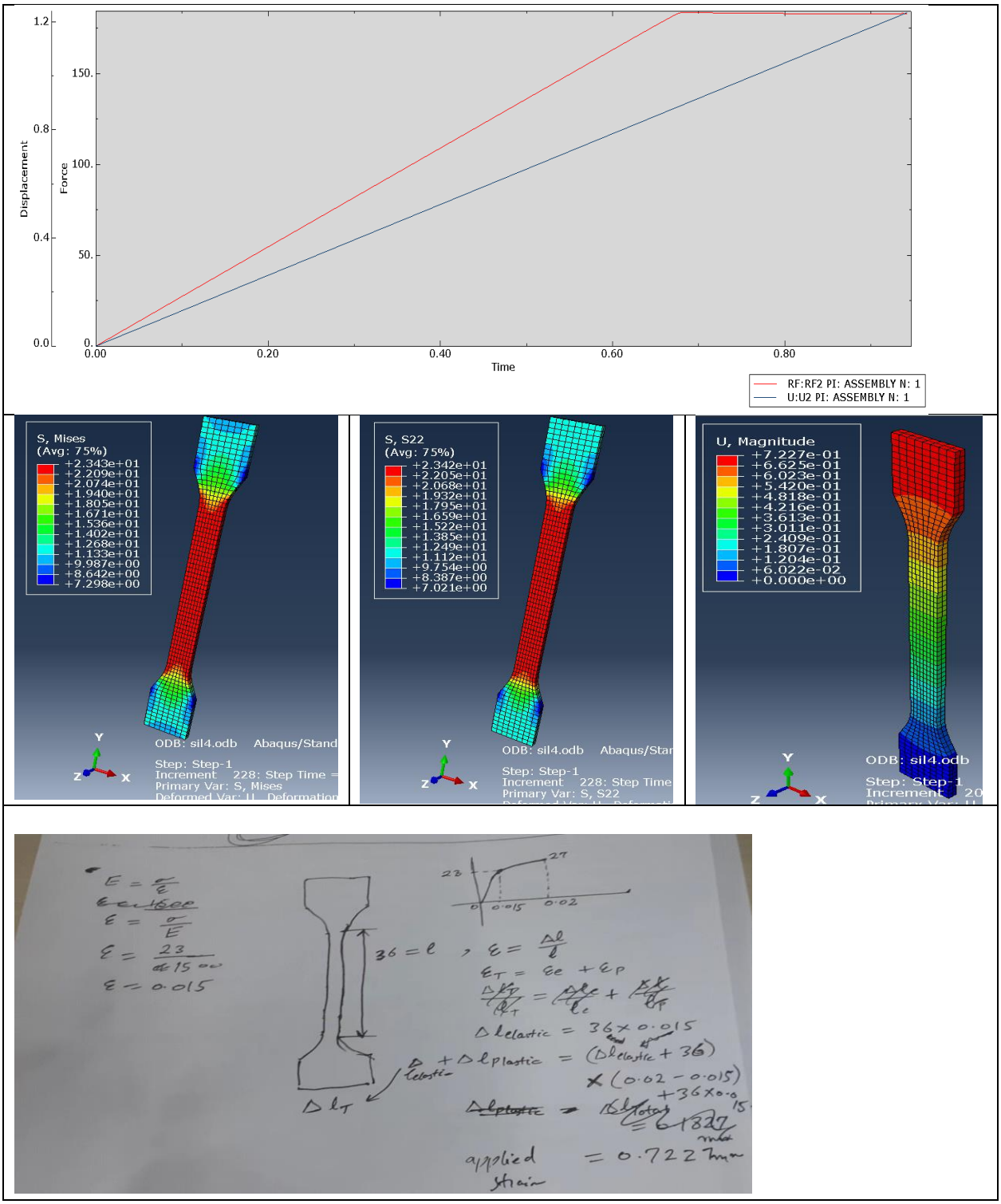
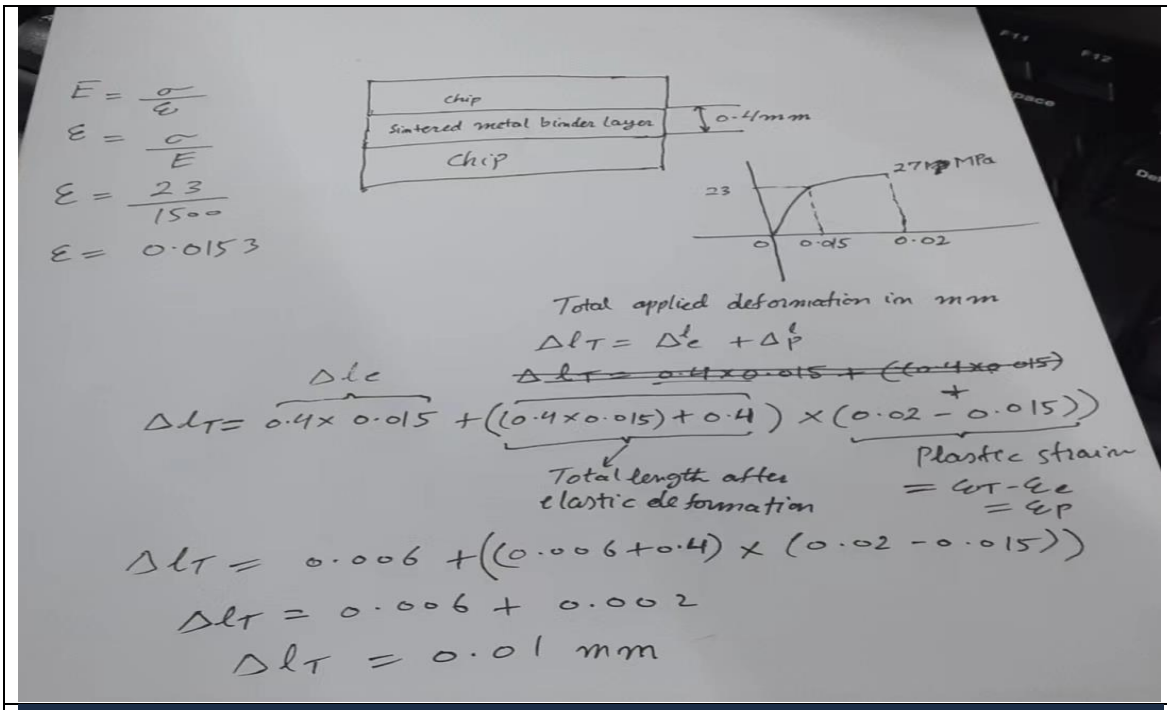
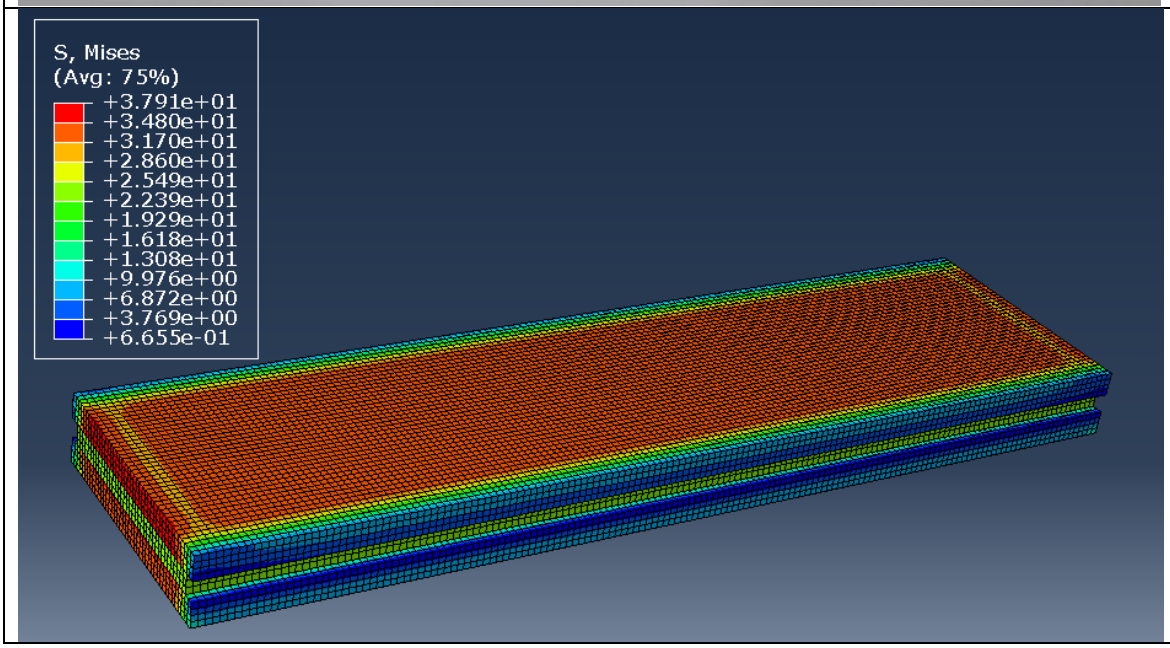


Figure 1 shows the reaction force-displacement nodal response for dog bone tension specimen shows the output force of 180N which when divided by the (5*1.6) mm^2 gives the yield point of 22.5 MPa near to zero plastic strain in given data. Contour plots are provided for stresses and applied displacement and the calculation of applied displacement corresponding to 0.02 strain which is 0.7227 mm from stress-strain curve **but it is not reaching to the peak stress value of 27 Mpa. Why?**


$E = \frac{\sigma}{\varepsilon}$
$\varepsilon = \frac{\sigma}{E}$
$\varepsilon = \frac{23}{1500}$
$\varepsilon = 0.0153$
Chip
Sintered metal binder layer
Chip
0.4mm
23
270 MPa
0
0.015
0.02
Total applied deformation in mm
$\Delta l_T = \Delta l_e + \Delta l_p$
$\Delta l_T = 0.4 \times 0.015 + ((0.4 \times 0.015) + 0.4) \times (0.02 - 0.015)$
Δl_e
Total length after elastic deformation
Plastic strain $= \varepsilon_T - \varepsilon_e = \varepsilon_p$
$\Delta l_T = 0.006 + ((0.006 + 0.4) \times (0.02 - 0.015))$
$\Delta l_T = 0.006 + 0.002$
$\Delta l_T = 0.01$ mm


S, Mises
(Avg: 75%)
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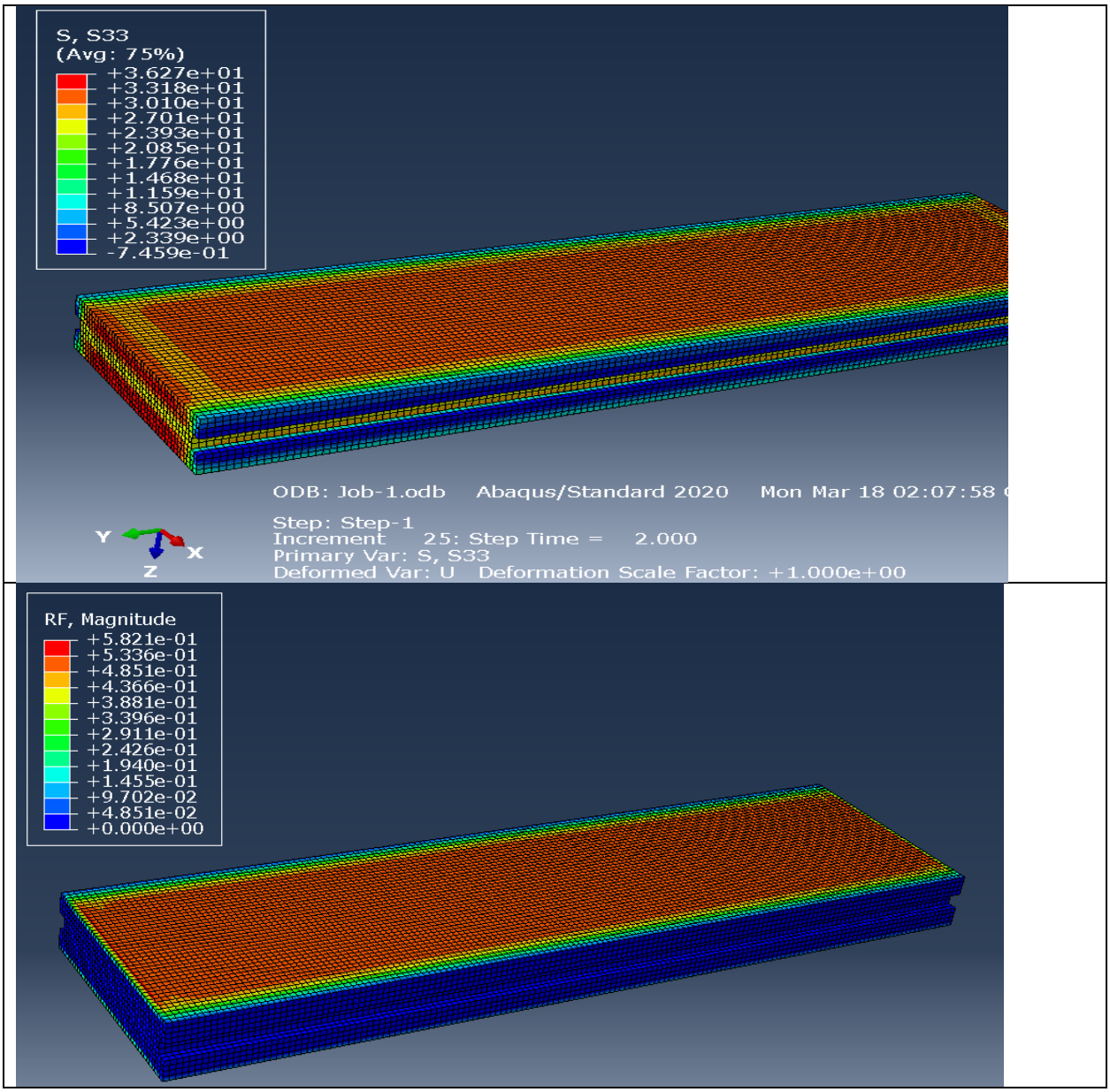
+3.480e+01
+3.170e+01
+2.860e+01
+2.549e+01
+2.239e+01
+1.929e+01
+1.618e+01
+1.308e+01
+9.976e+00
+6.872e+00
+3.769e+00
+6.655e-01


S, S33
(Avg: 75%)
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+3.318e+01
+3.010e+01
+2.701e+01
+2.393e+01
+2.085e+01
+1.776e+01
+1.468e+01
+1.159e+01
+8.507e+00
+5.423e+00
+2.339e+00
-7.459e-01
ODB: Job-1.odb Abaqus/Standard 2020 Mon Mar 18 02:07:58
Step: Step-1
Increment 25: Step Time = 2.000
Primary Var: S, S33
Deformed Var: U Deformation Scale Factor: +1.000e+00
Y
X
Z
RF, Magnitude
+5.821e-01
+5.336e-01
+4.851e-01
+4.366e-01
+3.881e-01
+3.396e-01
+2.911e-01
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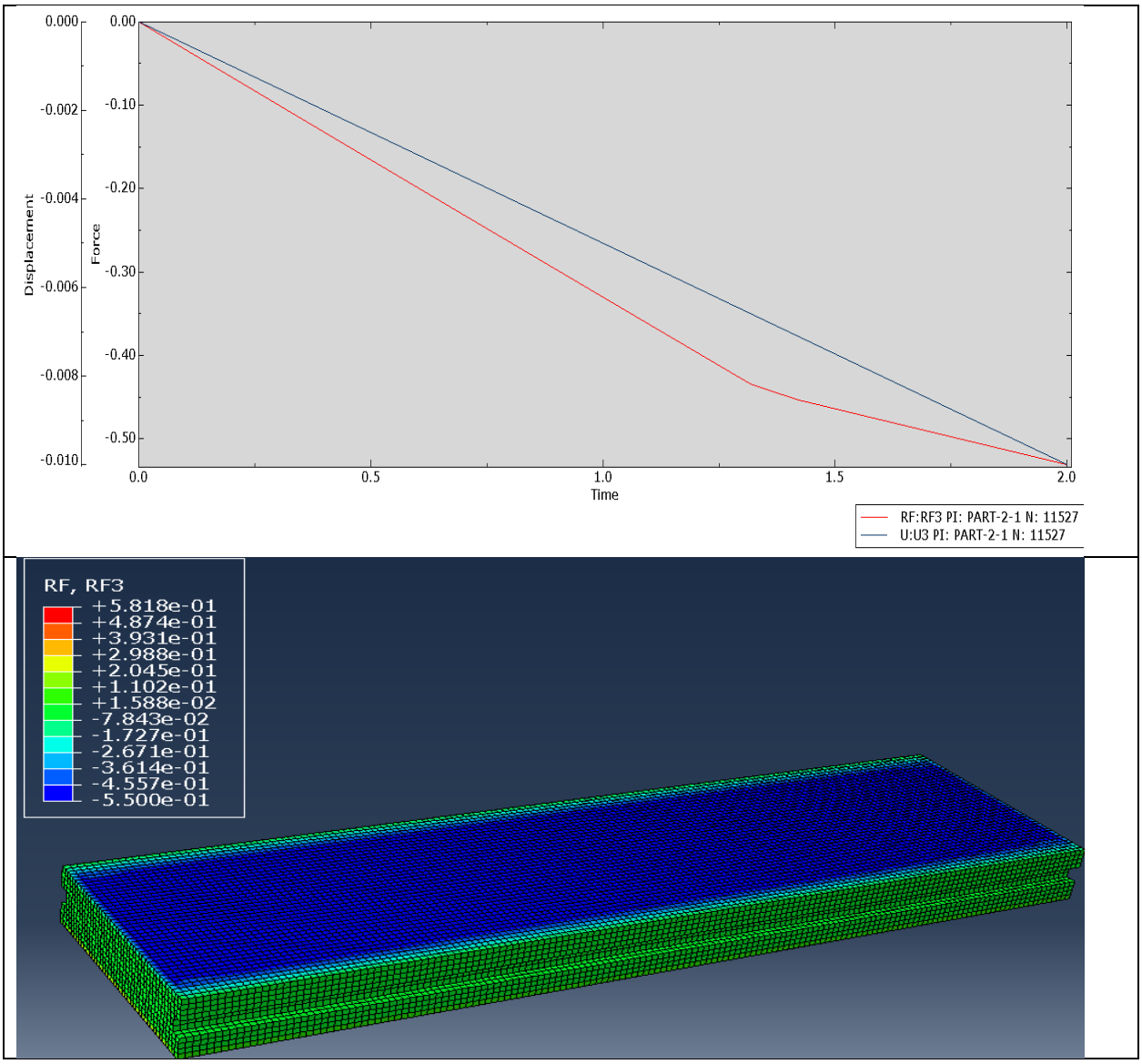

Figure 2 shows the values of output stresses which are a bit higher compared to the input stress strain: curve but the reaction force comes out to be very low. The flat surface area of the connection of the binder layer is (5*20) mm^2 which gives stress as 0.5N/100m^2 **equals 0.005 MPa which is very low compared to the output stress values in the results as well as in the simulation. Why? Also why the values of output stresses are a bit higher compared to peak of 27MPa as of input data?**