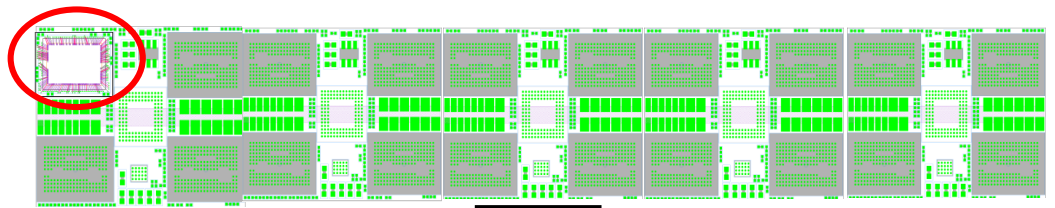
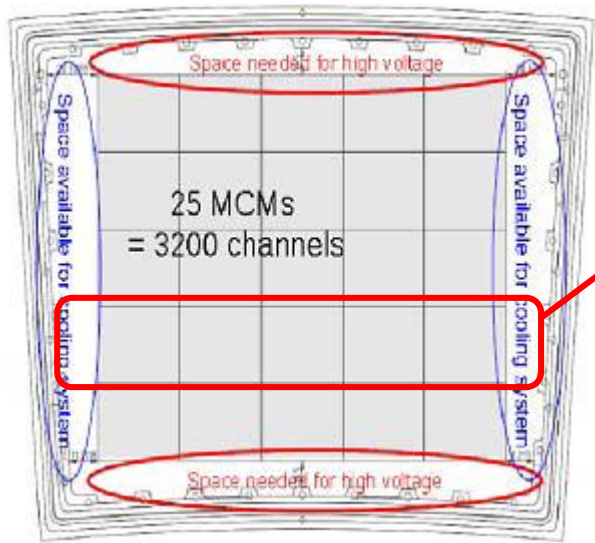


# Cooling test with the mockup

Saga university

M1 Daisuke Toda



Mockup board

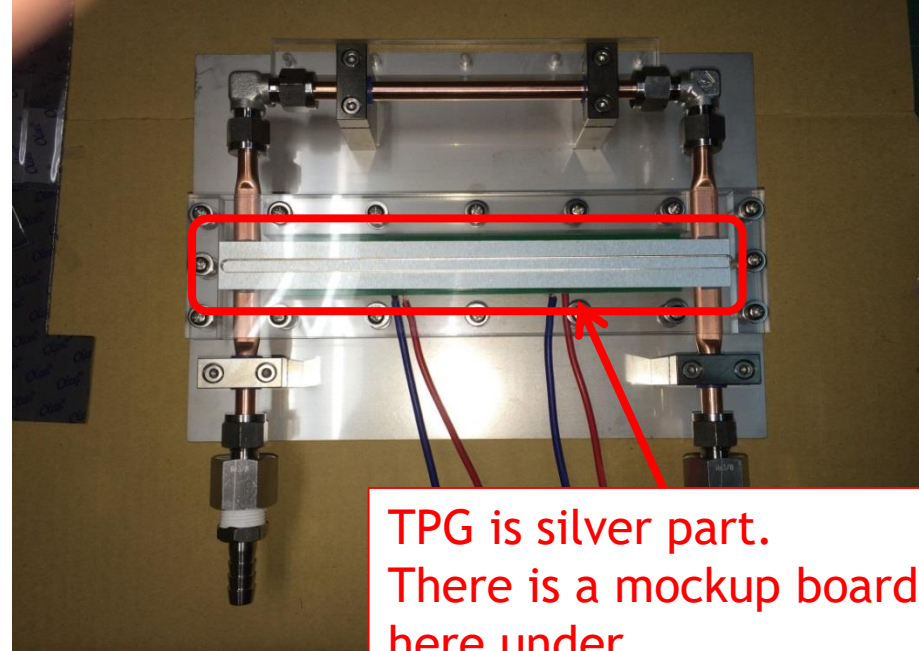
162.5 × 25.0mm 1.6mm(thick)

surface mount 1kΩ chip resistor

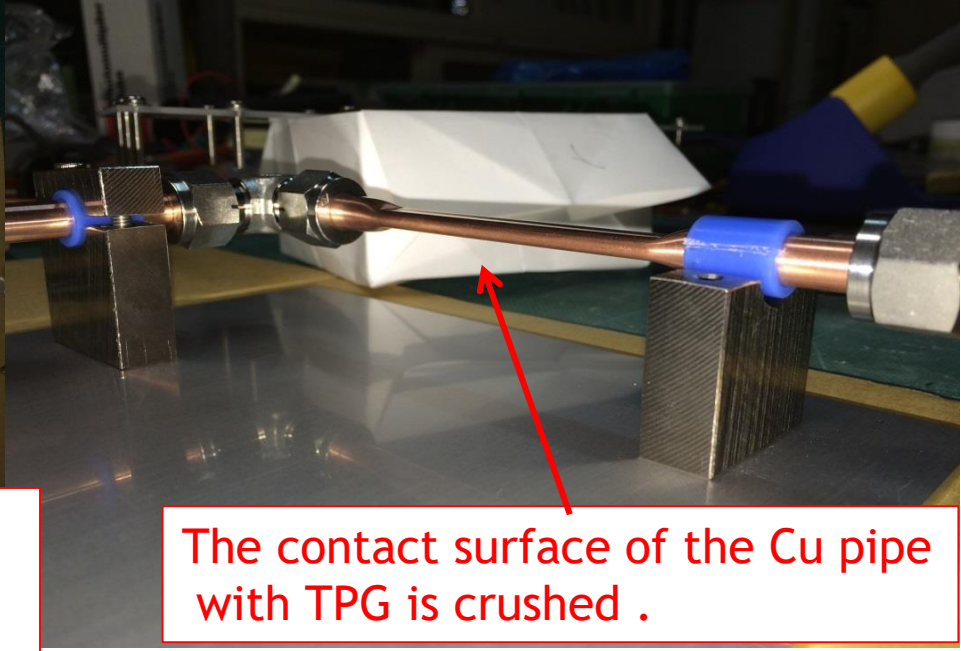
S-ALTRO16(40MHz) 0.94W

Mockup board (17.7V)  $0.313W \times 3 = 0.939W$

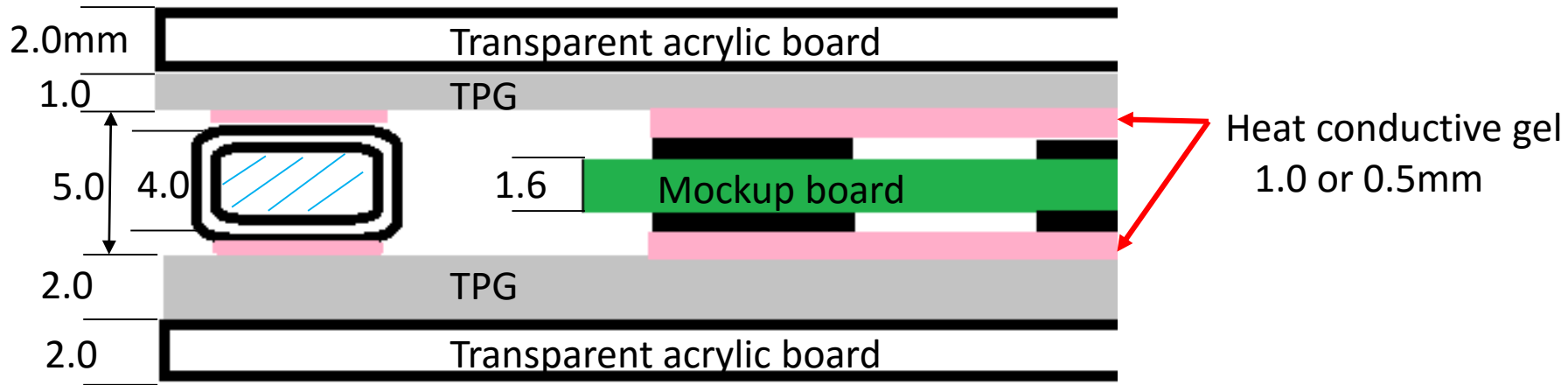
→appropriate on this condition.

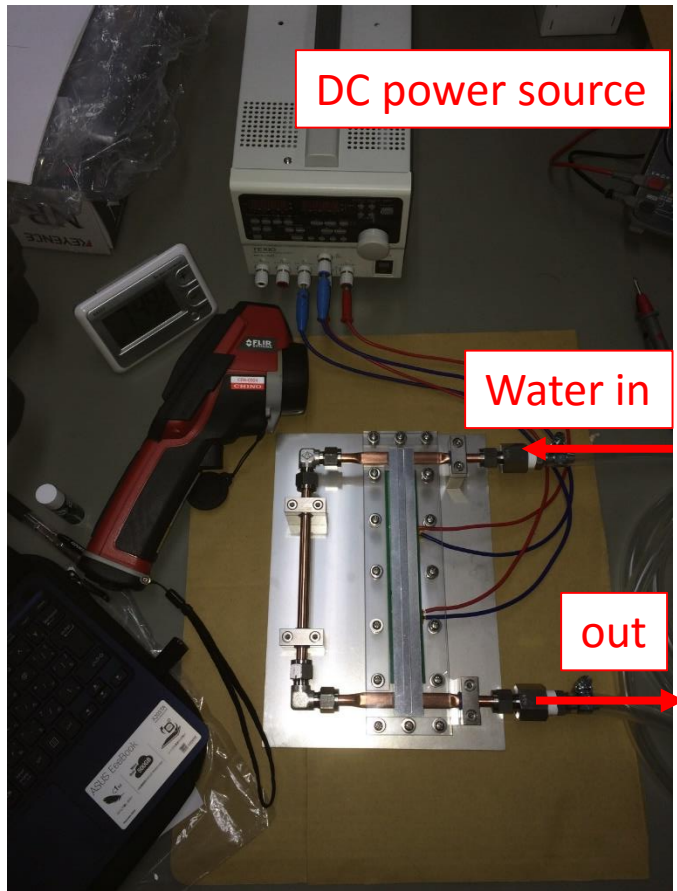


TPG is silver part.  
There is a mockup board  
here under.



The contact surface of the Cu pipe  
with TPG is crushed .





DC power source

Water in

out

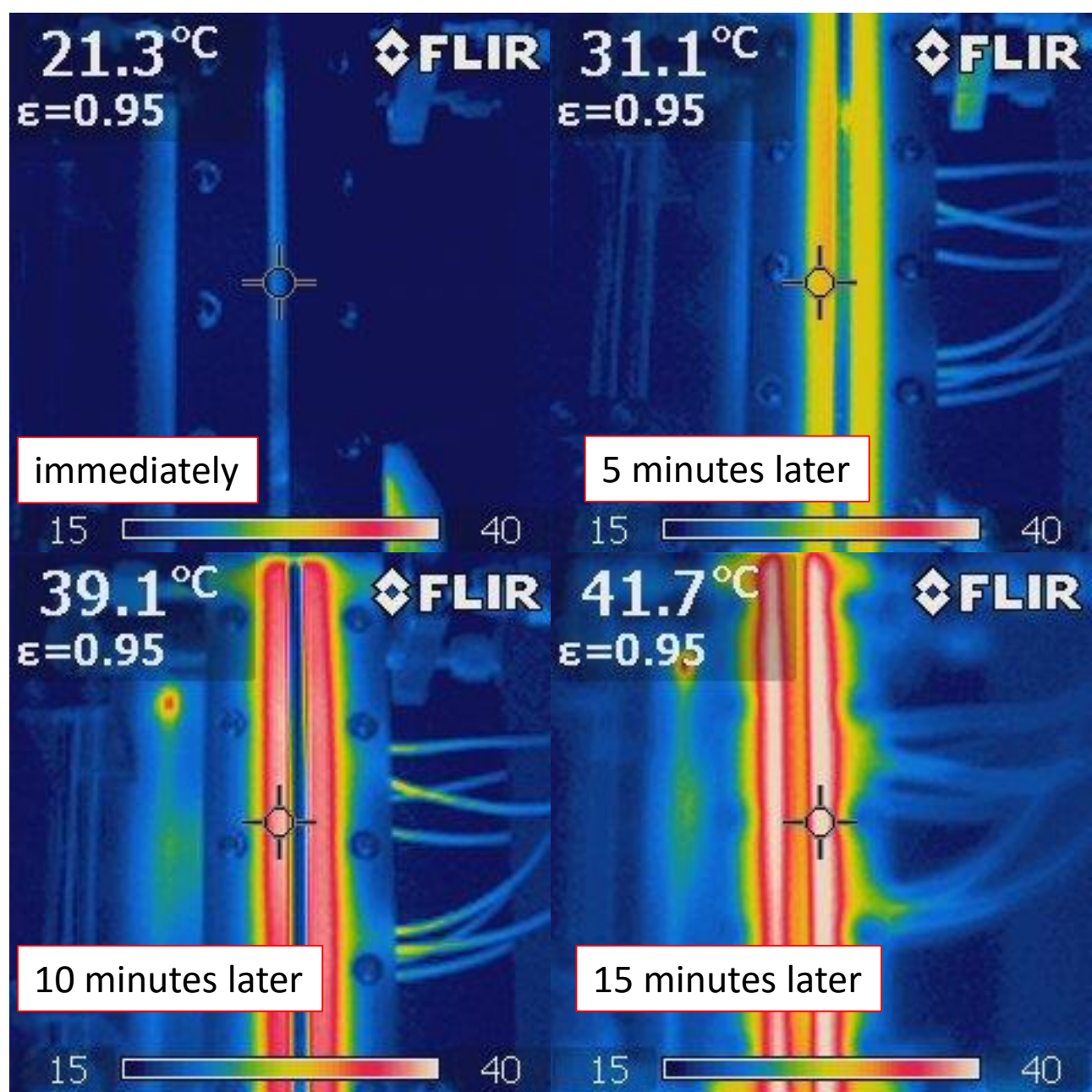
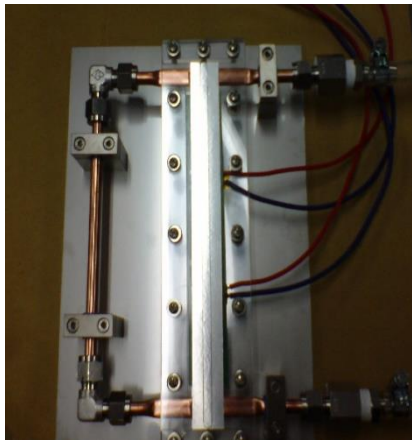


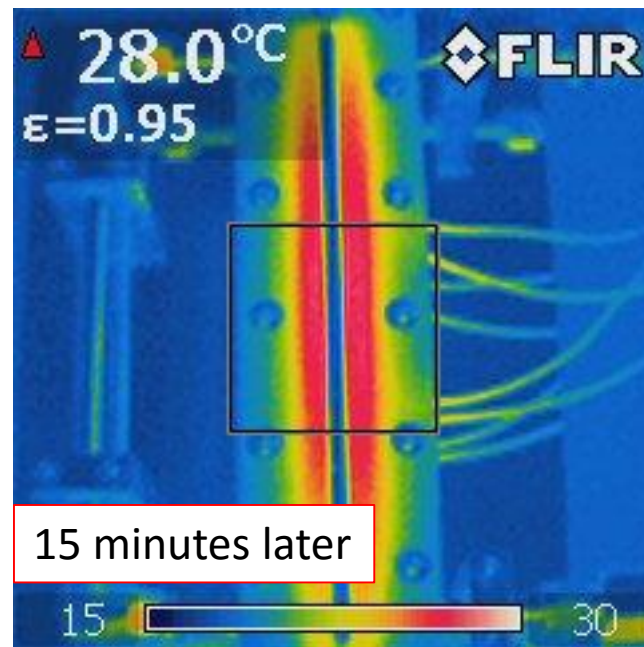
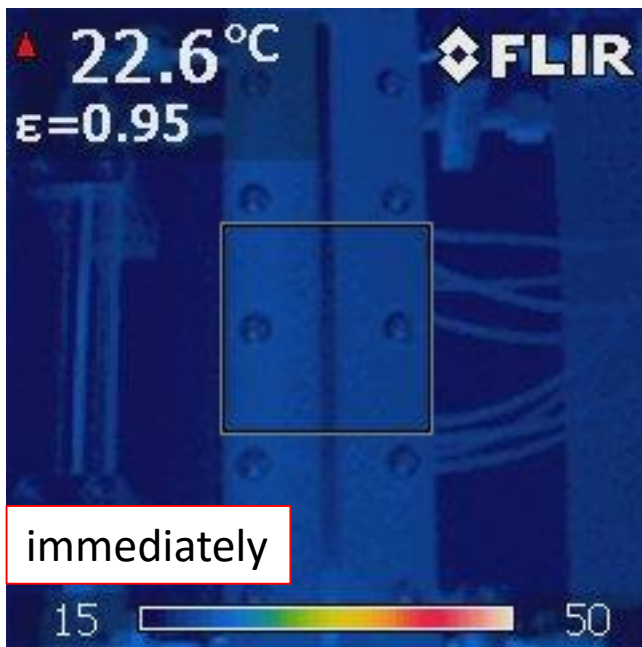
Cooling system is set to 20 °C

The picture is the set up

The cooling test – water set to 20 degrees .  
Measured by thermometer

The room temp 15.5°C  
V = 10V  
without cooling

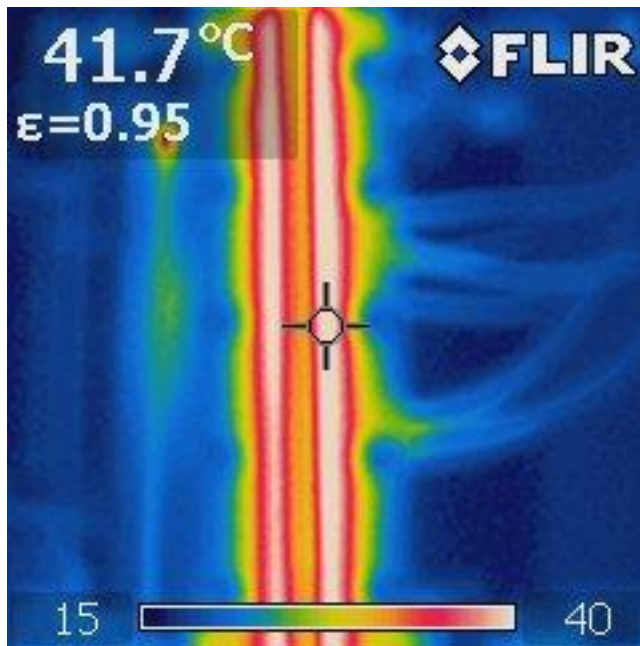




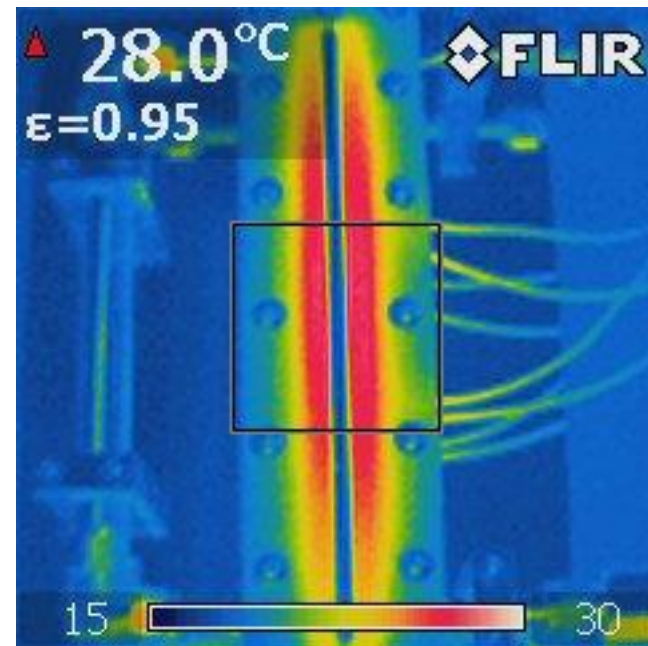
The room temp 16.0°C     $V = 10V$     Cooling at 20°C water

→ in comparison with the figure without cooling

Both 10V



Without cooling



Cooling at 20°C water

Obviously , cooling influence is given towards both sides.  
The maximum degree also falls.  
The differences between center and edge are big.

## summary

- I made a mockup like a next module.
- Cooling influence is given but not enough achievement.
- The working of mockup gives an expected result.

## Future

- I have to test at 17.7V.( $\approx$  S-ALTRO16@40Msps)
- With a thermocouple , I do more detailed inspection.

I would like to continue to study for realizing the next module.