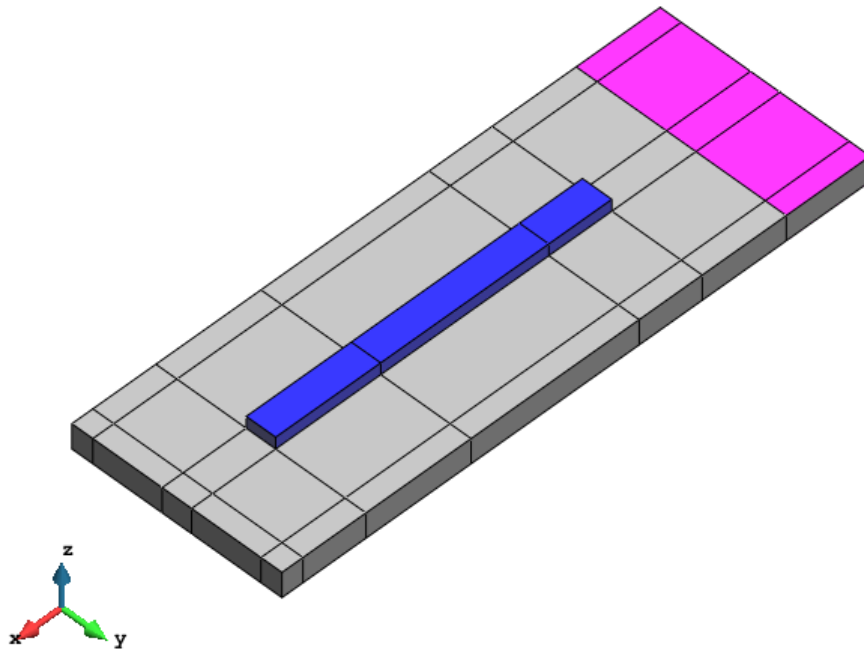
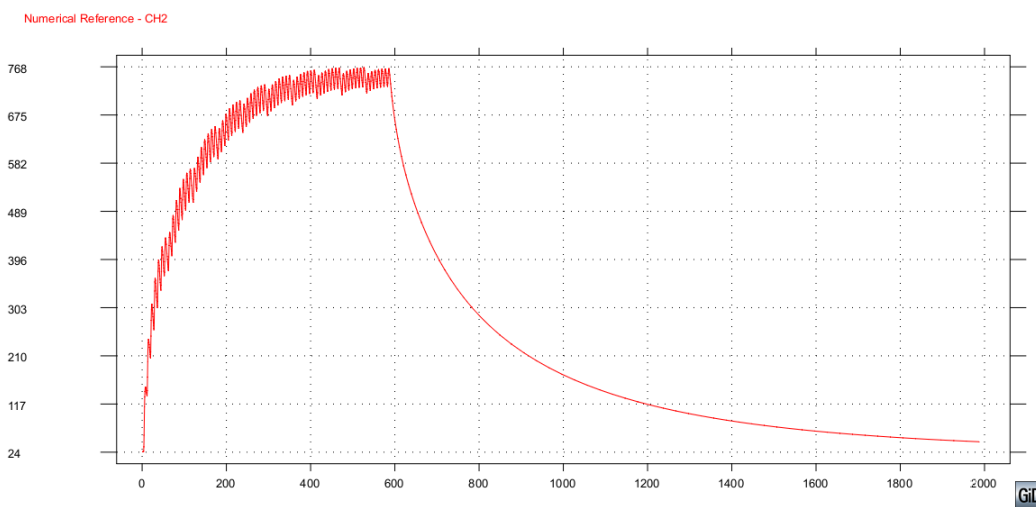


1 10 Layers - 7 Hatches

1.1 Simulation provided (LENS)



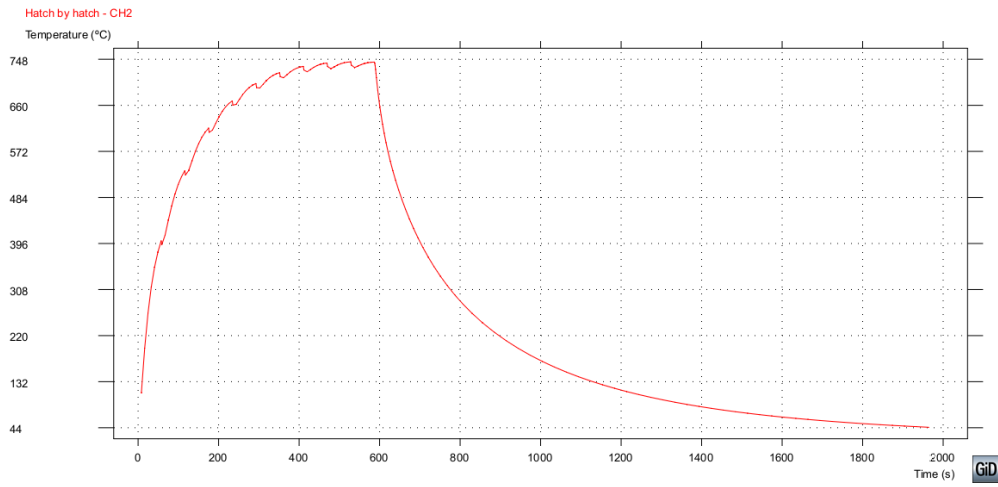
(a) Geometry



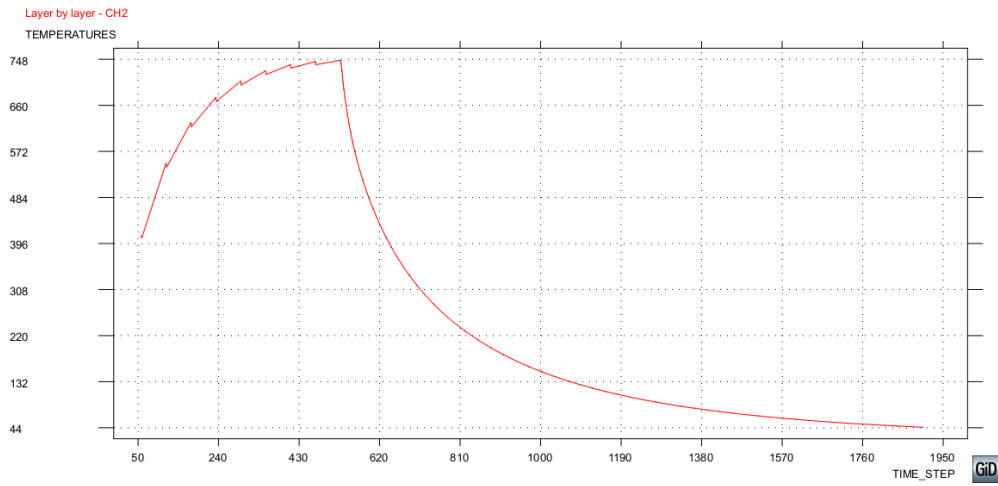
(b) Thermocouple CH2

Figure 1: Reference example

1.2 Accelerated sequences



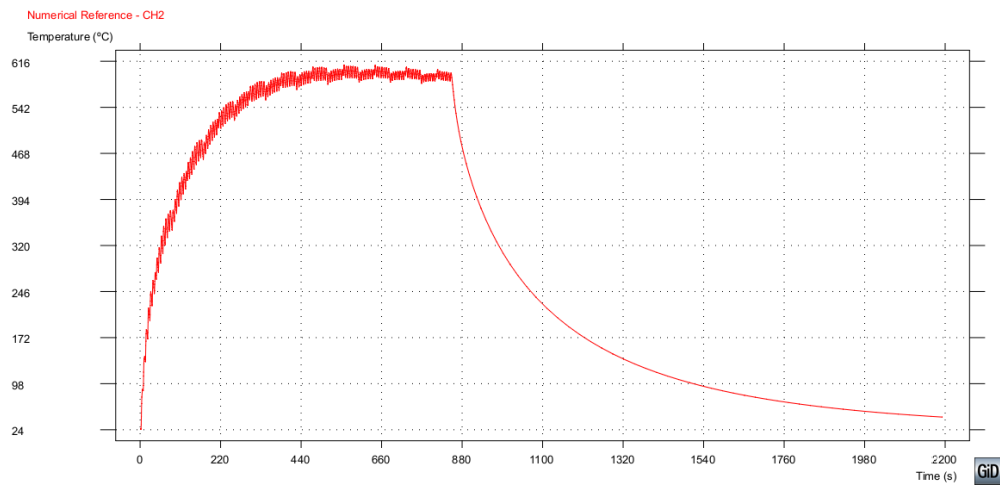
(a) Hatch-by-hatch



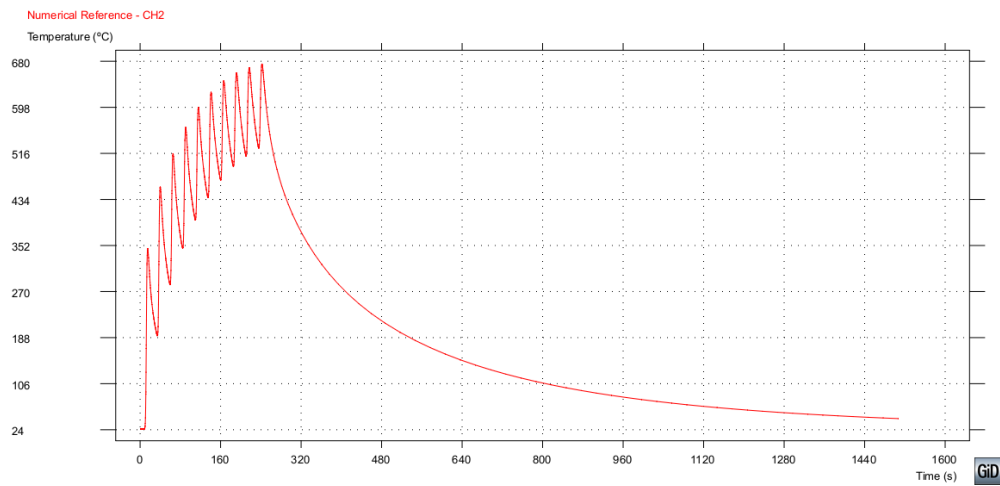
(b) Layer-by-layer

Figure 2: Accelerated sequences

1.3 Alternative scanning sequences



(a) Al tresbolillo

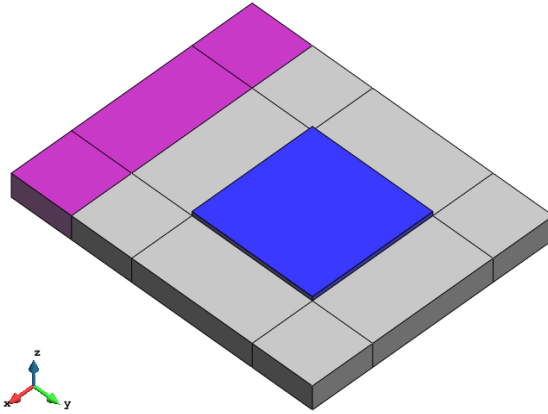


(b) Transverse scanning

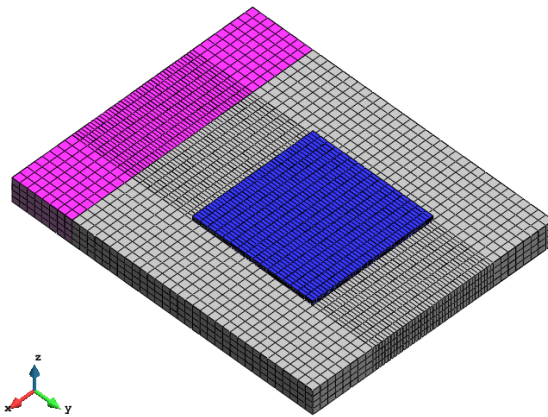
Figure 3: Other scanning sequences

2 5 Layers - 10 Hatches

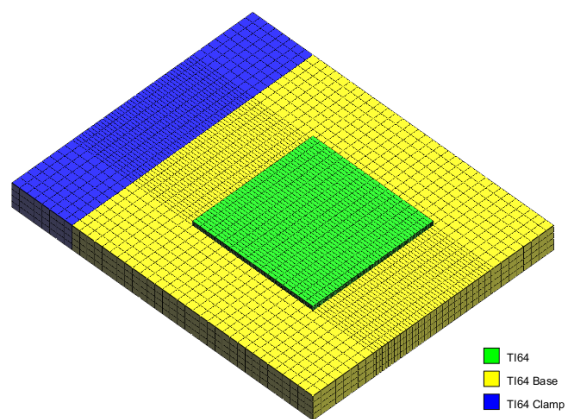
2.1 MD of a Square Plate (LENS) - Scanning seq. without overlapping -



(a) Base: $(20+80) \times 80 \times 8$ (mm) Casting: $40 \times 40 \times 1.4$ (mm)






(b) FE Mesh



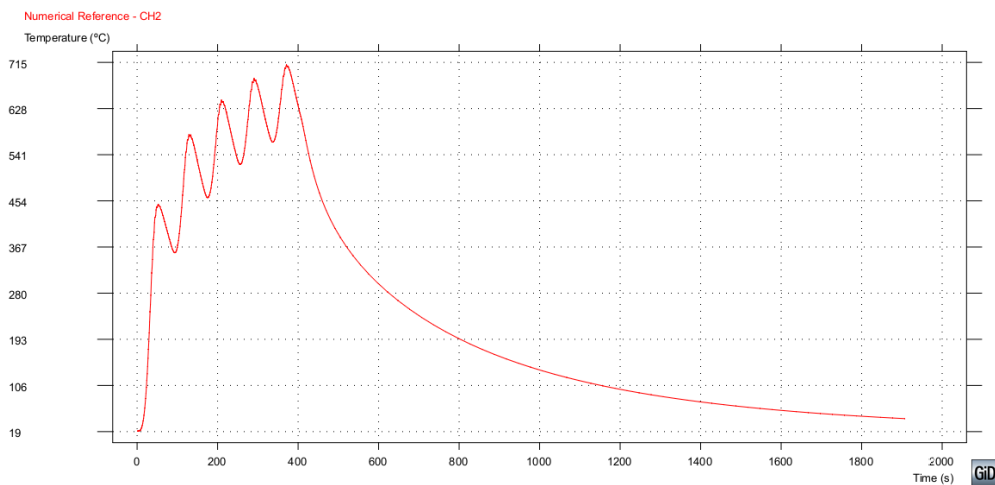
(c) Materials

Figure 4: Definition of the problem

SMD Process Data

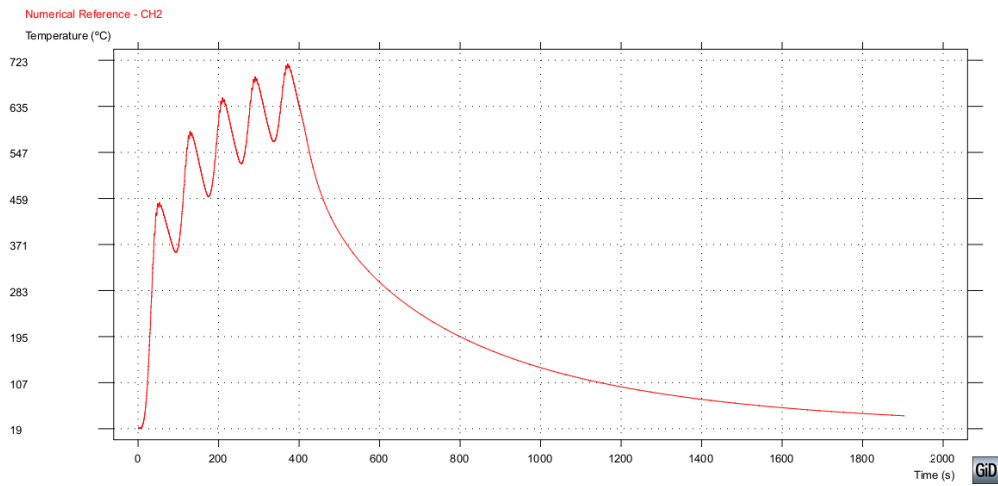
1	  
Interval name	5_Layers
MD Technology:	LENS
MD Steps Size DX:	10.0
MD units:	mn
Laser Spot Size W	2.0
Laser Penetration H	1.0
MD Layer Thickness H	0.28
MD Reference Level Z	0.0
MD Efficiency	0.30
MD Power	1000.0
MD Speed	10.0
XY Speed	100.0
MD Path Input:	CLI
CLI File Name	5-layers.cli
<input checked="" type="checkbox"/> Cooling Phase	
Set Cooling:	TEMPERATUR
Cooling value:	50

(a) SMD Process Data

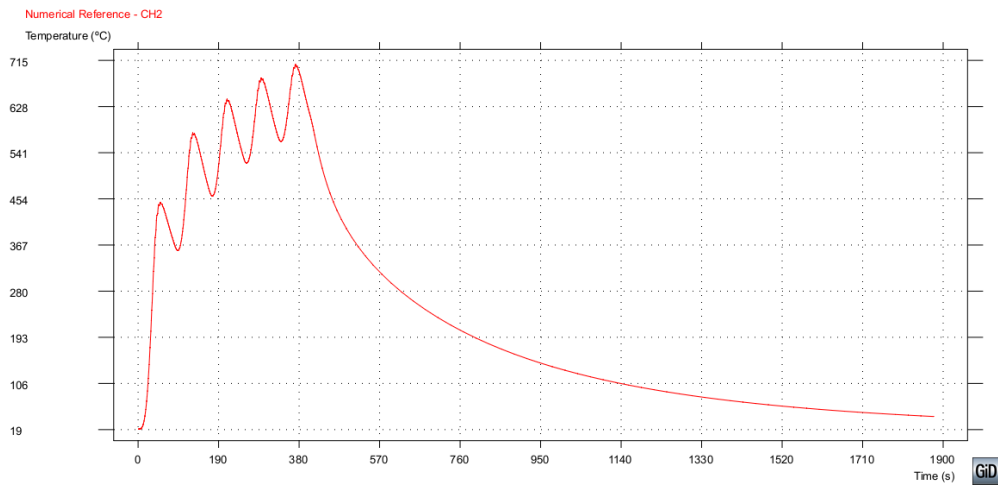


(b) Numerical Response - CH2

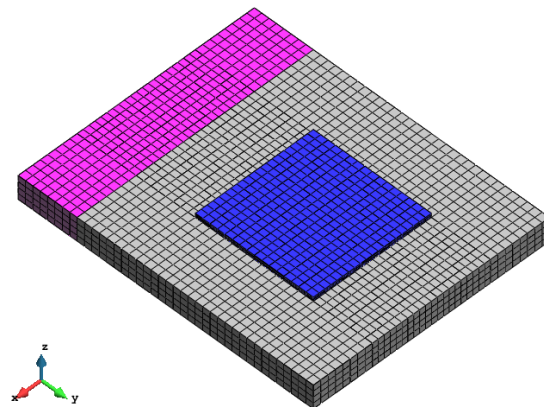
Figure 5: Process data and numerical response



(a) CH2 with $\Delta x/2$



(b) CH2 with coarser mesh



(c) Coarser FE mesh

Figure 6: Ancillary simulations