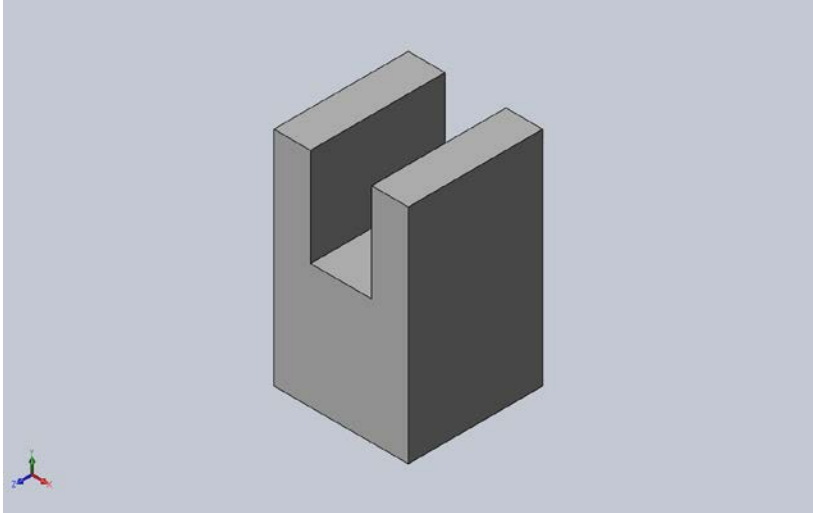


Simulation of RF HEat Test

Date: Tuesday, December 22, 2015
Designer: Solidworks
Study name: Stress One Third Emissivity
Analysis type: Nonlinear - Dynamic

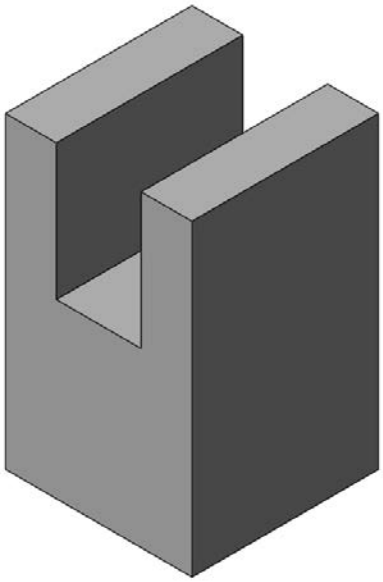
Table of Contents

Description

No Data

Assumptions

Model Information



Model name: RF HEat Test
Current Configuration: Default

Solid Bodies

Document Name and Reference	Treated As	Volumetric Properties	Document Path/Date Modified
Cut-Extrude1 	Solid Body	**Mass:0.00361325 kg** **Volume:4.49968e-007 m^3** **Density:8030 kg/m^3** **Weight:0.0354098 N**	**C:\Work\David\RF Load for ITER\RF HEat Test.SLDPRT** Dec 22 08:35:19 2015

Study Properties

Study name	Stress One Third Emissivity
Analysis type	Nonlinear - Dynamic
Mesh type	Solid Mesh
Start time	0 Seconds
End time	450 Seconds
Time increment	0.03 Seconds
Large displacement formulation:	On
Update load direction with deflection:	Off
Large strain formulation:	Off
Save data for restarting the analysis	Off
Thermal Effect:	On
Thermal option	From thermal study
Input thermal study:	Copy of [Trans Heat 11550000
Time Step	4.94066e-324
Time	0.01
Zero strain temperature	298 Kelvin
Solver type	Direct sparse solver
Incompatible bonding options	Simplified
Control technique:	Force
Iterative technique:	NR(Newton-Raphson)
Integration Method	Newmark
Result folder	SOLIDWORKS document (C:\Work\David\RF Load for ITER)

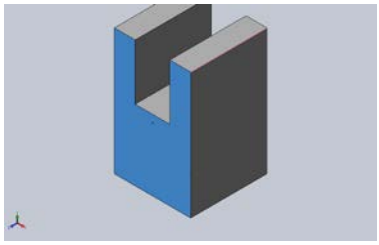
Units

Unit system:	SI (MKS)
Length/Displacement	mm
Temperature	Celsius
Angular velocity	Rad/sec
Pressure/Stress	N/m^2

Material Properties

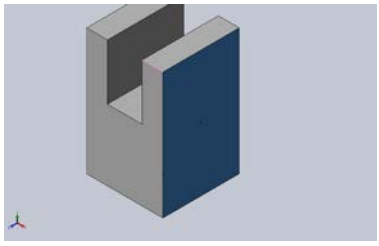
Model Reference	Properties		Components
	**Name:**	304L SST	SolidBody 1(Cut-Extrude1)(RF HEat Test)
	Model type:	Linear Elastic Isotropic	
	Default failure criterion:	Unknown	
	Yield strength:	2.06807e+008 N/m^2	
	Tensile strength:	5.17017e+008 N/m^2	
	Elastic modulus:	1.9e+011 N/m^2	
	Poisson's ratio:	0.29	
	Mass density:	8030 kg/m^3	
	Shear modulus:	7.5e+010 N/m^2	
	Thermal expansion coefficient:	1.8e-005 /Kelvin	
Curve Data:N/A			

Loads and Fixtures

Fixture name	Fixture Image	Fixture Details
Reference Geometry-1		**Entities:** 1 face(s) **Reference:** Edge< 1 > **Type:** Use reference geometry **Translation:** ---, ---, 0 **Units:** mm

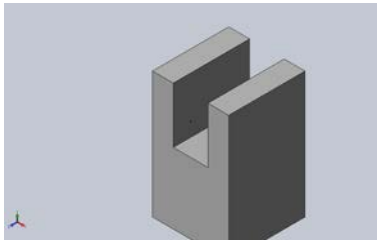
Resultant Forces

Components	X	Y	Z	Resultant
Reaction force(N)	-1.13715	0	-0.200209	1.15464
Reaction Moment(N.m)	0	0	0	0

Reference Geometry-2		**Entities:** 1 face(s) **Reference:** Edge< 1 > **Type:** Use reference geometry **Translation:** ---, ---, 0 **Units:** mm

Resultant Forces

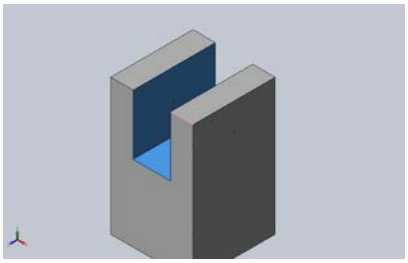
Components	X	Y	Z	Resultant
Reaction force(N)	-1833.89	0	-13.1588	1833.94
Reaction Moment(N.m)	0	0	0	0

Symmetry-1		**Entities:** 1 face(s) **Type:** Symmetry

Resultant Forces

Components	X	Y	Z	Resultant
Reaction force(N)	1833.91	0	0.704849	1833.91
Reaction Moment(N.m)	0	0	0	0

Load name	Load Image	Load Details

Pressure-1		**Entities:** 4 face(s) **Type:** Normal to selected face **Value:** 150 **Units:** psi **Phase Angle:** 0 **Units:** deg

Connector Definitions

No Data

Contact Information

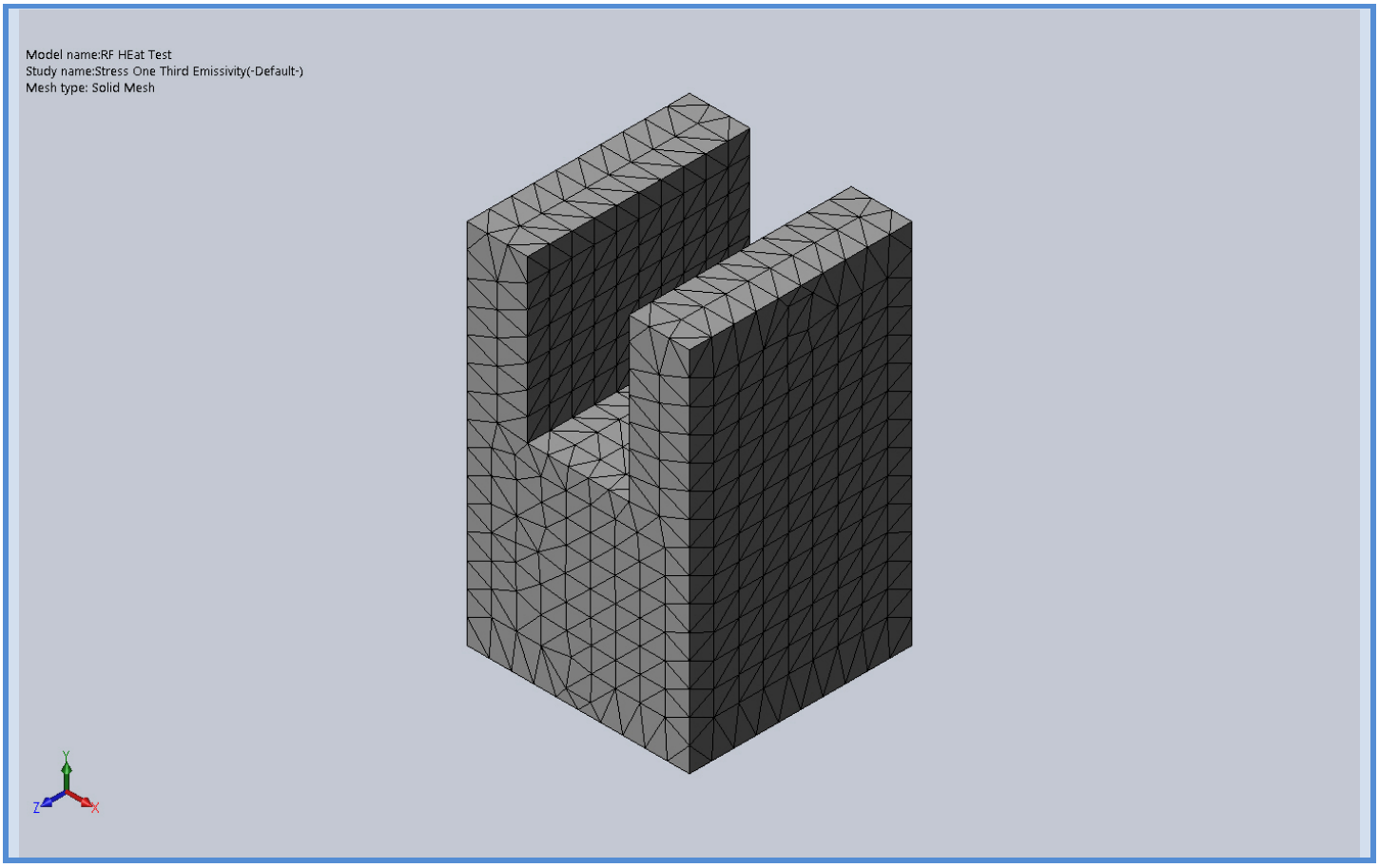
No Data

Mesh information

Mesh type	Solid Mesh
Mesher Used:	Standard mesh
Automatic Transition:	On
Include Mesh Auto Loops:	Off
Jacobian points	4 Points
Element Size	0.0301837 in
Tolerance	0.00150918 in
Mesh Quality	High

Mesh information - Details

Total Nodes	10634
Total Elements	6766
Maximum Aspect Ratio	4.5711
% of elements with Aspect Ratio < 3	99.9
% of elements with Aspect Ratio > 10	0
% of distorted elements(Jacobian)	0
Time to complete mesh(hh;mm;ss):	00:00:01
Computer name:	DAVID-PC



Sensor Details

No Data

Resultant Forces

Reaction forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	0.0112407	0	-0.200209	0.200524

Reaction Moments

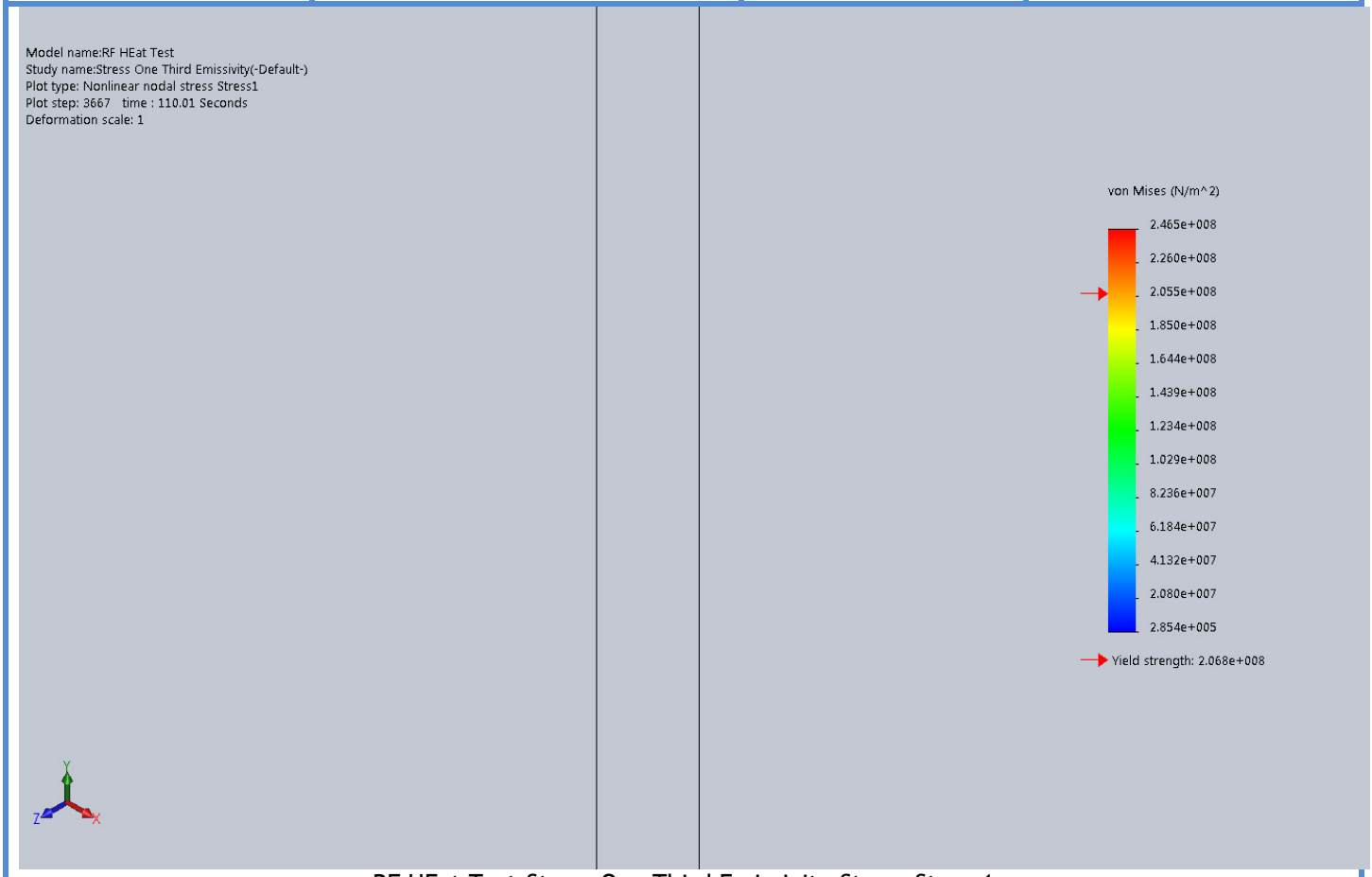
Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N.m	0	0	0	0

Beams

No Data

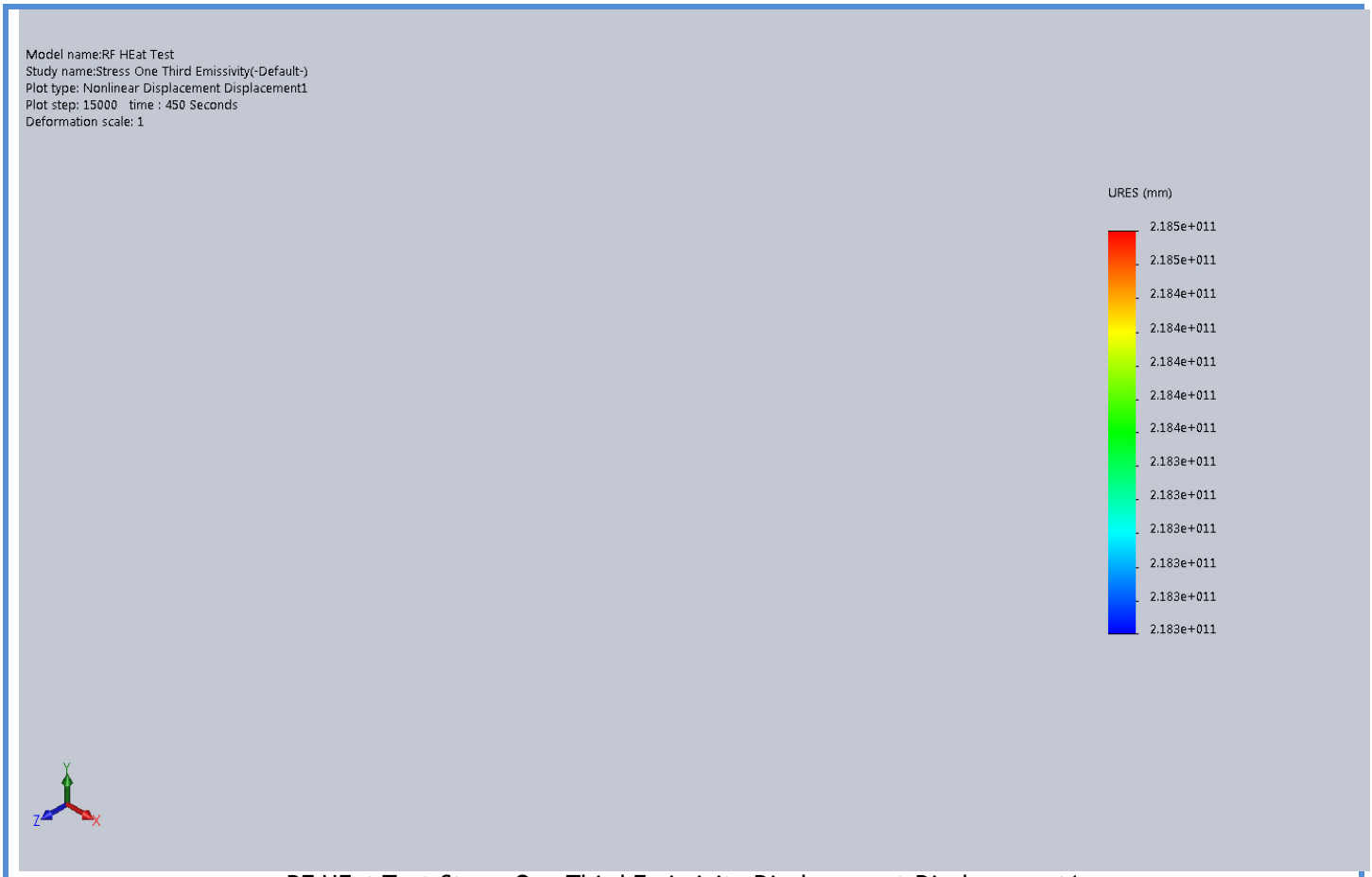
Study Results

Name	Type	Min	Max
Stress1	VON: von Mises Stress at Step No: 3667(110.01 Seconds)	285376 N/m^2 Node: 10557	2.46521e+008 N/m^2 Node: 7743



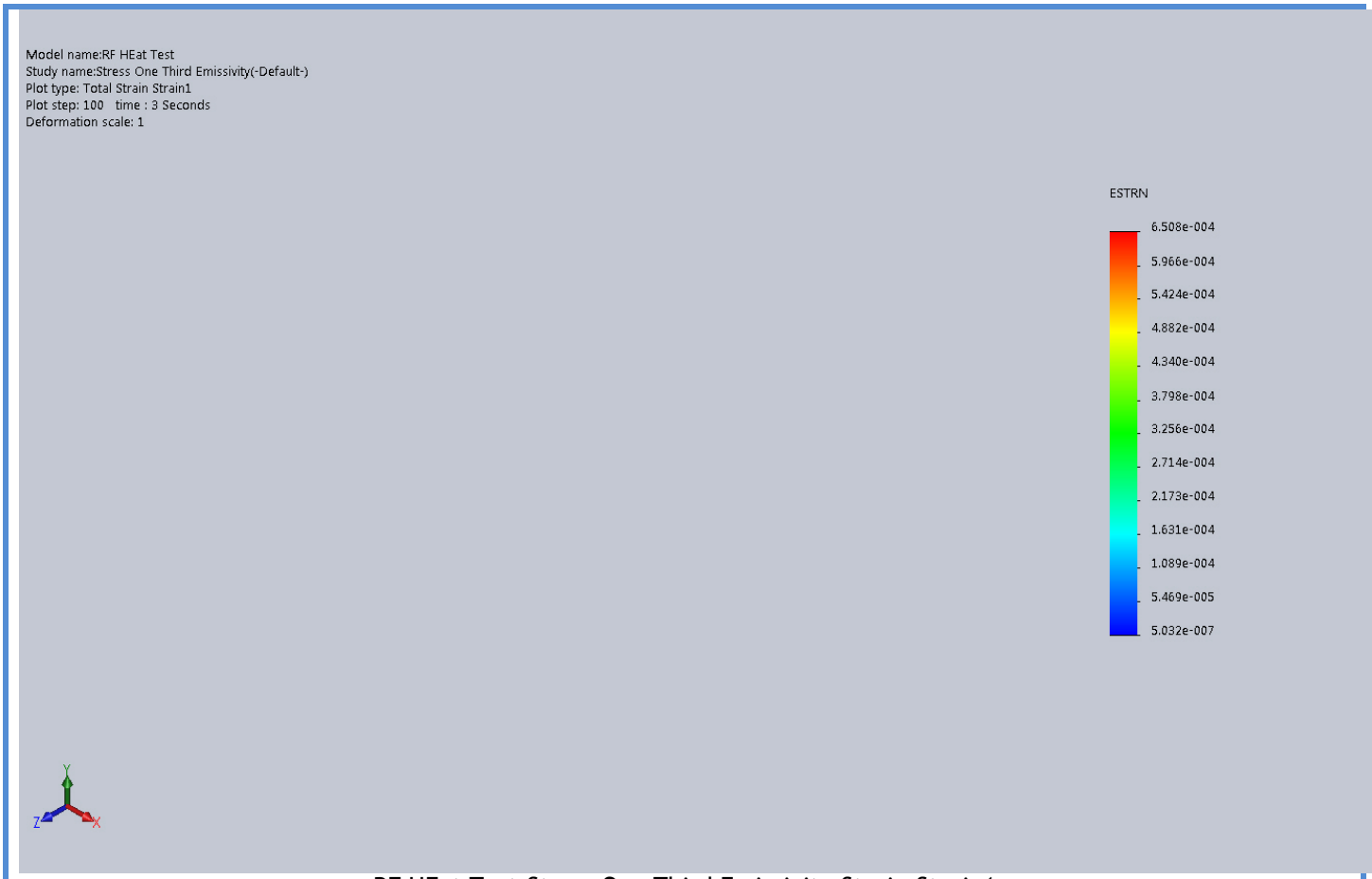
RF HEat Test-Stress One Third Emissivity-Stress-Stress1

Name	Type	Min	Max
Displacement1	URES: Resultant Displacement at Step No: 15000(450 Seconds)	2.18252e+011 mm Node: 1	2.18252e+011 mm Node: 1



RF HEat Test-Stress One Third Emissivity-Displacement-Displacement1

Name	Type	Min	Max
Strain1	ESTRN: Equivalent Strain at Step No: 100(3 Seconds)	5.03211e-007 Element: 2177	0.000650753 Element: 3079



RF HEat Test-Stress One Third Emissivity-Strain-Strain1

Conclusion