

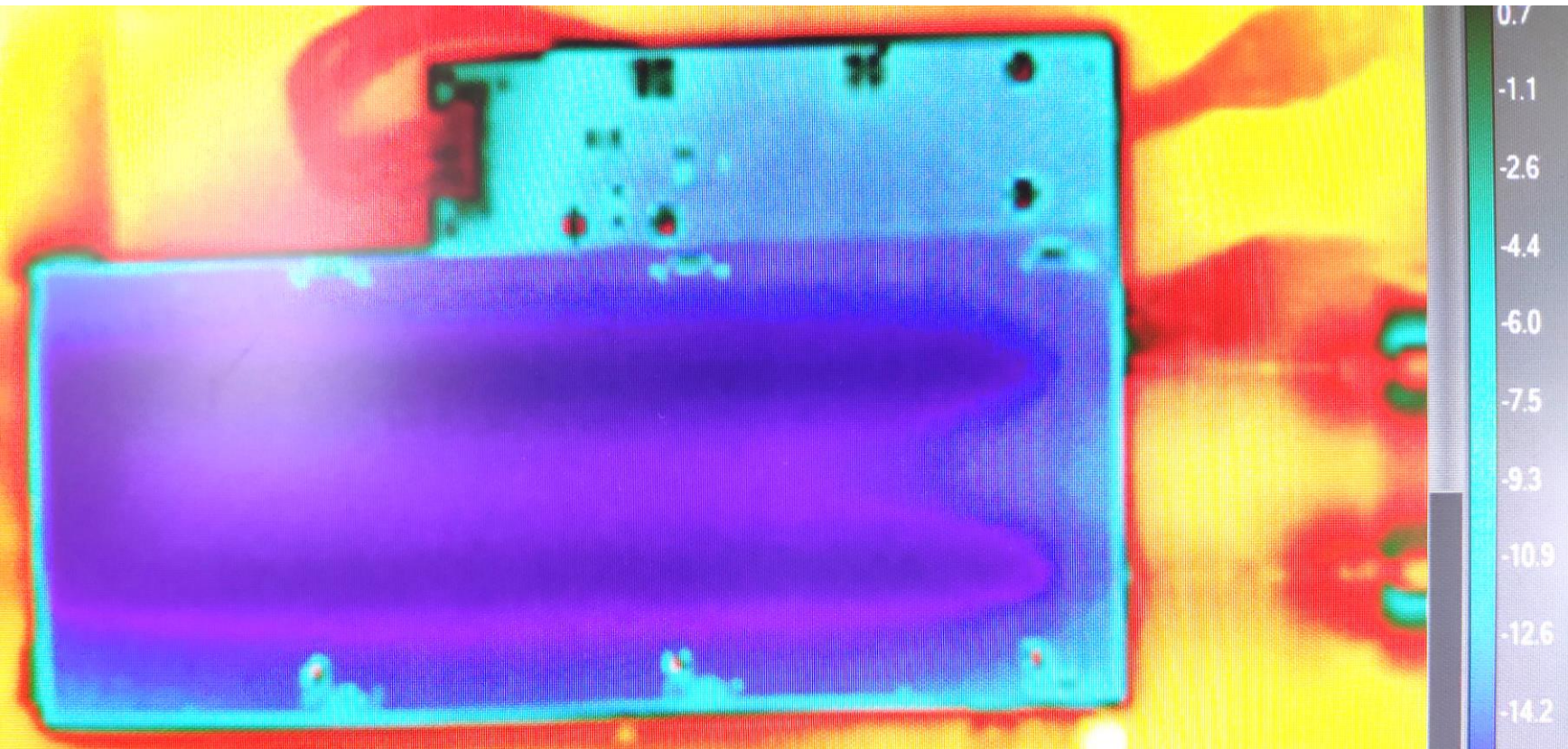
Mini stave Thermal Measurement

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First Measurement

- Chiller set Temperature -40 C, bypass inlet -33.3 C , outlet -31.0 C
- Powered resistors: LHSM R4//R5 , R6//R7 : ~0.334W each ; R3: ~0.118W
- Took data 20 mins after equilibrium (in/out bypass T stable) is reached
- Pixel area: ~2.4mm/pixel



Minis stave is not well aliened

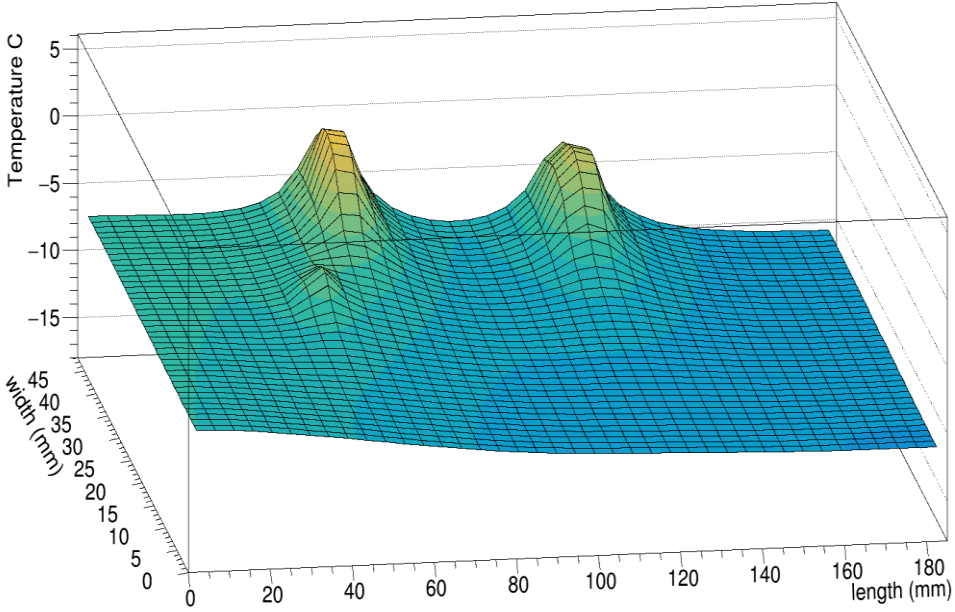
Resistor/soldering point
structure can be seen clearly

PCB may not reach the
equilibrium when taking data

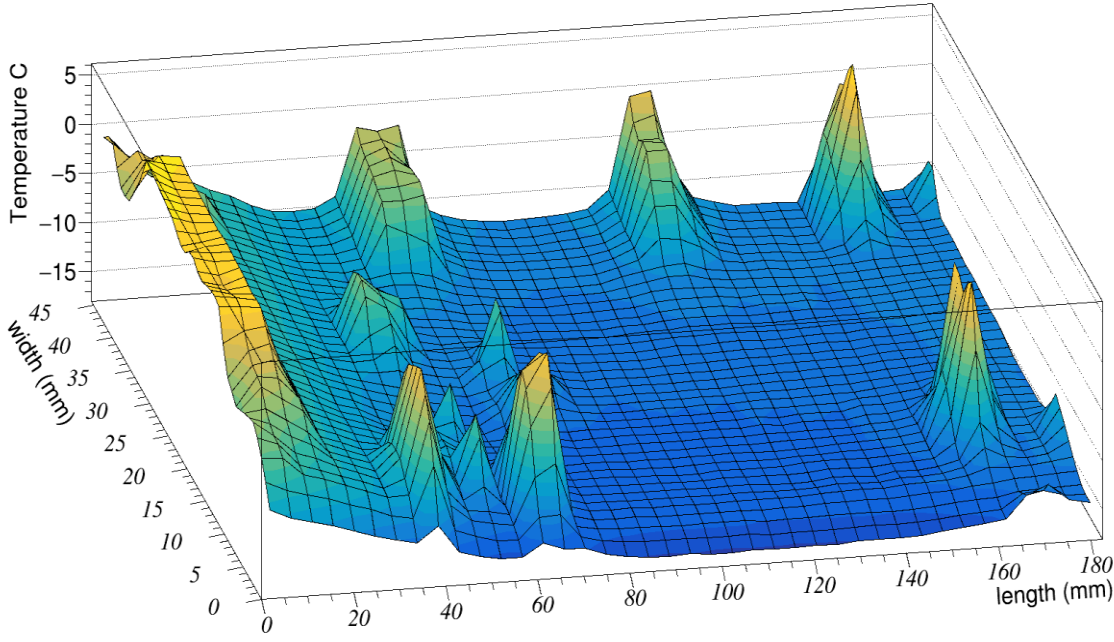
FEA simulation

- Pipe constant Temperature: averaged bypass in/out T , -32.15 C
- Contact area set to full contact corresponds to PCB entirely glued to EOS

Simulated PCB surface Temperature



PCB measured surface Temperature

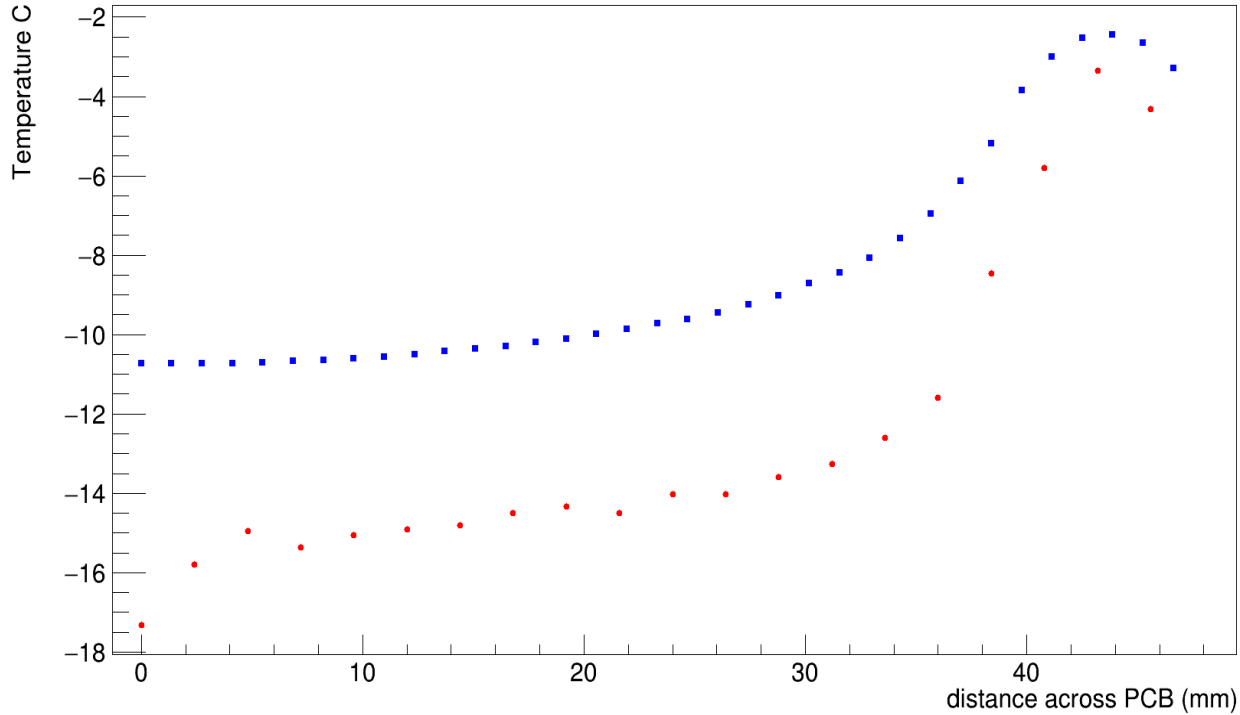


Some peaks are from connector, PCB holes

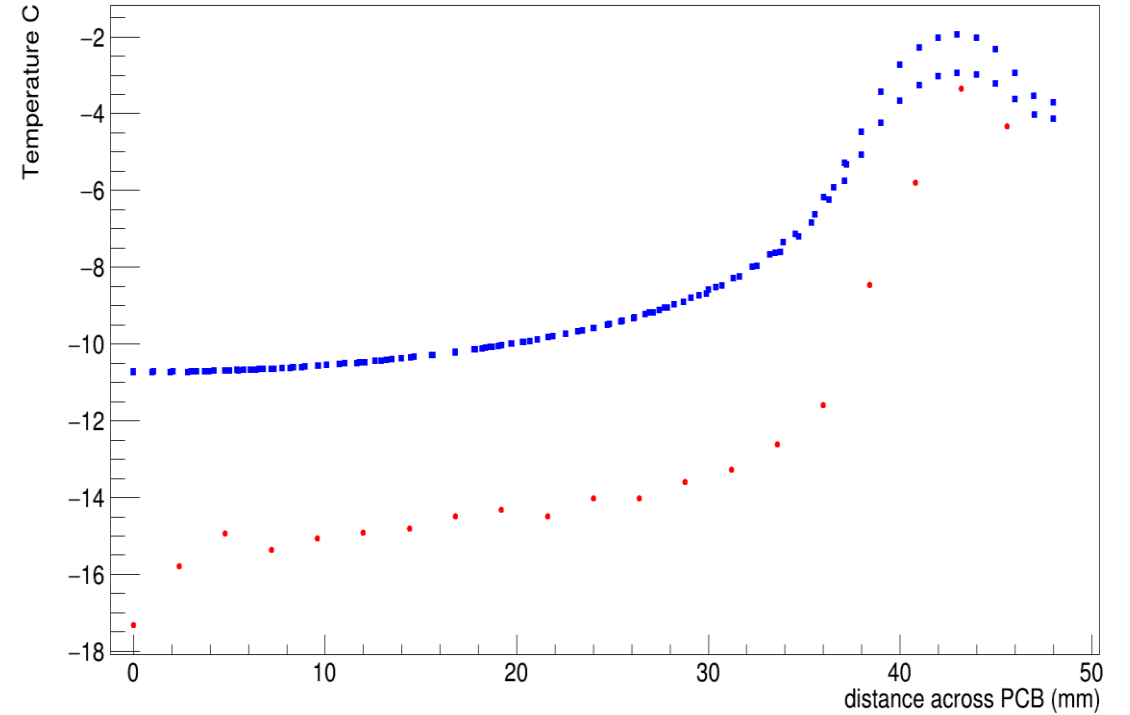


Temperature across PCB

Temperature across PCB With FEA



Temperature across PCB no FEA avg



Blue: FEA Red: Measurement

Temperature across PCB at length~115mm

FEA temperature are averaged for about 2.4 mm along length , 1.4mm along width