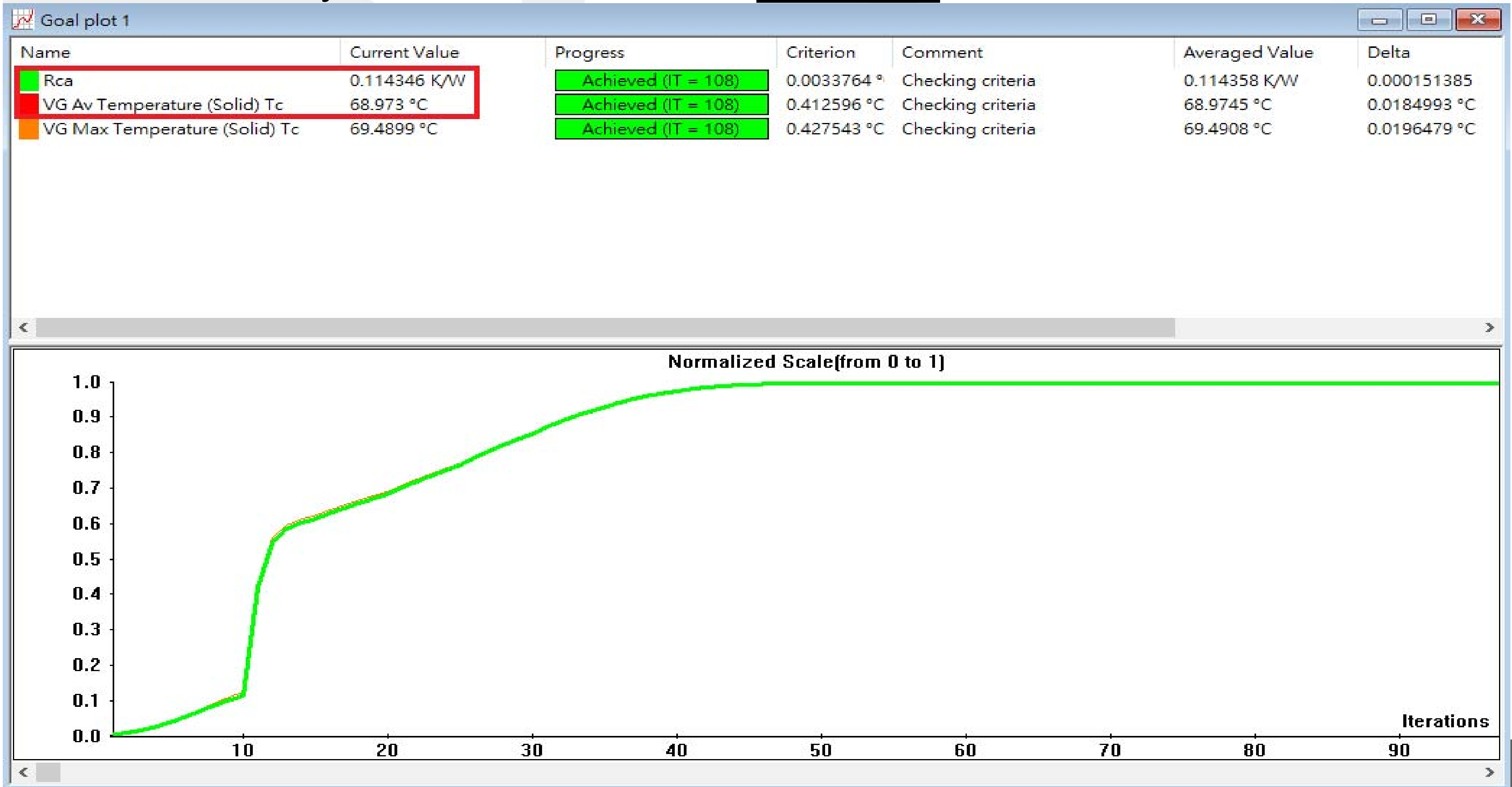
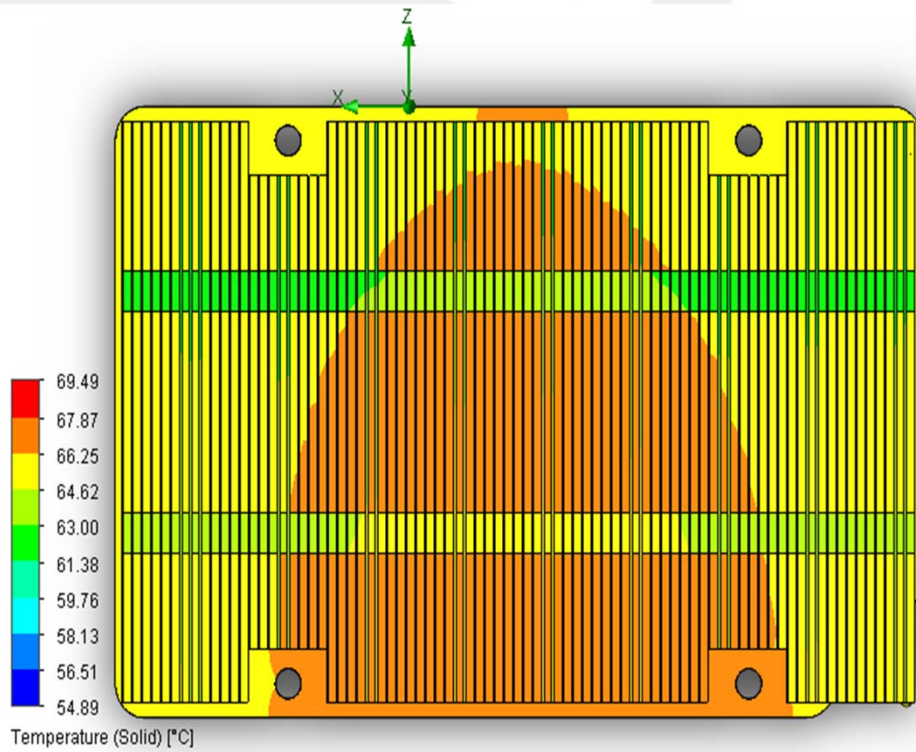
Analysis – Tcase of heat source (Package 2)

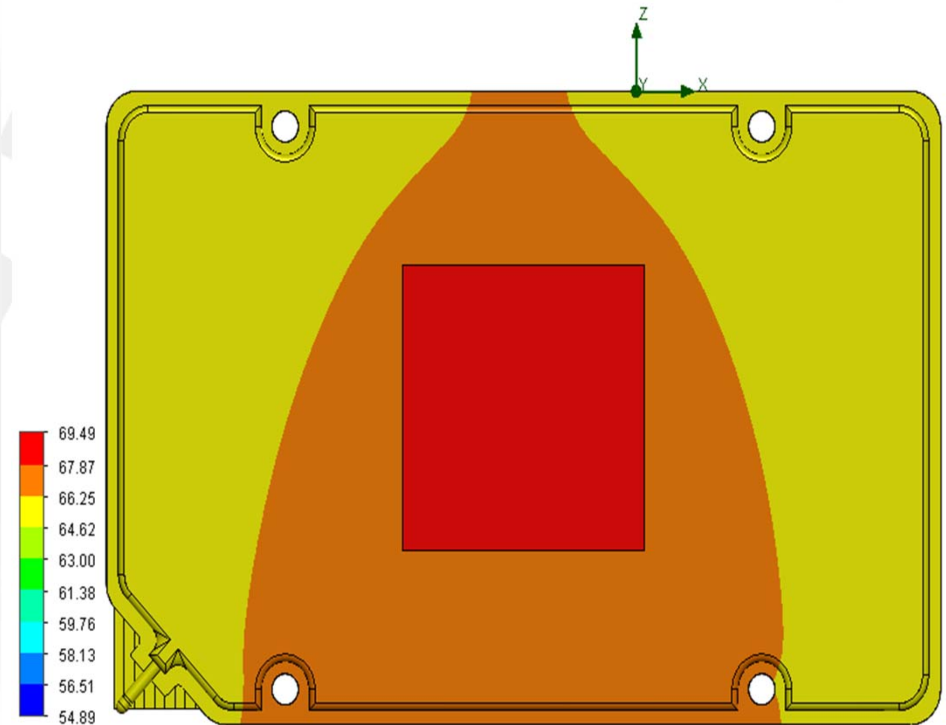
1. The steady Tc_2 in average is **68.97°C**, < Tc_{max} 73.33°C，**PASSED**

2. Relatively, thermal resistance is **0.11℃/W** .

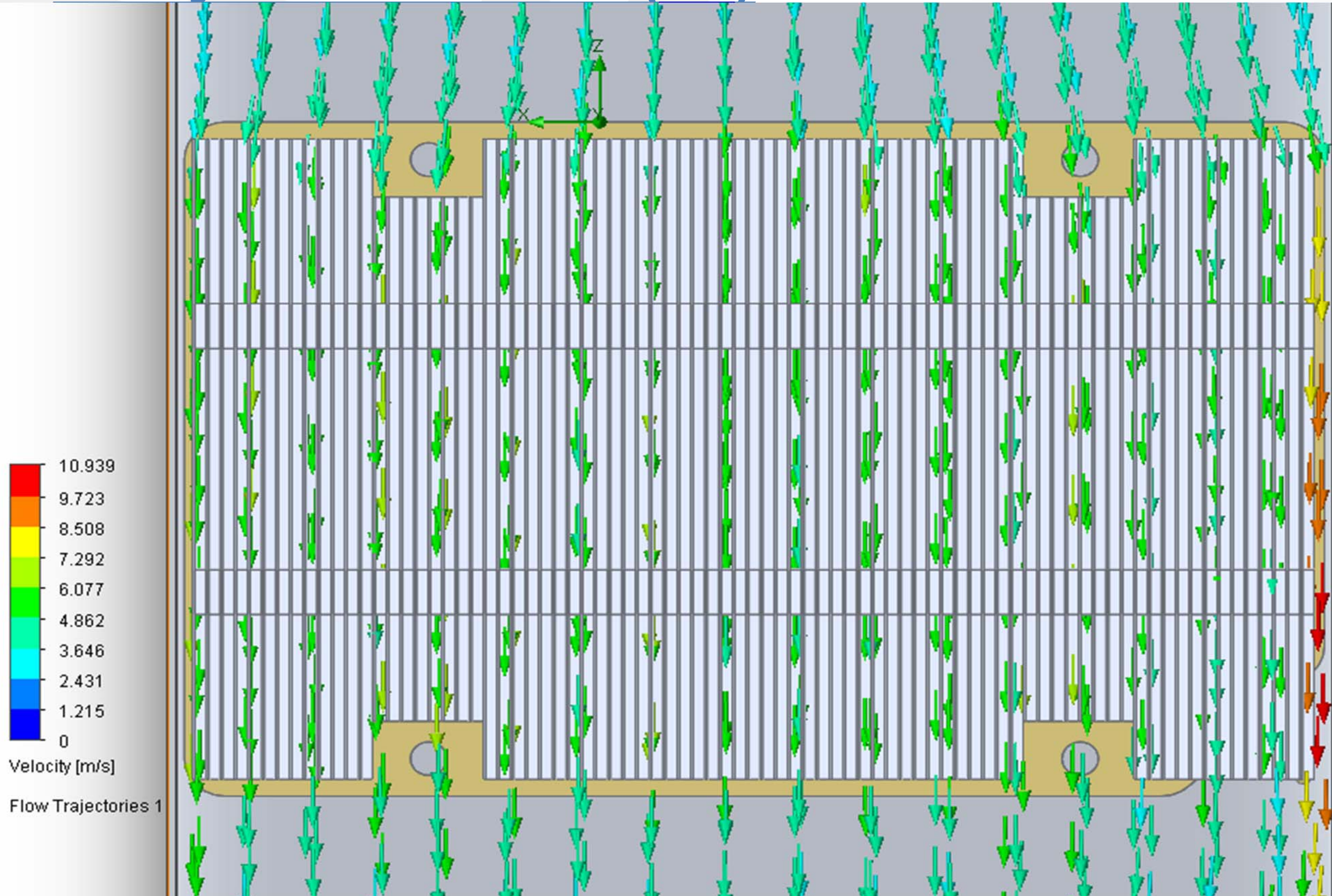


Analysis – Thermal Ranging (P2)





Analysis – Air Flow (P2)



Conclusion

Despite of having insufficient accurate information, such as TDP and complete 3D drawing for Yadro's device & chassis, we still make the simulation under the most practical conditions (setting up the TDP as 122.2W) to see if our solution could satisfy the expectation. According to the results, for both packages of IC, the Tcase (Tc_1) and Tcase (Tc_2) we've got are under Tcmax 73.33°**C.**

Certainly, there will be some difference after adding such solution into the complete 3D (the full chassis, enclosure of customer's) and also the actual airflow by the fan in position, **but** our solution could still have great chance to resolve the heat issues because of the buffer we've kept, especially not including the buffer gap to Tjunction yet.

Shall you still have question or other request, don't hesitate to keep us informed. We'll try to help you out.

Thank you.
REGO Thermal Design Team

THANK YOU!

OUR TEAM IS COMMITTED TO PROVIDE QUICK RESPONSE AND PRO-ACTIVELY ASSIST OUR CUSTOMERS

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