```
09 29 2015; 11:13:34AM     Opened Project
C:\Users\jrw29289\Desktop\ISARA\
09 29 2015; 11:14:03AM     Processing Requirement 4.3-1:    Return
Status :  Not Run

=====================
No Project Data Available
=====================

=============== End of Requirement 4.3-1 ===============
09 29 2015; 11:14:05AM     Processing Requirement 4.3-2: Return Status :
Passed

=====================
No Project Data Available
=====================

=============== End of Requirement 4.3-2 ===============
09 29 2015; 11:14:07AM     Requirement 4.4-3:  Compliant

=============== End of Requirement 4.4-3 ===============
09 29 2015; 11:14:11AM     Processing Requirement 4.5-1:    Return
Status :  Passed

==============
Run Data
==============

**INPUT**

      Space Structure Name = ISARA bus
      Space Structure Type = Payload
      Perigee Altitude = 425.000000 (km)
      Apogee Altitude = 720.000000 (km)
      Inclination = 97.400000 (deg)
      RAAN = 0.000000 (deg)
      Argument of Perigee = 0.000000 (deg)
      Mean Anomaly = 0.000000 (deg)
      Final Area-To-Mass Ratio = 0.006000 (m^2/kg)
      Start Year = 2015.000000 (yr)
      Initial Mass = 5.000000 (kg)
      Final Mass = 5.000000 (kg)
      Duration = 2.000000 (yr)
      Station-Kept = False
      Abandoned = True
      PMD Perigee Altitude = -1.000000 (km)
      PMD Apogee Altitude = -1.000000 (km)
      PMD Inclination = 0.000000 (deg)
      PMD RAAN = 0.000000 (deg)
      PMD Argument of Perigee = 0.000000 (deg)
      PMD Mean Anomaly = 0.000000 (deg)
```

```
**OUTPUT**

      Collision Probability = 0.000001
      Returned Error Message: Normal Processing
      Date Range Error Message: Normal Date Range
      Status = Pass

==============

=============== End of Requirement 4.5-1 ===============
09 29 2015; 11:14:15AM     Requirement 4.5-2:  Compliant
09 29 2015; 11:14:16AM     Processing Requirement 4.6 Return Status :
Passed

==============
Project Data
==============

**INPUT**

      Space Structure Name = ISARA bus
      Space Structure Type = Payload

      Perigee Altitude = 425.000000 (km)
      Apogee Altitude = 720.000000 (km)
      Inclination = 97.400000 (deg)
      RAAN = 0.000000 (deg)
      Argument of Perigee = 0.000000 (deg)
      Mean Anomaly = 0.000000 (deg)
      Area-To-Mass Ratio = 0.006000 (m^2/kg)
      Start Year = 2015.000000 (yr)
      Initial Mass = 5.000000 (kg)
      Final Mass = 5.000000 (kg)
      Duration = 2.000000 (yr)
      Station Kept = False
      Abandoned = True
      PMD Perigee Altitude = 417.109041 (km)
      PMD Apogee Altitude = 699.042162 (km)
      PMD Inclination = 97.458828 (deg)
      PMD RAAN = 337.193654 (deg)
      PMD Argument of Perigee = 45.215024 (deg)
      PMD Mean Anomaly = 0.000000 (deg)

**OUTPUT**

      Suggested Perigee Altitude = 417.109041 (km)
      Suggested Apogee Altitude = 699.042162 (km)
      Returned Error Message = Passes LEO reentry orbit criteria.

      Released Year = 2024 (yr)
      Requirement = 61
      Compliance Status = Pass
```

```
==============

=============== End of Requirement 4.6 ===============
09 29 2015; 11:14:26AM     *********Processing Requirement 4.7-1
      Return Status :  Passed

***********INPUT****
 Item Number = 1

name = ISARA bus
quantity = 1
parent = 0
materialID = 5
type = Box
Aero Mass = 5.000000
Thermal Mass = 5.000000
Diameter/Width = 0.100000
Length = 0.300000
Height = 0.100000

name = Reaction Wheel Block
quantity = 1
parent = 1
materialID = 8
type = Box
Aero Mass = 0.133000
Thermal Mass = 0.133000
Diameter/Width = 0.041000
Length = 0.059000
Height = 0.040000

name = Reaction Wheel
quantity = 3
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.018000
Thermal Mass = 0.018000
Diameter/Width = 0.025000
Length = 0.016000

name = STIM
quantity = 1
parent = 1
materialID = 8
type = Box
Aero Mass = 0.052000
Thermal Mass = 0.052000
Diameter/Width = 0.039000
Length = 0.045000
Height = 0.021000
```

```
name = Torque Rod
quantity = 9
parent = 1
materialID = -1
type = Cylinder
Aero Mass = 0.022000
Thermal Mass = 0.022000
Diameter/Width = 0.008000
Length = 0.079000

name = 915 Antenna
quantity = 2
parent = 1
materialID = 40
type = Box
Aero Mass = 0.012000
Thermal Mass = 0.012000
Diameter/Width = 0.038000
Length = 0.040000
Height = 0.010000

name = GPS Antenna
quantity = 2
parent = 1
materialID = 40
type = Box
Aero Mass = 0.009000
Thermal Mass = 0.009000
Diameter/Width = 0.032000
Length = 0.033000
Height = 0.010000

name = Batteries
quantity = 4
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.041000
Thermal Mass = 0.041000
Diameter/Width = 0.018000
Length = 0.065000

name = Circuit Boards - EPS
quantity = 2
parent = 1
materialID = -2
type = Box
Aero Mass = 0.046000
Thermal Mass = 0.046000
Diameter/Width = 0.053000
Length = 0.080000
```

```
Height = 0.010000

name = Circuit Boards - Other
quantity = 5
parent = 1
materialID = -2
type = Box
Aero Mass = 0.059000
Thermal Mass = 0.059000
Diameter/Width = 0.080000
Length = 0.080000
Height = 0.002000

name = Cover Panel - 1
quantity = 3
parent = 1
materialID = 8
type = Box
Aero Mass = 0.082000
Thermal Mass = 0.082000
Diameter/Width = 0.082000
Length = 0.255000
Height = 0.002000

name = Body
quantity = 1
parent = 1
materialID = 8
type = Box
Aero Mass = 0.783000
Thermal Mass = 0.783000
Diameter/Width = 0.108000
Length = 0.313000
Height = 0.100000

name = Nadir Lid
quantity = 1
parent = 1
materialID = 8
type = Box
Aero Mass = 0.080000
Thermal Mass = 0.080000
Diameter/Width = 0.100000
Length = 0.108000
Height = 0.028000

name = Solar Cell Test Coupon
quantity = 1
parent = 1
materialID = -2
type = Box
Aero Mass = 0.022000
```

```
Thermal Mass = 0.022000
Diameter/Width = 0.080000
Length = 0.080000
Height = 0.007000

name = Reflectarray
quantity = 3
parent = 1
materialID = -2
type = Box
Aero Mass = 0.120000
Thermal Mass = 0.120000
Diameter/Width = 0.083000
Length = 0.339000
Height = 0.002000

name = Feed Antenna
quantity = 1
parent = 1
materialID = -2
type = Box
Aero Mass = 0.010000
Thermal Mass = 0.010000
Diameter/Width = 0.027000
Length = 0.083000
Height = 0.005000

name = Star Camera
quantity = 2
parent = 1
materialID = 8
type = Cylinder
Aero Mass = 0.177000
Thermal Mass = 0.177000
Diameter/Width = 0.030000
Length = 0.100000

name = Camera Mount 1
quantity = 1
parent = 1
materialID = 8
type = Box
Aero Mass = 0.210000
Thermal Mass = 0.210000
Diameter/Width = 0.060000
Length = 0.069000
Height = 0.023000

name = Camera Mount 2
quantity = 1
parent = 1
materialID = 8
```

```
type = Box
Aero Mass = 0.081000
Thermal Mass = 0.081000
Diameter/Width = 0.081000
Length = 0.083000
Height = 0.063000

name = IR Camera
quantity = 2
parent = 1
materialID = 8
type = Box
Aero Mass = 0.160000
Thermal Mass = 0.160000
Diameter/Width = 0.440000
Length = 0.480000
Height = 0.440000

name = Schnider Block
quantity = 2
parent = 1
materialID = 8
type = Box
Aero Mass = 0.088000
Thermal Mass = 0.088000
Diameter/Width = 0.040000
Length = 0.045000
Height = 0.020000

name = Sensor Block
quantity = 4
parent = 1
materialID = 8
type = Box
Aero Mass = 0.016000
Thermal Mass = 0.016000
Diameter/Width = 0.015000
Length = 0.440000
Height = 0.008000

name = Exciter Board
quantity = 1
parent = 1
materialID = 14
type = Box
Aero Mass = 0.158000
Thermal Mass = 0.158000
Diameter/Width = 0.090000
Length = 0.096000
Height = 0.010000

name = Wing Release Mechanism
```

```
quantity = 1
parent = 1
materialID = -3
type = Box
Aero Mass = 0.018000
Thermal Mass = 0.018000
Diameter/Width = 0.019000
Length = 0.093000
Height = 0.008000

name = Misc. Structure
quantity = 1
parent = 1
materialID = 8
type = Box
Aero Mass = 0.880000
Thermal Mass = 0.880000
Diameter/Width = 0.100000
Length = 0.300000
Height = 0.100000

name = Camera Mount
quantity = 1
parent = 1
materialID = 5
type = Box
Aero Mass = 0.031000
Thermal Mass = 0.031000
Diameter/Width = 0.090000
Length = 0.090000
Height = 0.050000

name = SWIR Camera/Lens
quantity = 1
parent = 1
materialID = 59
type = Box
Aero Mass = 0.185000
Thermal Mass = 0.185000
Diameter/Width = 0.050000
Length = 0.080000
Height = 0.050000

name = LWIR Camera/Lens
quantity = 1
parent = 1
materialID = 59
type = Box
Aero Mass = 0.149000
Thermal Mass = 0.149000
Diameter/Width = 0.050000
Length = 0.060000
```

```
Height = 0.050000

name = CMOS Lens
quantity = 1
parent = 1
materialID = 59
type = Cylinder
Aero Mass = 0.084000
Thermal Mass = 0.084000
Diameter/Width = 0.030000
Length = 0.040000

**************OUTPUT****
Item Number = 1

name = ISARA bus
Demise Altitude = 77.998363
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Reaction Wheel Block
Demise Altitude = 74.804113
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Reaction Wheel
Demise Altitude = 74.539988
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = STIM
Demise Altitude = 75.721222
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Torque Rod
Demise Altitude = 74.978847
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = 915 Antenna
Demise Altitude = 77.113761
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = GPS Antenna
```

```
Demise Altitude = 77.133769
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Batteries
Demise Altitude = 73.366339
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Circuit Boards - EPS
Demise Altitude = 76.965644
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Circuit Boards - Other
Demise Altitude = 76.703496
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Cover Panel - 1
Demise Altitude = 77.217965
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Body
Demise Altitude = 75.572082
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Nadir Lid
Demise Altitude = 76.950355
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Solar Cell Test Coupon
Demise Altitude = 77.535543
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Reflectarray
Demise Altitude = 77.076808
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
```

```
************************************
name = Feed Antenna
Demise Altitude = 77.632074
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Star Camera
Demise Altitude = 73.598418
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Camera Mount 1
Demise Altitude = 73.104386
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Camera Mount 2
Demise Altitude = 76.966379
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = IR Camera
Demise Altitude = 77.872410
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Schnider Block
Demise Altitude = 74.235441
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Sensor Block
Demise Altitude = 77.806551
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Exciter Board
Demise Altitude = 76.223465
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

************************************
name = Wing Release Mechanism
Demise Altitude = 77.404629
Debris Casualty Area = 0.000000
```

```
Impact Kinetic Energy = 0.000000

*************************************
name = Misc. Structure
Demise Altitude = 75.153855
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

*************************************
name = Camera Mount
Demise Altitude = 77.565426
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

*************************************
name = SWIR Camera/Lens
Demise Altitude = 71.931457
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

*************************************
name = LWIR Camera/Lens
Demise Altitude = 70.820324
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

*************************************
name = CMOS Lens
Demise Altitude = 71.811152
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

*************************************

=============== End of Requirement 4.7-1 ===============
09 29 2015; 11:14:43AM     Project Data Saved To File
```