# simulation poly 0.5 inch ear

**Company**

**Author**
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**Date**
Friday, May 8, 2020

**Software Used**
Solid Edge (220.00.04.002 x64)
Femap (12.0.1b)

**Solver Used**
NX Nastran (2019.1)

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## Table of Contents



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## 1. Introduction

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# 2. Model Information

# 3. Study Properties

| Study Property | Value |
|---|---|
| Study name | Modal Study 18 |
| Study Type | Normal Modes |
| Mesh Type | Tetrahedral |
| Iterative Solver | On |
| Number of modes | 4 |
| Frequency Range | Minimum: 20 Hz<br>Maximum: 1.6e+04 Hz |
| NX Nastran Geometry Check | On |
| NX Nastran command line | |
| NX Nastran study options | |
| NX Nastran generated options | |
| NX Nastran default options | |
| Surface results only option | On |

# 4. Study Geometry

## 4.1 Solids

| Solid Name | Material | Mass | Volume | Weight |
|---|---|---|---|---|
| 6001 - thin.par | Polyethylene, low density | 3.006 lbm | 300.599 in^3 | 3.004 lbf |

# 5. Material Properties

## 5.1 Polyethylene, low density

| Property | Value |
|---|---|
| Density | 0.010 lbm/in^3 |
| Coef. of Thermal Exp. | 0.0001 /F |

| | |
|---|---|
| Thermal Conductivity | 2.253 BTU/hr-ft-F |
| Specific Heat | 0.530 BTU/lbm-F |
| Modulus of Elasticity | 21.000 ksi |
| Poisson's Ratio | 0.350 |
| Yield Stress | 1.400 ksi |
| Ultimate Stress | 0.000 ksi |
| Elongation % | 0.000 |

# 6. Override Properties

# 7. Constraints

# 8. Mesh Information

| Mesh type | Tetrahedral |
|---|---|
| Total number of bodies meshed | 1 |
| Total number of elements | 6,463 |
| Total number of nodes | 13,272 |
| Subjective mesh size (1-10) | 3 |

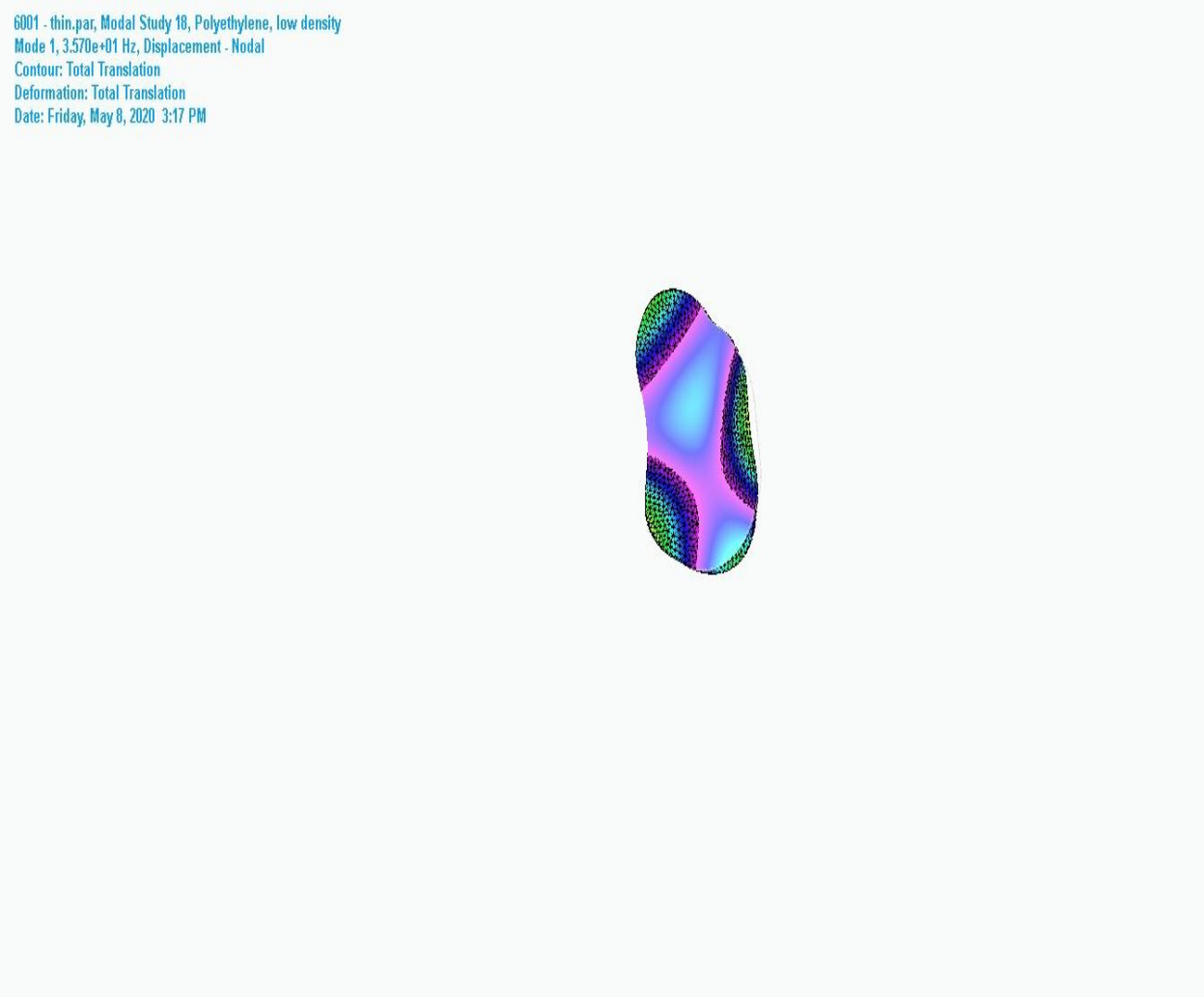
# 9. Results

## 9.1 Displacement Results

| Result component: Total Translation | | | | |
|---|---|---|---|---|
| **Extent** | **Value** | **X** | **Y** | **Z** |
| **Mode 1, 3.570e+01 Hz** | | | | |
| **Minimum** | 0.379 in | 24.073 in | -0.300 in | 0.000 in |
| **Maximum** | 127 in | 6.256 in | 0.575 in | -0.250 in |
| **Mode 2, 3.990e+01 Hz** | | | | |
| **Minimum** | 0.379 in | 1.107 in | 16.752 in | 0.000 in |
| **Maximum** | 127 in | 26.082 in | -0.300 in | -0.250 in |

| Mode 3, 4.291e+01 Hz | | | | |
|---|---|---|---|---|
| **Minimum** | 0.379 in | 32.899 in | 9.359 in | 0.000 in |
| **Maximum** | 127 in | 3.113 in | 19.146 in | -0.250 in |

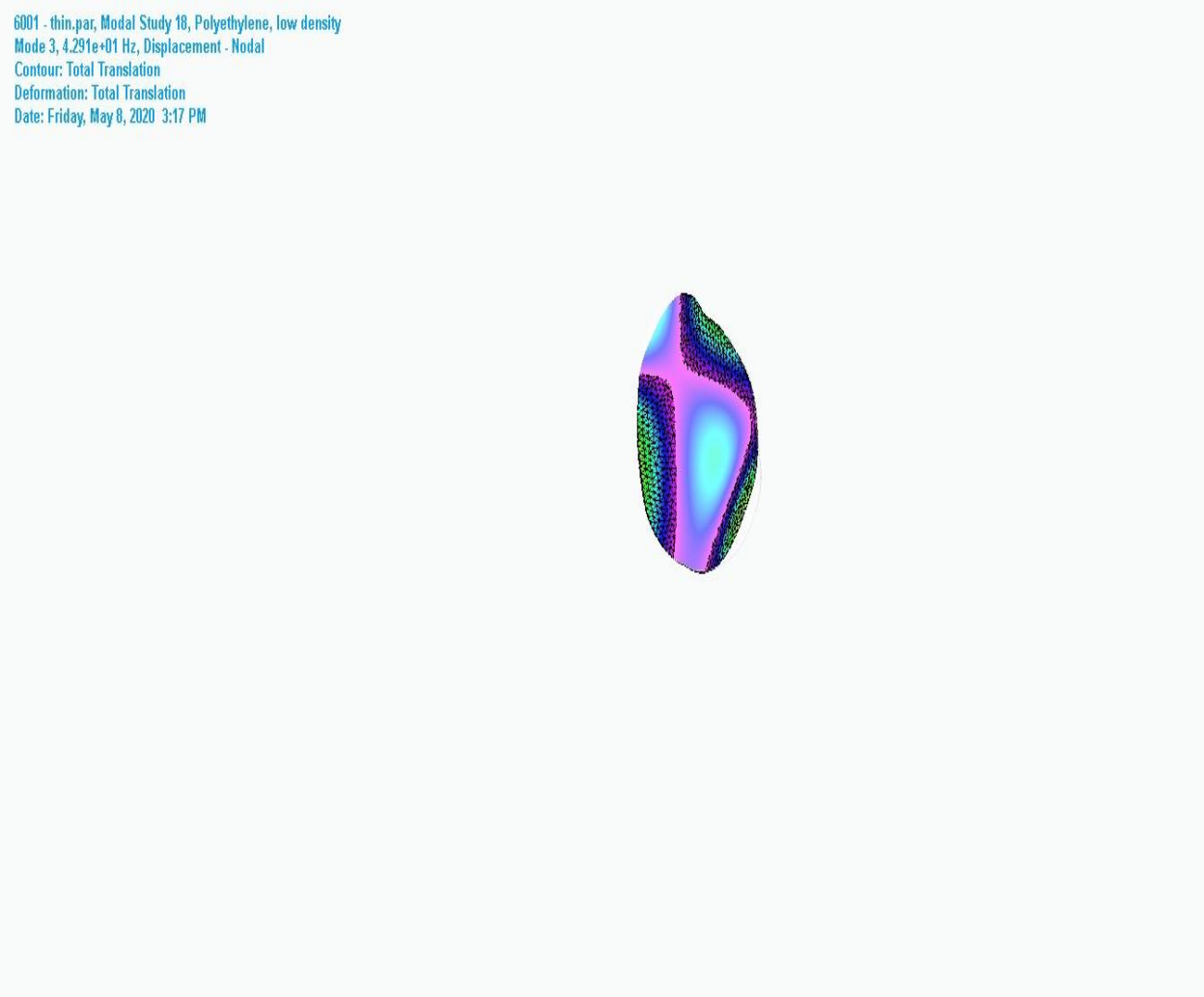
| Mode 4, 6.431e+01 Hz | | | | |
|---|---|---|---|---|
| **Minimum** | 0.379 in | 2.538 in | 18.612 in | 0.000 in |
| **Maximum** | 127 in | 3.189 in | 2.915 in | 0.250 in |



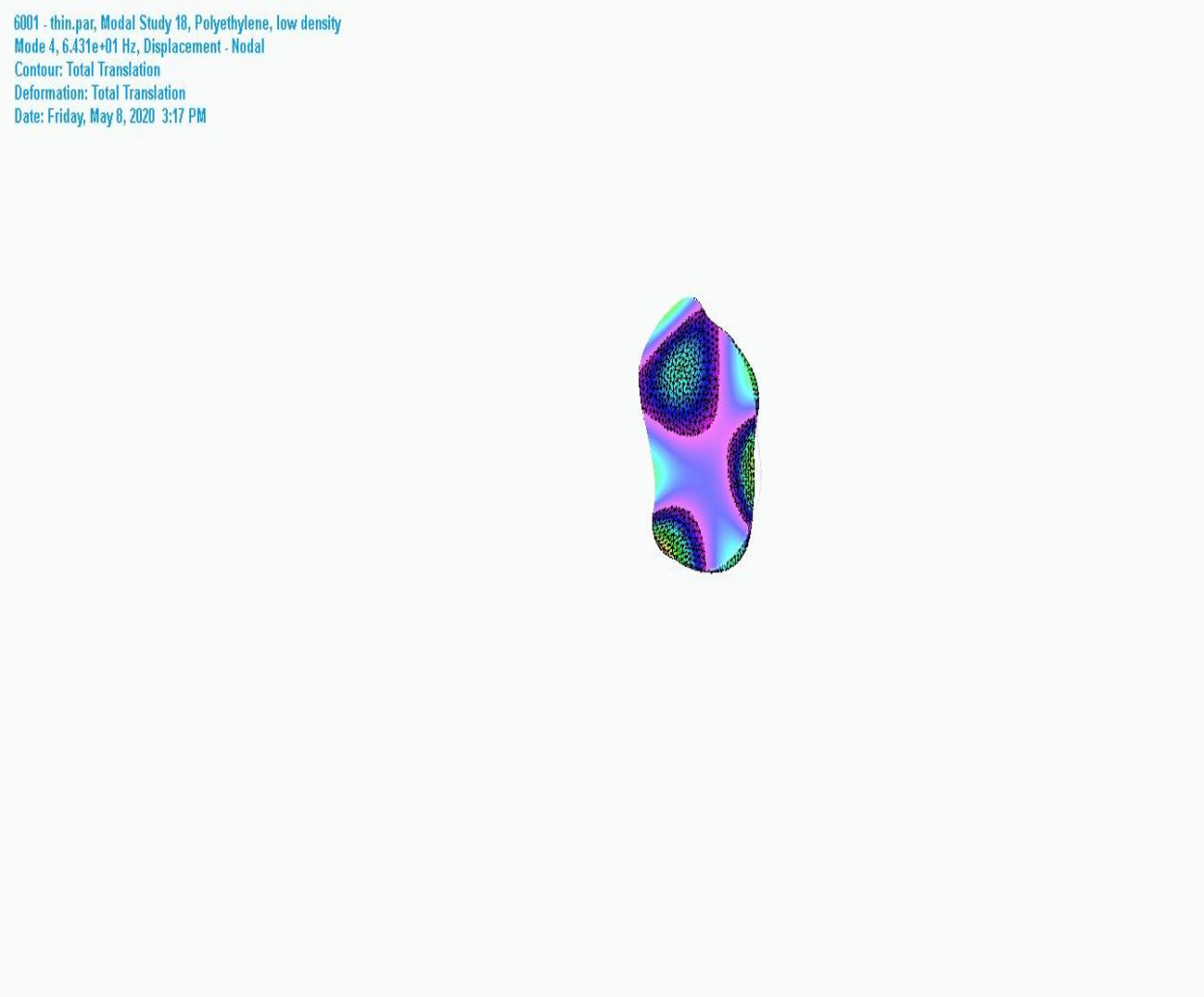

Mode 1


6001 - thin.par, Modal Study 18, Polyethylene, low density
Mode 2, 3.990e+01 Hz, Displacement - Nodal
Contour: Total Translation
Deformation: Total Translation
Date: Friday, May 8, 2020 3:17 PM

Mode 2


6001 - thin.par, Modal Study 18, Polyethylene, low density
Mode 3, 4.291e+01 Hz, Displacement - Nodal
Contour: Total Translation
Deformation: Total Translation
Date: Friday, May 8, 2020 3:17 PM

Mode 3




Mode 4

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# 10. Optimizations

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# 11. Conclusion

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# 12. Disclaimer

## Important Information

This report should not be used to solely judge a design idea's suitability to a given set of environmental conditions. Siemens makes every effort to ensure that its products provide as much guidance and help as possible. However this does not replace good engineering judgment, which is always the responsibility of our users. A qualitative approach to engineering should ensure that the results of this evaluation are evaluated in conjunction with the practical experience of design engineers and analysts, and ultimately experimental test data. The results contained within this report are believed to be reliable but should not be construed as providing any sort of warranty for fitness of purpose.