

# Connection Validation Explained

## SOLDER EVENT DETECTION



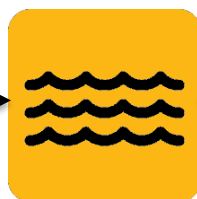
A tip placed onto the load creates a power demand, signaling the start of a solder event by a flash LED light.

## PRELIMINARY VALIDATION



The system monitors power demand and compares the thermal capability<sup>1</sup> relative to the load to achieve liquidus.<sup>2</sup>

## LIQUIDUS DETECTION



The system detects liquidus via a change in power demand as the thermal bridge reaches completion. Failure results in a red LED light.

## IMC FORMATION



The system calculates the intermetallic compound thickness as a function of time and temperature.

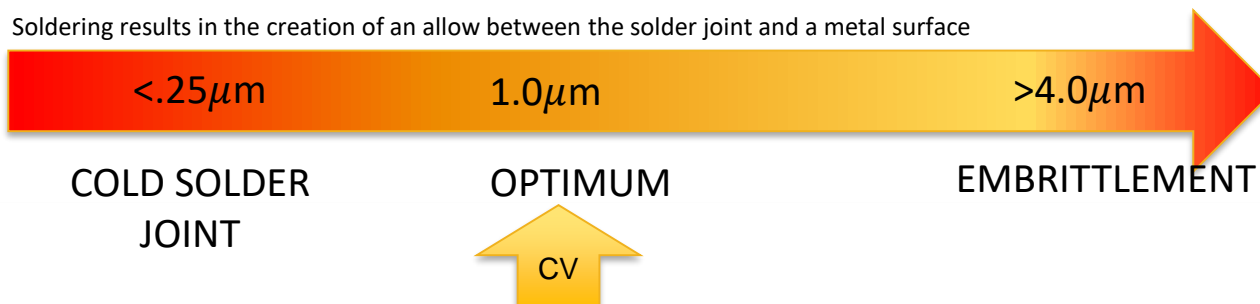
## SOLDER EVENT COMPLETION



The system signals with a green light when the proper IMC has formed. Failure results in a red LED light. The light remains lit until the system is ready for the next solder joint.

## IMC FORMATION

Soldering results in the creation of an allow between the solder joint and a metal surface



SmartHeat™ provides power on demand based on thermal load, and is the foundation of Connection Validation

<sup>1</sup> A measurable physical quantity equal to the ratio of the heat added to or removed from an object resulting in a temperature change

<sup>2</sup> The lowest temperature in which an alloy is completely liquid