

## Appendix to THINSAT2 ODAR: DAS Activity Log

Following are the Activity Logs for the DAS Analysis of each of the Satellites in the THINSAT-2 mission.

### 2A

```
**INPUT**
  Start Year = 2021.100000 (yr)
  Perigee Altitude = 180.000000 (km)
  Apogee Altitude = 260.000000 (km)
  Inclination = 51.600000 (deg)
  RAAN = 0.000000 (deg)
  Argument of Perigee = 0.000000 (deg)
  Area-To-Mass Ratio = 0.008700 (m^2/kg)
**OUTPUT**
  Orbital Lifetime from Startyr = 0.016427 (yr)
  Time Spent in LEO during Lifetime = 0.016427 (yr)
  Last year of Propagation = 2021 (yr)
  Returned Error Message: Object reentered
10 20 2020; 09:24:42AM Science and Engineering - Orbit Lifetime/Dwell Time
**INPUT**
  Start Year = 2021.100000 (yr)
  Perigee Altitude = 180.000000 (km)
  Apogee Altitude = 260.000000 (km)
  Inclination = 51.600000 (deg)
  RAAN = 0.000000 (deg)
  Argument of Perigee = 0.000000 (deg)
  Area-To-Mass Ratio = 0.008700 (m^2/kg)
**OUTPUT**
  Orbital Lifetime from Startyr = 0.016427 (yr)
  Time Spent in LEO during Lifetime = 0.016427 (yr)
  Last year of Propagation = 2021 (yr)
  Returned Error Message: Object reentered
10 20 2020; 12:50:14PM Mission Editor Changes Applied
10 20 2020; 12:50:14PM Project Data Saved To File
10 20 2020; 12:50:18PM Science and Engineering - Orbit Lifetime/Dwell Time
**INPUT**
  Start Year = 2021.100000 (yr)
  Perigee Altitude = 180.000000 (km)
  Apogee Altitude = 260.000000 (km)
  Inclination = 51.600000 (deg)
  RAAN = 0.000000 (deg)
  Argument of Perigee = 0.000000 (deg)
  Area-To-Mass Ratio = 0.008700 (m^2/kg)
**OUTPUT**
  Orbital Lifetime from Startyr = 0.016427 (yr)
  Time Spent in LEO during Lifetime = 0.016427 (yr)
  Last year of Propagation = 2021 (yr)
  Returned Error Message: Object reentered
10 20 2020; 12:56:09PM Project Data Saved To File
10 20 2020; 12:56:22PM Saved Project As
C:\Users\mille\Sterk\THINSAT2\THINSAT2B\
```

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10 20 2020; 12:56:22PM Closed Project
C:\Users\mille\Sterk\THINSAT2\THINSAT2A\
10 20 2020; 13:24:20PM Activity Log Started
10 20 2020; 13:24:20PM Opened Project
C:\Users\mille\Sterk\THINSAT2\THINSAT2A\
10 20 2020; 13:24:33PM Mission Editor Changes Applied
10 20 2020; 13:24:33PM Project Data Saved To File
10 20 2020; 13:25:05PM Science and Engineering - Orbit Lifetime/Dwell Time
**INPUT**
    Start Year = 2021.100000 (yr)
    Perigee Altitude = 180.000000 (km)
    Apogee Altitude = 260.000000 (km)
    Inclination = 51.600000 (deg)
    RAAN = 0.000000 (deg)
    Argument of Perigee = 0.000000 (deg)
    Area-To-Mass Ratio = 0.031900 (m^2/kg)
**OUTPUT**
    Orbital Lifetime from Startyr = 0.005476 (yr)
    Time Spent in LEO during Lifetime = 0.005476 (yr)
    Last year of Propagation = 2021 (yr)
    Returned Error Message: Object reentered
10 20 2020; 13:27:29PM Project Data Saved To File
10 20 2020; 13:27:36PM Saved Project As
C:\Users\mille\Sterk\THINSAT2\THINSAT2CSD1\
10 20 2020; 13:27:36PM Closed Project
C:\Users\mille\Sterk\THINSAT2\THINSAT2A\
10 26 2020; 17:22:53PM Processing Requirement 4.6 Return Status :
Passed
=====
Project Data
=====
**INPUT**
    Space Structure Name = THINSAT2A
    Space Structure Type = Payload
    Perigee Altitude = 180.000000 (km)
    Apogee Altitude = 260.000000 (km)
    Inclination = 51.600000 (deg)
    RAAN = 0.000000 (deg)
    Argument of Perigee = 0.000000 (deg)
    Mean Anomaly = 0.000000 (deg)
    Area-To-Mass Ratio = 0.008700 (m^2/kg)
    Start Year = 2021.000000 (yr)
    Initial Mass = 2.119000 (kg)
    Final Mass = 2.119000 (kg)
    Duration = 1.000000 (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**

```

Suggested Perigee Altitude = 180.000000 (km)  
Suggested Apogee Altitude = 260.000000 (km)  
Returned Error Message = Reentry during mission (no PMD req.).  
Released Year = 2021 (yr)  
Requirement = 61  
Compliance Status = Pass

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===== End of Requirement 4.6 =====

10 26 2020; 17:22:54PM \*\*\*\*\*Processing Requirement 4.7-1

Return Status : Passed

\*\*\*\*\*INPUT\*\*\*\*\*

Item Number = 1  
name = THINSAT2A  
quantity = 1  
parent = 0  
materialID = 9  
type = Flat Plate  
Aero Mass = 2.119000  
Thermal Mass = 2.119000  
Diameter/Width = 0.114200  
Length = 1.308500  
name = External Structure  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.116000  
Thermal Mass = 0.116000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Tabs  
quantity = 2  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.006000  
Thermal Mass = 0.006000  
Diameter/Width = 0.013000  
Length = 0.051000  
Height = 0.006000  
name = Top Solar PCB  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = RX Antenna  
quantity = 1  
parent = 1  
materialID = 23

type = Flat Plate  
Aero Mass = 0.002000  
Thermal Mass = 0.002000  
Diameter/Width = 0.020000  
Length = 0.030000  
name = Sep Switches  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries  
quantity = 4  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ADCS PCB  
quantity = 3  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.052000  
Length = 0.108000  
name = RX PCB  
quantity = 2

parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.019000  
Thermal Mass = 0.019000  
Diameter/Width = 0.053000  
Length = 0.071000  
name = Torquer Coils  
quantity = 3  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.011000  
Thermal Mass = 0.011000  
Diameter/Width = 0.009000  
Length = 0.020000  
name = Reaction Wheel  
quantity = 1  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.022000  
Thermal Mass = 0.022000  
Diameter/Width = 0.014000  
Length = 0.020000  
name = IR Sensor  
quantity = 1  
parent = 1  
materialID = 23  
type = Cylinder  
Aero Mass = 0.002000  
Thermal Mass = 0.002000  
Diameter/Width = 0.009000  
Length = 0.017000  
name = Fasteners / Spacers  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000

name = Damping  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = NovAtel OEM719  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.031000  
Thermal Mass = 0.031000  
Diameter/Width = 0.050000  
Length = 0.072000  
name = NovAtel Antenna  
quantity = 1  
parent = 1  
materialID = 23  
type = Cylinder  
Aero Mass = 0.100000  
Thermal Mass = 0.100000  
Diameter/Width = 0.025000  
Length = 0.150000  
name = Breakout PCB  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.002000  
Thermal Mass = 0.002000  
Diameter/Width = 0.020000  
Length = 0.035000  
name = External Structure 1A2  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1A2  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000

Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1A2  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1A2  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1A2  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1A2  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1A2  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1A2  
quantity = 4  
parent = 1  
materialID = 54  
type = Box

Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1A2  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1A2  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = TSLPB 1A2  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.021900  
Thermal Mass = 0.021900  
Diameter/Width = 0.051200  
Length = 0.107450  
name = Secondary Board 1A2  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.014900  
Thermal Mass = 0.014900  
Diameter/Width = 0.051200  
Length = 0.074160  
name = Optial Lens 1A2  
quantity = 1  
parent = 1  
materialID = 5  
type = Cylinder  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.015000  
Length = 0.015000  
name = Sensor Cabling 1A2  
quantity = 5



parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = External Structure 1T  
quantity = 2  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1T  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1T  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1T  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1T  
quantity = 2  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800

Length = 0.118000  
name = Batteries 1T  
quantity = 4  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1T  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1T  
quantity = 8  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1T  
quantity = 2  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1T  
quantity = 2  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = TSLPB 1T  
quantity = 2  
parent = 1  
materialID = 23

type = Flat Plate  
Aero Mass = 0.021900  
Thermal Mass = 0.021900  
Diameter/Width = 0.051200  
Length = 0.107450  
name = Secondary Board 1T  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.014900  
Thermal Mass = 0.014900  
Diameter/Width = 0.051200  
Length = 0.074160  
name = External Structure 1A6  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1A6  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1A6  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1A6  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1A6  
quantity = 1

parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1A6  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1A6  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1A6  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1A6  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1A6  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000

Length = 0.035000  
Height = 0.005000  
name = Mini-Board Micro Controller & Sensors 1A6  
quantity = 1  
parent = 1  
materialID = 23  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.025000  
Length = 0.025000  
Height = 0.005000  
name = Mini-Board 1A6 Sensors/Controller IC 1A6  
quantity = 1  
parent = 1  
materialID = 23  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.025000  
Length = 0.025000  
Height = 0.005000  
name = External Structure 1X  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1X  
quantity = 2  
parent = 1  
materialID = 54

type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1X  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1X  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1X  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1X  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000

name = Damping 1X  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = CC03 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SW10 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SI01 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = MN02 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.007000  
Thermal Mass = 0.007000  
Diameter/Width = 0.020000  
Length = 0.108000  
name = SL19 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.004000  
Thermal Mass = 0.004000  
Diameter/Width = 0.032000

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Length = 0.032000
name = SL01 1X
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.003000
Thermal Mass = 0.003000
Diameter/Width = 0.032000
Length = 0.032000
name = MN01 1X
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.007000
Thermal Mass = 0.007000
Diameter/Width = 0.020000
Length = 0.108000
name = XC10 Connector 1X
quantity = 9
parent = 1
materialID = 23
type = Box
Aero Mass = 0.001000
Thermal Mass = 0.001000
Diameter/Width = 0.010000
Length = 0.010000
Height = 0.007000
*****OUTPUT*****
Item Number = 1
name = THINSAT2A
Demise Altitude = 77.994087
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure
Demise Altitude = 72.894196
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Tabs
Demise Altitude = 76.028709
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB
Demise Altitude = 76.386429
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = RX Antenna
Demise Altitude = 77.160393
Debris Casualty Area = 0.000000

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Impact Kinetic Energy = 0.000000
*****
name = Sep Switches
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016995
*****
name = Solar Fold Out
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612318
*****
name = Batteries
Demise Altitude = 73.491280
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB
Demise Altitude = 75.641975
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ADCS PCB
Demise Altitude = 77.343842
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = RX PCB
Demise Altitude = 76.262894
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Torquer Coils
Demise Altitude = 71.860291
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Reaction Wheel
Demise Altitude = 69.987823
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = IR Sensor
Demise Altitude = 76.344315
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711664
*****
name = Cabling
Demise Altitude = 76.036407

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Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping
Demise Altitude = 63.257355
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = NovAtel OEM719
Demise Altitude = 75.211136
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = NovAtel Antenna
Demise Altitude = 72.529549
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Breakout PCB
Demise Altitude = 77.268234
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1A2
Demise Altitude = 75.495102
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1A2
Demise Altitude = 76.386429
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1A2
Demise Altitude = 77.662949
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sep Switches 1A2
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016995
*****
name = Solar Fold Out 1A2
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612318
*****
name = Batteries 1A2
Demise Altitude = 73.491280
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1A2

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Demise Altitude = 75.641975
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1A2
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711664
*****
name = Cabling 1A2
Demise Altitude = 76.036407
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1A2
Demise Altitude = 63.257355
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = TSLPB 1A2
Demise Altitude = 76.568230
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Secondary Board 1A2
Demise Altitude = 76.657852
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Optial Lens 1A2
Demise Altitude = 74.536957
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sensor Cabling 1A2
Demise Altitude = 76.036407
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1T
Demise Altitude = 75.495102
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1T
Demise Altitude = 76.386429
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1T
Demise Altitude = 77.662949
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****

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name = Sep Switches 1T
Demise Altitude = 0.000000
Debris Casualty Area = 1.474189
Impact Kinetic Energy = 0.016995
*****
name = Solar Fold Out 1T
Demise Altitude = 0.000000
Debris Casualty Area = 0.917805
Impact Kinetic Energy = 0.612318
*****
name = Batteries 1T
Demise Altitude = 73.491280
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1T
Demise Altitude = 75.641975
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1T
Demise Altitude = 0.000000
Debris Casualty Area = 2.960879
Impact Kinetic Energy = 0.711664
*****
name = Cabling 1T
Demise Altitude = 76.036407
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1T
Demise Altitude = 63.257355
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = TSLPB 1T
Demise Altitude = 76.568230
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Secondary Board 1T
Demise Altitude = 76.657852
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1A6
Demise Altitude = 75.495102
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1A6
Demise Altitude = 76.386429
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

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*****
name = ISS Solar Cell 1A6
Demise Altitude = 77.662949
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sep Switches 1A6
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016995
*****
name = Solar Fold Out 1A6
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612318
*****
name = Batteries 1A6
Demise Altitude = 73.491280
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1A6
Demise Altitude = 75.641975
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1A6
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711664
*****
name = Cabling 1A6
Demise Altitude = 76.036407
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1A6
Demise Altitude = 63.257355
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Mini-Board Micro Controller & Sensors 1A6
Demise Altitude = 76.313995
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Mini-Board 1A6 Sensors/Controller IC 1A6
Demise Altitude = 76.313995
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1X
Demise Altitude = 75.495102
Debris Casualty Area = 0.000000

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Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1X
Demise Altitude = 76.386429
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1X
Demise Altitude = 77.662949
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sep Switches 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016995
*****
name = Solar Fold Out 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612318
*****
name = Batteries 1X
Demise Altitude = 73.491280
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1X
Demise Altitude = 75.641975
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1X
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711664
*****
name = Cabling 1X
Demise Altitude = 76.036407
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1X
Demise Altitude = 63.257355
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = CC03 1X
Demise Altitude = 77.149498
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SW10 1X
Demise Altitude = 77.149498

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Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SI01 1X
Demise Altitude = 77.149498
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = MN02 1X
Demise Altitude = 76.961266
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SL19 1X
Demise Altitude = 76.876053
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SL01 1X
Demise Altitude = 77.149498
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = MN01 1X
Demise Altitude = 76.961266
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = XC10 Connector 1X
Demise Altitude = 76.838493
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
===== End of Requirement 4.7-1 =====
10 26 2020; 17:22:54PM Project Data Saved To File
10 26 2020; 17:23:27PM Processing Requirement 4.5-1:      Return Status :
Passed
=====
Run Data
=====
**INPUT**
    Space Structure Name = THINSAT2A
    Space Structure Type = Payload
    Perigee Altitude = 180.000 (km)
    Apogee Altitude = 260.000 (km)
    Inclination = 51.600 (deg)
    RAAN = 0.000 (deg)
    Argument of Perigee = 0.000 (deg)
    Mean Anomaly = 0.000 (deg)
    Final Area-To-Mass Ratio = 0.0087 (m^2/kg)
    Start Year = 2021.000 (yr)
    Initial Mass = 2.119 (kg)
    Final Mass = 2.119 (kg)
    Duration = 1.000 (yr)

```

```

Station-Kept = False
Abandoned = True
**OUTPUT**
Collision Probability = 1.8917E-11
Returned Message: Normal Processing
Date Range Message: Normal Date Range
Status = Pass
=====
===== End of Requirement 4.5-1 =====
10 26 2020; 03:56:03AM Science and Engineering - Apogee/Perigee History
for a Given Orbit
**INPUT**
Perigee Altitude = 180.000000 (km)
Apogee Altitude = 260.000000 (km)
Inclination = 51.600000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Mean Anomaly = 0.000000 (deg)
Area-To-Mass Ratio = 0.008700 (m^2/kg)
Start Year = 2021.100000 (yr)
Integration Time = 1.000000 (yr)
**OUTPUT**
Plot
10 26 2020; 03:56:45AM Science and Engineering - Orbit Lifetime/Dwell Time
**INPUT**
Start Year = 2021.100000 (yr)
Perigee Altitude = 180.000000 (km)
Apogee Altitude = 260.000000 (km)
Inclination = 51.600000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.008700 (m^2/kg)
**OUTPUT**
Orbital Lifetime from Startyr = 0.016427 (yr)
Time Spent in LEO during Lifetime = 0.016427 (yr)
Last year of Propagation = 2021 (yr)
Returned Error Message: Object reentered
10 26 2020; 03:58:46AM Project Data Saved To File
10 26 2020; 03:59:21AM Closed Project
C:\Users\mille\Sterk\THINSAT2\THINSAT2A\
10 26 2020; 04:28:40AM Activity Log Started
10 26 2020; 04:28:40AM Opened Project
C:\Users\mille\Sterk\THINSAT2\THINSAT2A\

```



**2B**

10 20 2020; 13:23:47PM Science and Engineering - Orbit Lifetime/Dwell Time

\*\*INPUT\*\*

Start Year = 2021.100000 (yr)  
Perigee Altitude = 180.000000 (km)  
Apogee Altitude = 260.000000 (km)  
Inclination = 51.600000 (deg)  
RAAN = 0.000000 (deg)  
Argument of Perigee = 0.000000 (deg)  
Area-To-Mass Ratio = 0.030800 (m<sup>2</sup>/kg)

\*\*OUTPUT\*\*

Orbital Lifetime from Startyr = 0.005476 (yr)  
Time Spent in LEO during Lifetime = 0.005476 (yr)  
Last year of Propagation = 2021 (yr)  
Returned Error Message: Object reentered

10 26 2020; 04:35:42AM Processing Requirement 4.6 Return Status :  
Passed

=====

Project Data

=====

\*\*INPUT\*\*

Space Structure Name = THINSAT2B  
Space Structure Type = Payload  
Perigee Altitude = 180.000000 (km)  
Apogee Altitude = 260.000000 (km)  
Inclination = 51.600000 (deg)  
RAAN = 0.000000 (deg)  
Argument of Perigee = 0.000000 (deg)  
Mean Anomaly = 0.000000 (deg)  
Area-To-Mass Ratio = 0.030800 (m<sup>2</sup>/kg)  
Start Year = 2021.000000 (yr)  
Initial Mass = 1.852000 (kg)  
Final Mass = 1.852000 (kg)  
Duration = 1.000000 (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\*\*

Suggested Perigee Altitude = 180.000000 (km)  
Suggested Apogee Altitude = 260.000000 (km)  
Returned Error Message = Reentry during mission (no PMD req.).  
Released Year = 2021 (yr)  
Requirement = 61  
Compliance Status = Pass

=====

===== End of Requirement 4.6 =====

10 26 2020; 04:35:43AM \*\*\*\*\*Processing Requirement 4.7-1

Return Status : Passed

```

*****INPUT****
  Item Number = 1
  name = THINSAT2B
  quantity = 1
  parent = 0
  materialID = 9
  type = Box
  Aero Mass = 1.852000
  Thermal Mass = 1.852000
  Diameter/Width = 0.114200
  Length = 1.084500
  Height = 0.030000
  name = External Structure 2M
  quantity = 1
  parent = 1
  materialID = 9
  type = Box
  Aero Mass = 0.116000
  Thermal Mass = 0.116000
  Diameter/Width = 0.111000
  Length = 0.114000
  Height = 0.012500
  name = Tabs 2M
  quantity = 2
  parent = 1
  materialID = 9
  type = Box
  Aero Mass = 0.006000
  Thermal Mass = 0.006000
  Diameter/Width = 0.013000
  Length = 0.051000
  Height = 0.006000
  name = Top Solar PCB 2M
  quantity = 1
  parent = 1
  materialID = 23
  type = Flat Plate
  Aero Mass = 0.040000
  Thermal Mass = 0.040000
  Diameter/Width = 0.111000
  Length = 0.114000
  name = RX Antenna 2M
  quantity = 1
  parent = 1
  materialID = 23
  type = Flat Plate
  Aero Mass = 0.002000
  Thermal Mass = 0.002000
  Diameter/Width = 0.020000
  Length = 0.030000
  name = Sep Switches 2M
  quantity = 2
  parent = 1
  materialID = 54

```

type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 2M  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 2M  
quantity = 6  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 2M  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ADCS PCB 2M  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.052000  
Length = 0.108000  
name = RX PCB 2M  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.019000  
Thermal Mass = 0.019000  
Diameter/Width = 0.053000  
Length = 0.071000  
name = Torquer Coils 2M  
quantity = 3

parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.011000  
Thermal Mass = 0.011000  
Diameter/Width = 0.009000  
Length = 0.020000  
name = Reaction Wheel 2M  
quantity = 1  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.022000  
Thermal Mass = 0.022000  
Diameter/Width = 0.014000  
Length = 0.020000  
name = IR Sensor 2M  
quantity = 1  
parent = 1  
materialID = 23  
type = Cylinder  
Aero Mass = 0.002000  
Thermal Mass = 0.002000  
Diameter/Width = 0.009000  
Length = 0.017000  
name = Fasteners / Spacers 2M  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 2M  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 2M  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000

Height = 0.005000  
name = External Structure 1B2  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1B2  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1B2  
quantity = 1  
parent = 1  
materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1B2  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1B2  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1B2  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000

Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1B2  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1B2  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1B2  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1B2  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = Screws 1B2  
quantity = 1  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.010000  
name = Battery Box 1B2  
quantity = 1

parent = 1  
materialID = 9  
type = Flat Plate  
Aero Mass = 0.065000  
Thermal Mass = 0.065000  
Diameter/Width = 0.051200  
Length = 0.107450  
name = Circuit Board 1B2  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.025000  
Thermal Mass = 0.025000  
Diameter/Width = 0.051200  
Length = 0.107450  
name = Wires 1B2  
quantity = 1  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.010000  
name = External Structure 1X  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1X  
quantity = 1  
parent = 1  
materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1X

quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1X  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1X  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1X  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1X  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000



Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1X  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = CC03 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SW10 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SI01 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = MN02 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.007000  
Thermal Mass = 0.007000  
Diameter/Width = 0.020000  
Length = 0.108000  
name = SL19 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate

Aero Mass = 0.004000  
Thermal Mass = 0.004000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SL01 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = MN01 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.007000  
Thermal Mass = 0.007000  
Diameter/Width = 0.020000  
Length = 0.108000  
name = XC10 Connector 1X  
quantity = 9  
parent = 1  
materialID = 23  
type = Box  
Aero Mass = 0.001000  
Thermal Mass = 0.001000  
Diameter/Width = 0.010000  
Length = 0.010000  
Height = 0.007000  
name = External Structure 1T  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1T  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1T  
quantity = 1  
parent = 1

materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1T  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1T  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1T  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1T  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1T  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000

name = Cabling 1T  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1T  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = TSLPB 1T  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.021900  
Thermal Mass = 0.021900  
Diameter/Width = 0.051200  
Length = 0.107450  
name = Secondary Board 1T  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.014900  
Thermal Mass = 0.014900  
Diameter/Width = 0.051200  
Length = 0.074160  
name = External Structure 2B5  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.116000  
Thermal Mass = 0.116000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Tabs 2B5  
quantity = 2  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.006000

Thermal Mass = 0.006000  
Diameter/Width = 0.013000  
Length = 0.051000  
Height = 0.006000  
name = Top Solar PCB 2B5  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Sep Switches 2B5  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 2B5  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 2B5  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 2B5  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 2B5  
quantity = 4  
parent = 1

materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 2B5  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 2B5  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = TSLPB 2B5  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.021900  
Thermal Mass = 0.021900  
Diameter/Width = 0.051200  
Length = 0.107450  
name = Secondary Board 2B5  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.014900  
Thermal Mass = 0.014900  
Diameter/Width = 0.051200  
Length = 0.074160  
name = Sensor 2B5  
quantity = 1  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.030000  
Length = 0.050000

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Height = 0.010000
*****OUTPUT****
Item Number = 1
name = THINSAT2B
Demise Altitude = 77.993668
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 2M
Demise Altitude = 72.790916
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Tabs 2M
Demise Altitude = 75.987846
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 2M
Demise Altitude = 76.357803
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = RX Antenna 2M
Demise Altitude = 77.139824
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sep Switches 2M
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016993
*****
name = Solar Fold Out 2M
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612306
*****
name = Batteries 2M
Demise Altitude = 73.393150
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 2M
Demise Altitude = 75.578560
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ADCS PCB 2M
Demise Altitude = 77.328140
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = RX PCB 2M
```

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Demise Altitude = 76.235008
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Torquer Coils 2M
Demise Altitude = 71.740913
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Reaction Wheel 2M
Demise Altitude = 69.854851
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = IR Sensor 2M
Demise Altitude = 76.321548
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 2M
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711676
*****
name = Cabling 2M
Demise Altitude = 75.976898
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 2M
Demise Altitude = 0.000000
Debris Casualty Area = 0.379705
Impact Kinetic Energy = 5.164970
*****
name = External Structure 1B2
Demise Altitude = 75.428810
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1B2
Demise Altitude = 76.357803
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1B2
Demise Altitude = 0.000000
Debris Casualty Area = 0.462400
Impact Kinetic Energy = 0.063712
*****
name = Sep Switches 1B2
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016993
*****

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name = Solar Fold Out 1B2
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612306
*****
name = Batteries 1B2
Demise Altitude = 73.393150
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1B2
Demise Altitude = 75.578560
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1B2
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711676
*****
name = Cabling 1B2
Demise Altitude = 75.976898
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1B2
Demise Altitude = 0.000000
Debris Casualty Area = 0.379705
Impact Kinetic Energy = 5.164970
*****
name = Screws 1B2
Demise Altitude = 67.844772
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Battery Box 1B2
Demise Altitude = 72.669609
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Circuit Board 1B2
Demise Altitude = 76.350998
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Wires 1B2
Demise Altitude = 73.471397
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1X
Demise Altitude = 75.428810
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

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*****
name = Top Solar PCB 1X
Demise Altitude = 76.357803
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.462400
Impact Kinetic Energy = 0.063712
*****
name = Sep Switches 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016993
*****
name = Solar Fold Out 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612306
*****
name = Batteries 1X
Demise Altitude = 73.393150
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1X
Demise Altitude = 75.578560
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1X
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711676
*****
name = Cabling 1X
Demise Altitude = 75.976898
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.379705
Impact Kinetic Energy = 5.164970
*****
name = CC03 1X
Demise Altitude = 77.130516
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SW10 1X
Demise Altitude = 77.130516
Debris Casualty Area = 0.000000

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Impact Kinetic Energy = 0.000000
*****
name = SI01 1X
Demise Altitude = 77.130516
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = MN02 1X
Demise Altitude = 76.937042
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SL19 1X
Demise Altitude = 76.848587
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SL01 1X
Demise Altitude = 77.130516
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = MN01 1X
Demise Altitude = 76.937042
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = XC10 Connector 1X
Demise Altitude = 76.817574
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1T
Demise Altitude = 75.428810
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1T
Demise Altitude = 76.357803
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1T
Demise Altitude = 0.000000
Debris Casualty Area = 0.462400
Impact Kinetic Energy = 0.063712
*****
name = Sep Switches 1T
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016993
*****
name = Solar Fold Out 1T
Demise Altitude = 0.000000

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Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612306
*****
name = Batteries 1T
Demise Altitude = 73.393150
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1T
Demise Altitude = 75.578560
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1T
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711676
*****
name = Cabling 1T
Demise Altitude = 75.976898
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1T
Demise Altitude = 0.000000
Debris Casualty Area = 0.379705
Impact Kinetic Energy = 5.164970
*****
name = TSLPB 1T
Demise Altitude = 76.540863
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Secondary Board 1T
Demise Altitude = 76.630241
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 2B5
Demise Altitude = 72.790916
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Tabs 2B5
Demise Altitude = 75.987846
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 2B5
Demise Altitude = 76.357803
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sep Switches 2B5

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Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016993
*****
name = Solar Fold Out 2B5
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612306
*****
name = Batteries 2B5
Demise Altitude = 73.393150
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 2B5
Demise Altitude = 75.578560
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 2B5
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711676
*****
name = Cabling 2B5
Demise Altitude = 75.976898
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 2B5
Demise Altitude = 0.000000
Debris Casualty Area = 0.379705
Impact Kinetic Energy = 5.164970
*****
name = TSLPB 2B5
Demise Altitude = 76.540863
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Secondary Board 2B5
Demise Altitude = 76.630241
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sensor 2B5
Demise Altitude = 0.000000
Debris Casualty Area = 0.398947
Impact Kinetic Energy = 1.087876
*****
===== End of Requirement 4.7-1 =====
10 26 2020; 04:35:43AM Project Data Saved To File
10 26 2020; 04:36:08AM Processing Requirement 4.5-1:      Return Status :
Passed
=====

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Run Data

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\*\*INPUT\*\*

Space Structure Name = THINSAT2B  
Space Structure Type = Payload  
Perigee Altitude = 180.000 (km)  
Apogee Altitude = 260.000 (km)  
Inclination = 51.600 (deg)  
RAAN = 0.000 (deg)  
Argument of Perigee = 0.000 (deg)  
Mean Anomaly = 0.000 (deg)  
Final Area-To-Mass Ratio = 0.0308 (m<sup>2</sup>/kg)  
Start Year = 2021.000 (yr)  
Initial Mass = 1.852 (kg)  
Final Mass = 1.852 (kg)  
Duration = 1.000 (yr)  
Station-Kept = False  
Abandoned = True

\*\*OUTPUT\*\*

Collision Probability = 2.9266E-11  
Returned Message: Normal Processing  
Date Range Message: Normal Date Range  
Status = Pass

=====

===== End of Requirement 4.5-1 =====

**2C**

C:\Users\mille\Sterk\THINSAT2\THINSAT2C\  
10 26 2020; 17:12:52PM Processing Requirement 4.6 Return Status :  
Passed

=====

Project Data

=====

\*\*INPUT\*\*

Space Structure Name = THINSAT2C  
Space Structure Type = Payload  
Perigee Altitude = 180.000000 (km)  
Apogee Altitude = 260.000000 (km)  
Inclination = 51.600000 (deg)  
RAAN = 0.000000 (deg)  
Argument of Perigee = 0.000000 (deg)  
Mean Anomaly = 0.000000 (deg)  
Area-To-Mass Ratio = 0.007800 (m<sup>2</sup>/kg)  
Start Year = 2021.000000 (yr)  
Initial Mass = 1.944000 (kg)  
Final Mass = 1.944000 (kg)  
Duration = 1.000000 (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\*\*

Suggested Perigee Altitude = 180.000000 (km)  
Suggested Apogee Altitude = 260.000000 (km)  
Returned Error Message = Reentry during mission (no PMD req.).  
Released Year = 2021 (yr)  
Requirement = 61  
Compliance Status = Pass

=====

===== End of Requirement 4.6 =====

10 26 2020; 17:12:52PM \*\*\*\*\*Processing Requirement 4.7-1

Return Status : Passed

\*\*\*\*\*INPUT\*\*\*\*\*

Item Number = 1  
name = THINSAT2C  
quantity = 1  
parent = 0  
materialID = 9  
type = Box  
Aero Mass = 1.944000  
Thermal Mass = 1.944000  
Diameter/Width = 0.114200  
Length = 1.084500  
Height = 0.030000  
name = External Structure 2M

quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.116000  
Thermal Mass = 0.116000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Tabs 2M  
quantity = 2  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.006000  
Thermal Mass = 0.006000  
Diameter/Width = 0.013000  
Length = 0.051000  
Height = 0.006000  
name = Top Solar PCB 2M  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = RX Antenna 2M  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.002000  
Thermal Mass = 0.002000  
Diameter/Width = 0.020000  
Length = 0.030000  
name = Sep Switches 2M  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 2M  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000



Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 2M  
quantity = 6  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 2M  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ADCS PCB 2M  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.052000  
Length = 0.108000  
name = RX PCB 2M  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.019000  
Thermal Mass = 0.019000  
Diameter/Width = 0.053000  
Length = 0.071000  
name = Torquer Coils 2M  
quantity = 3  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.011000  
Thermal Mass = 0.011000  
Diameter/Width = 0.009000  
Length = 0.020000  
name = Reaction Wheel 2M  
quantity = 1  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.022000

Thermal Mass = 0.022000  
Diameter/Width = 0.014000  
Length = 0.020000  
name = IR Sensor 2M  
quantity = 1  
parent = 1  
materialID = 23  
type = Cylinder  
Aero Mass = 0.002000  
Thermal Mass = 0.002000  
Diameter/Width = 0.009000  
Length = 0.017000  
name = Fasteners / Spacers 2M  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 2M  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 2M  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = External Structure 1X  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1X  
quantity = 1

parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1X  
quantity = 1  
parent = 1  
materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1X  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1X  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1X  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000

name = Fasteners / Spacers 1X  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1X  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1X  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = CC03 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SW10 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SI01 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000

Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = MN02 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.007000  
Thermal Mass = 0.007000  
Diameter/Width = 0.020000  
Length = 0.108000  
name = SL19 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.004000  
Thermal Mass = 0.004000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SL01 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = MN01 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.007000  
Thermal Mass = 0.007000  
Diameter/Width = 0.020000  
Length = 0.108000  
name = XC10 Connector 1X  
quantity = 9  
parent = 1  
materialID = 23  
type = Box  
Aero Mass = 0.001000  
Thermal Mass = 0.001000  
Diameter/Width = 0.010000  
Length = 0.010000  
Height = 0.007000  
name = External Structure 1T  
quantity = 2  
parent = 1  
materialID = 9  
type = Box

Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1T  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1T  
quantity = 2  
parent = 1  
materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1T  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1T  
quantity = 2  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1T  
quantity = 4  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1T  
quantity = 2

parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1T  
quantity = 8  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1T  
quantity = 2  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1T  
quantity = 2  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = TSLPB 1T  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.021900  
Thermal Mass = 0.021900  
Diameter/Width = 0.051200  
Length = 0.107450  
name = Secondary Board 1T  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.014900  
Thermal Mass = 0.014900  
Diameter/Width = 0.051200

Length = 0.074160  
name = External Structure 2C5  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.116000  
Thermal Mass = 0.116000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Tabs 2C5  
quantity = 2  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.006000  
Thermal Mass = 0.006000  
Diameter/Width = 0.013000  
Length = 0.051000  
Height = 0.006000  
name = Top Solar PCB 2C5  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Sep Switches 2C5  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 2C5  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 2C5  
quantity = 2  
parent = 1  
materialID = 5  
type = Box



Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 2C5  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 2C5  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 2C5  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 2C5  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = TSLPB 2C5  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.021900  
Thermal Mass = 0.021900  
Diameter/Width = 0.051200  
Length = 0.107450  
name = Impedance Probe 2C5

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quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.014900
Thermal Mass = 0.014900
Diameter/Width = 0.051200
Length = 0.074160
name = Antennae 2C5
quantity = 2
parent = 1
materialID = 8
type = Flat Plate
Aero Mass = 0.055000
Thermal Mass = 0.055000
Diameter/Width = 0.111000
Length = 0.114000
name = Sensor Cabling 2C5
quantity = 5
parent = 1
materialID = 19
type = Box
Aero Mass = 0.005000
Thermal Mass = 0.005000
Diameter/Width = 0.010000
Length = 0.070000
Height = 0.001000
*****OUTPUT*****
Item Number = 1
name = THINSAT2C
Demise Altitude = 77.998940
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 2M
Demise Altitude = 72.970367
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Tabs 2M
Demise Altitude = 76.059509
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 2M
Demise Altitude = 76.417473
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = RX Antenna 2M
Demise Altitude = 77.183456
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****

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name = Sep Switches 2M
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016994
*****
name = Solar Fold Out 2M
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612309
*****
name = Batteries 2M
Demise Altitude = 73.558311
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 2M
Demise Altitude = 75.678482
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ADCS PCB 2M
Demise Altitude = 77.357277
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = RX PCB 2M
Demise Altitude = 76.303802
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Torquer Coils 2M
Demise Altitude = 71.930321
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Reaction Wheel 2M
Demise Altitude = 70.090584
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = IR Sensor 2M
Demise Altitude = 76.380005
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 2M
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711694
*****
name = Cabling 2M
Demise Altitude = 76.068306
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

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*****
name = Damping 2M
Demise Altitude = 63.156086
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1X
Demise Altitude = 75.525826
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1X
Demise Altitude = 76.417473
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.462400
Impact Kinetic Energy = 0.063713
*****
name = Sep Switches 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016994
*****
name = Solar Fold Out 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612309
*****
name = Batteries 1X
Demise Altitude = 73.558311
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1X
Demise Altitude = 75.678482
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1X
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711694
*****
name = Cabling 1X
Demise Altitude = 76.068306
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1X
Demise Altitude = 63.156086
Debris Casualty Area = 0.000000

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Impact Kinetic Energy = 0.000000
*****
name = CC03 1X
Demise Altitude = 77.171211
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SW10 1X
Demise Altitude = 77.171211
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SI01 1X
Demise Altitude = 77.171211
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = MN02 1X
Demise Altitude = 76.976776
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SL19 1X
Demise Altitude = 76.896492
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SL01 1X
Demise Altitude = 77.171211
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = MN01 1X
Demise Altitude = 76.976776
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = XC10 Connector 1X
Demise Altitude = 76.868279
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1T
Demise Altitude = 75.525826
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1T
Demise Altitude = 76.417473
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1T
Demise Altitude = 0.000000

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Debris Casualty Area = 0.924800
Impact Kinetic Energy = 0.063713
*****
name = Sep Switches 1T
Demise Altitude = 0.000000
Debris Casualty Area = 1.474189
Impact Kinetic Energy = 0.016994
*****
name = Solar Fold Out 1T
Demise Altitude = 0.000000
Debris Casualty Area = 0.917805
Impact Kinetic Energy = 0.612309
*****
name = Batteries 1T
Demise Altitude = 73.558311
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1T
Demise Altitude = 75.678482
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1T
Demise Altitude = 0.000000
Debris Casualty Area = 2.960879
Impact Kinetic Energy = 0.711694
*****
name = Cabling 1T
Demise Altitude = 76.068306
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1T
Demise Altitude = 63.156086
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = TSLPB 1T
Demise Altitude = 76.602501
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Secondary Board 1T
Demise Altitude = 76.682510
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 2C5
Demise Altitude = 72.970367
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Tabs 2C5

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Demise Altitude = 76.059509
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 2C5
Demise Altitude = 76.417473
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sep Switches 2C5
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016994
*****
name = Solar Fold Out 2C5
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612309
*****
name = Batteries 2C5
Demise Altitude = 73.558311
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 2C5
Demise Altitude = 75.678482
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 2C5
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711694
*****
name = Cabling 2C5
Demise Altitude = 76.068306
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 2C5
Demise Altitude = 63.156086
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = TSLPB 2C5
Demise Altitude = 76.602501
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Impedance Probe 2C5
Demise Altitude = 76.682510
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****

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name = Antennae 2C5
Demise Altitude = 74.921516
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sensor Cabling 2C5
Demise Altitude = 76.068306
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
===== End of Requirement 4.7-1 =====
10 26 2020; 17:12:52PM Project Data Saved To File
10 26 2020; 17:16:04PM Processing Requirement 4.5-1:      Return Status :
Passed
=====
Run Data
=====
**INPUT**
    Space Structure Name = THINSAT2C
    Space Structure Type = Payload
    Perigee Altitude = 180.000 (km)
    Apogee Altitude = 260.000 (km)
    Inclination = 51.600 (deg)
    RAAN = 0.000 (deg)
    Argument of Perigee = 0.000 (deg)
    Mean Anomaly = 0.000 (deg)
    Final Area-To-Mass Ratio = 0.0078 (m^2/kg)
    Start Year = 2021.000 (yr)
    Initial Mass = 1.944 (kg)
    Final Mass = 1.944 (kg)
    Duration = 1.000 (yr)
    Station-Kept = False
    Abandoned = True
**OUTPUT**
    Collision Probability = 1.5559E-11
    Returned Message: Normal Processing
    Date Range Message: Normal Date Range
    Status = Pass
=====
===== End of Requirement 4.5-1 =====

```



## 2D

10 26 2020; 05:10:32AM Processing Requirement 4.6 Return Status :  
Passed

=====

Project Data

=====

\*\*INPUT\*\*

Space Structure Name = THINSAT2D  
Space Structure Type = Payload  
Perigee Altitude = 180.000000 (km)  
Apogee Altitude = 260.000000 (km)  
Inclination = 51.600000 (deg)  
RAAN = 0.000000 (deg)  
Argument of Perigee = 0.000000 (deg)  
Mean Anomaly = 0.000000 (deg)  
Area-To-Mass Ratio = 0.008300 (m<sup>2</sup>/kg)  
Start Year = 2021.000000 (yr)  
Initial Mass = 2.591000 (kg)  
Final Mass = 2.591000 (kg)  
Duration = 1.000000 (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\*\*

Suggested Perigee Altitude = 180.000000 (km)  
Suggested Apogee Altitude = 260.000000 (km)  
Returned Error Message = Reentry during mission (no PMD req.).  
Released Year = 2021 (yr)  
Requirement = 61  
Compliance Status = Pass

=====

===== End of Requirement 4.6 =====

10 26 2020; 05:10:32AM \*\*\*\*\*Processing Requirement 4.7-1

Return Status : Passed

\*\*\*\*\*INPUT\*\*\*\*

Item Number = 1  
name = THINSAT2D  
quantity = 1  
parent = 0  
materialID = 9  
type = Box  
Aero Mass = 2.591000  
Thermal Mass = 2.591000  
Diameter/Width = 0.114200  
Length = 1.084500  
Height = 0.030000  
name = External Structure 2M  
quantity = 1

parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.116000  
Thermal Mass = 0.116000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Tabs 2M  
quantity = 2  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.006000  
Thermal Mass = 0.006000  
Diameter/Width = 0.013000  
Length = 0.051000  
Height = 0.006000  
name = Top Solar PCB 2M  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = RX Antenna 2M  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.002000  
Thermal Mass = 0.002000  
Diameter/Width = 0.020000  
Length = 0.030000  
name = Sep Switches 2M  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 2M  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800

Length = 0.118000  
name = Batteries 2M  
quantity = 6  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 2M  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ADCS PCB 2M  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.052000  
Length = 0.108000  
name = RX PCB 2M  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.019000  
Thermal Mass = 0.019000  
Diameter/Width = 0.053000  
Length = 0.071000  
name = Torquer Coils 2M  
quantity = 3  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.011000  
Thermal Mass = 0.011000  
Diameter/Width = 0.009000  
Length = 0.020000  
name = Reaction Wheel 2M  
quantity = 1  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.022000  
Thermal Mass = 0.022000

Diameter/Width = 0.014000  
Length = 0.020000  
name = IR Sensor 2M  
quantity = 1  
parent = 1  
materialID = 23  
type = Cylinder  
Aero Mass = 0.002000  
Thermal Mass = 0.002000  
Diameter/Width = 0.009000  
Length = 0.017000  
name = Fasteners / Spacers 2M  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 2M  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 2M  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = External Structure 1X  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1X  
quantity = 1  
parent = 1

materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1X  
quantity = 1  
parent = 1  
materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1X  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1X  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1X  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1X

quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1X  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1X  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = CC03 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SW10 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SI01 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000

Diameter/Width = 0.032000  
Length = 0.032000  
name = MN02 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.007000  
Thermal Mass = 0.007000  
Diameter/Width = 0.020000  
Length = 0.108000  
name = SL19 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.004000  
Thermal Mass = 0.004000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = SL01 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.003000  
Thermal Mass = 0.003000  
Diameter/Width = 0.032000  
Length = 0.032000  
name = MN01 1X  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.007000  
Thermal Mass = 0.007000  
Diameter/Width = 0.020000  
Length = 0.108000  
name = XC10 Connector 1X  
quantity = 9  
parent = 1  
materialID = 23  
type = Box  
Aero Mass = 0.001000  
Thermal Mass = 0.001000  
Diameter/Width = 0.010000  
Length = 0.010000  
Height = 0.007000  
name = External Structure 1T  
quantity = 5  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000

Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1T  
quantity = 5  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1T  
quantity = 5  
parent = 1  
materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1T  
quantity = 10  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1T  
quantity = 5  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1T  
quantity = 10  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1T  
quantity = 5  
parent = 1



materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1T  
quantity = 20  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1T  
quantity = 5  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1T  
quantity = 5  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = TSLPB 1T  
quantity = 5  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.021900  
Thermal Mass = 0.021900  
Diameter/Width = 0.051200  
Length = 0.107450  
name = Secondary Board 1T  
quantity = 5  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.014900  
Thermal Mass = 0.014900  
Diameter/Width = 0.051200  
Length = 0.074160

name = External Structure 1D3  
quantity = 1  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB 1D3  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell 1D3  
quantity = 1  
parent = 1  
materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches 1D3  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 1D3  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries 1D3  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000

Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 1D3  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers 1D3  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 1D3  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 1D3  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = Breadboard Bracket #1 1D3  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.000800  
Thermal Mass = 0.000800  
Diameter/Width = 0.018000  
Length = 0.019000  
name = Breadboard Bracket #2 1D3  
quantity = 1  
parent = 1

materialID = 23  
type = Flat Plate  
Aero Mass = 0.000600  
Thermal Mass = 0.000600  
Diameter/Width = 0.015000  
Length = 0.019000  
name = Breadboard Screws 1D3  
quantity = 8  
parent = 1  
materialID = 46  
type = Cylinder  
Aero Mass = 0.000040  
Thermal Mass = 0.000040  
Diameter/Width = 0.001000  
Length = 0.006000  
name = All other payload screws 1D3  
quantity = 19  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000030  
Thermal Mass = 0.000030  
Diameter/Width = 0.001000  
Length = 0.005000  
name = Nuts 1D3  
quantity = 19  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000020  
Thermal Mass = 0.000020  
Diameter/Width = 0.002000  
Length = 0.001000  
name = TSLPB 1D3  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.021900  
Thermal Mass = 0.021900  
Diameter/Width = 0.051200  
Length = 0.107450  
name = TSLXB (partially cut) 1D3  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.012900  
Thermal Mass = 0.012900  
Diameter/Width = 0.051200  
Length = 0.074160  
name = CNC-milled PCB 1D3  
quantity = 1  
parent = 1

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materialID = 23
type = Flat Plate
Aero Mass = 0.001700
Thermal Mass = 0.001700
Diameter/Width = 0.013000
Length = 0.071000
name = Voltera PCB 1D3
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.002000
Thermal Mass = 0.002000
Diameter/Width = 0.013000
Length = 0.071000
name = Breadboard 1D3
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.001700
Thermal Mass = 0.001700
Diameter/Width = 0.015000
Length = 0.060000
name = Breadboard Spring 1D3
quantity = 6
parent = 1
materialID = 54
type = Flat Plate
Aero Mass = 0.000017
Thermal Mass = 0.000017
Diameter/Width = 0.003000
Length = 0.016000
name = Wiring 1D3
quantity = 1
parent = 1
materialID = 19
type = Cylinder
Aero Mass = 0.003000
Thermal Mass = 0.003000
Diameter/Width = 0.002500
Length = 0.100000
*****OUTPUT****
Item Number = 1
name = THINSAT2D
Demise Altitude = 77.991058
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 2M
Demise Altitude = 73.856339
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****

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name = Tabs 2M  
Demise Altitude = 76.360886  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Top Solar PCB 2M  
Demise Altitude = 76.721344  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = RX Antenna 2M  
Demise Altitude = 77.309517  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Sep Switches 2M  
Demise Altitude = 0.000000  
Debris Casualty Area = 0.737095  
Impact Kinetic Energy = 0.016994  
\*\*\*\*\*  
name = Solar Fold Out 2M  
Demise Altitude = 0.000000  
Debris Casualty Area = 0.458903  
Impact Kinetic Energy = 0.612338  
\*\*\*\*\*  
name = Batteries 2M  
Demise Altitude = 74.277527  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Main PCB 2M  
Demise Altitude = 76.112801  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = ADCS PCB 2M  
Demise Altitude = 77.466316  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = RX PCB 2M  
Demise Altitude = 76.587128  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Torquer Coils 2M  
Demise Altitude = 72.854309  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Reaction Wheel 2M  
Demise Altitude = 71.229630  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000

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*****
name = IR Sensor 2M
Demise Altitude = 76.634193
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 2M
Demise Altitude = 68.019104
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Cabling 2M
Demise Altitude = 76.458961
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 2M
Demise Altitude = 67.760231
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1X
Demise Altitude = 75.979614
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1X
Demise Altitude = 76.721344
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1X
Demise Altitude = 77.323723
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sep Switches 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016994
*****
name = Solar Fold Out 1X
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612338
*****
name = Batteries 1X
Demise Altitude = 74.277527
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1X
Demise Altitude = 76.112801
Debris Casualty Area = 0.000000

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Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1X
Demise Altitude = 68.019104
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Cabling 1X
Demise Altitude = 76.458961
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1X
Demise Altitude = 67.760231
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = CC03 1X
Demise Altitude = 77.302063
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SW10 1X
Demise Altitude = 77.302063
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SI01 1X
Demise Altitude = 77.302063
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = MN02 1X
Demise Altitude = 77.156647
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SL19 1X
Demise Altitude = 77.078972
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SL01 1X
Demise Altitude = 77.302063
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = MN01 1X
Demise Altitude = 77.156647
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = XC10 Connector 1X
Demise Altitude = 77.046700

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Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1T
Demise Altitude = 75.979614
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1T
Demise Altitude = 76.721344
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1T
Demise Altitude = 77.323723
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sep Switches 1T
Demise Altitude = 0.000000
Debris Casualty Area = 3.685473
Impact Kinetic Energy = 0.016994
*****
name = Solar Fold Out 1T
Demise Altitude = 0.000000
Debris Casualty Area = 2.294513
Impact Kinetic Energy = 0.612338
*****
name = Batteries 1T
Demise Altitude = 74.277527
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1T
Demise Altitude = 76.112801
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1T
Demise Altitude = 68.019104
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Cabling 1T
Demise Altitude = 76.458961
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 1T
Demise Altitude = 67.760231
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = TSLPB 1T

```

```

Demise Altitude = 76.843163
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Secondary Board 1T
Demise Altitude = 76.910309
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1D3
Demise Altitude = 75.979614
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB 1D3
Demise Altitude = 76.721344
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell 1D3
Demise Altitude = 77.323723
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sep Switches 1D3
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016994
*****
name = Solar Fold Out 1D3
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612338
*****
name = Batteries 1D3
Demise Altitude = 74.277527
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB 1D3
Demise Altitude = 76.112801
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 1D3
Demise Altitude = 68.019104
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Cabling 1D3
Demise Altitude = 76.458961
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****

```

name = Damping 1D3  
Demise Altitude = 67.760231  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Breadboard Bracket #1 1D3  
Demise Altitude = 77.527130  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Breadboard Bracket #2 1D3  
Demise Altitude = 77.591118  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Breadboard Screws 1D3  
Demise Altitude = 76.514046  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = All other payload screws 1D3  
Demise Altitude = 76.752892  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Nuts 1D3  
Demise Altitude = 77.218880  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = TSLPB 1D3  
Demise Altitude = 76.843163  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = TSLXB (partially cut) 1D3  
Demise Altitude = 77.053452  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = CNC-milled PCB 1D3  
Demise Altitude = 77.581902  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Voltera PCB 1D3  
Demise Altitude = 77.509300  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Breadboard 1D3  
Demise Altitude = 77.582573  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000

```

*****
name = Breadboard Spring 1D3
Demise Altitude = 0.000000
Debris Casualty Area = 2.210171
Impact Kinetic Energy = 0.000095
*****
name = Wiring 1D3
Demise Altitude = 77.015366
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
===== End of Requirement 4.7-1 =====
10 26 2020; 05:10:32AM Project Data Saved To File
10 26 2020; 05:11:20AM Processing Requirement 4.5-1:      Return Status :
Passed
=====
Run Data
=====
**INPUT**
    Space Structure Name = THINSAT2D
    Space Structure Type = Payload
    Perigee Altitude = 180.000 (km)
    Apogee Altitude = 260.000 (km)
    Inclination = 51.600 (deg)
    RAAN = 0.000 (deg)
    Argument of Perigee = 0.000 (deg)
    Mean Anomaly = 0.000 (deg)
    Final Area-To-Mass Ratio = 0.0083 (m^2/kg)
    Start Year = 2021.000 (yr)
    Initial Mass = 2.591 (kg)
    Final Mass = 2.591 (kg)
    Duration = 1.000 (yr)
    Station-Kept = False
    Abandoned = True
**OUTPUT**
    Collision Probability = 2.2067E-11
    Returned Message: Normal Processing
    Date Range Message: Normal Date Range
    Status = Pass
=====
===== End of Requirement 4.5-1 =====

```

**2E**

10 26 2020; 14:23:44PM Processing Requirement 4.6 Return Status :  
Passed

=====

Project Data

=====

\*\*INPUT\*\*

Space Structure Name = THINSAT2E  
Space Structure Type = Payload  
Perigee Altitude = 180.000000 (km)  
Apogee Altitude = 260.000000 (km)  
Inclination = 51.600000 (deg)  
RAAN = 0.000000 (deg)  
Argument of Perigee = 0.000000 (deg)  
Mean Anomaly = 0.000000 (deg)  
Area-To-Mass Ratio = 0.009700 (m<sup>2</sup>/kg)  
Start Year = 2021.000000 (yr)  
Initial Mass = 1.477000 (kg)  
Final Mass = 1.477000 (kg)  
Duration = 1.000000 (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\*\*

Suggested Perigee Altitude = 180.000000 (km)  
Suggested Apogee Altitude = 260.000000 (km)  
Returned Error Message = Reentry during mission (no PMD req.).  
Released Year = 2021 (yr)  
Requirement = 61  
Compliance Status = Pass

=====

===== End of Requirement 4.6 =====

10 26 2020; 14:23:44PM \*\*\*\*\*Processing Requirement 4.7-1

Return Status : Passed

\*\*\*\*\*INPUT\*\*\*\*

Item Number = 1  
name = THINSAT2E  
quantity = 1  
parent = 0  
materialID = 9  
type = Box  
Aero Mass = 1.477000  
Thermal Mass = 1.477000  
Diameter/Width = 0.114200  
Length = 0.144100  
Height = 0.103400  
name = Chassis - Side A  
quantity = 1

parent = 1  
materialID = 9  
type = Flat Plate  
Aero Mass = 0.104220  
Thermal Mass = 0.104220  
Diameter/Width = 0.099200  
Length = 0.111100  
name = Chassis - Side B  
quantity = 1  
parent = 1  
materialID = 9  
type = Flat Plate  
Aero Mass = 0.093180  
Thermal Mass = 0.093180  
Diameter/Width = 0.093440  
Length = 0.099200  
name = Chassis - Side C  
quantity = 1  
parent = 1  
materialID = 9  
type = Flat Plate  
Aero Mass = 0.063870  
Thermal Mass = 0.063870  
Diameter/Width = 0.093440  
Length = 0.099200  
name = Chassis - Side D  
quantity = 1  
parent = 1  
materialID = 9  
type = Flat Plate  
Aero Mass = 0.149880  
Thermal Mass = 0.149880  
Diameter/Width = 0.099200  
Length = 0.113240  
name = Chassis screws (m3.0)  
quantity = 14  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000500  
Thermal Mass = 0.000500  
Diameter/Width = 0.006720  
Length = 0.008000  
name = Chassis nut (m3.0)  
quantity = 8  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000380  
Thermal Mass = 0.000380  
Diameter/Width = 0.003500  
Length = 0.006500  
name = Chassis screws (m2.5)  
quantity = 6

parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000360  
Thermal Mass = 0.000360  
Diameter/Width = 0.004750  
Length = 0.009380  
name = PCB screws (m2.0)  
quantity = 4  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000290  
Thermal Mass = 0.000290  
Diameter/Width = 0.003500  
Length = 0.013300  
name = PCB  
quantity = 1  
parent = 1  
materialID = 23  
type = Box  
Aero Mass = 0.100000  
Thermal Mass = 0.100000  
Diameter/Width = 0.075000  
Length = 0.140000  
Height = 0.005000  
name = BreakOutBoard  
quantity = 1  
parent = 1  
materialID = 23  
type = Box  
Aero Mass = 0.020000  
Thermal Mass = 0.020000  
Diameter/Width = 0.035000  
Length = 0.050000  
Height = 0.006000  
name = DF13 DS-20 Cable Tip  
quantity = 2  
parent = 1  
materialID = 23  
type = Box  
Aero Mass = 0.000160  
Thermal Mass = 0.000160  
Diameter/Width = 0.002500  
Length = 0.015000  
Height = 0.002500  
name = DF13 Cable  
quantity = 1  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.004000

Length = 0.100000  
name = Dual Cell Li-Po Battery  
quantity = 5  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.034650  
Length = 0.044000  
Height = 0.009550  
name = Camera - Mount  
quantity = 1  
parent = 1  
materialID = 76  
type = Box  
Aero Mass = 0.016390  
Thermal Mass = 0.016390  
Diameter/Width = 0.040750  
Length = 0.071900  
Height = 0.024690  
name = Camera - MountScrews (m2.5)  
quantity = 2  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000360  
Thermal Mass = 0.000360  
Diameter/Width = 0.004750  
Length = 0.009380  
name = Camera - Lens  
quantity = 1  
parent = 1  
materialID = 23  
type = Cylinder  
Aero Mass = 0.008000  
Thermal Mass = 0.008000  
Diameter/Width = 0.017000  
Length = 0.020000  
name = Camera - Cable  
quantity = 8  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.002000  
Length = 0.200000  
name = Camera - Board  
quantity = 1  
parent = 1  
materialID = 23  
type = Box  
Aero Mass = 0.012000



Thermal Mass = 0.012000  
Diameter/Width = 0.040000  
Length = 0.060000  
Height = 0.003000  
name = Camera - Board Screws (m2.5)  
quantity = 2  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000360  
Thermal Mass = 0.000360  
Diameter/Width = 0.004750  
Length = 0.009380  
name = SideWall  
quantity = 2  
parent = 1  
materialID = 8  
type = Flat Plate  
Aero Mass = 0.019500  
Thermal Mass = 0.019500  
Diameter/Width = 0.082000  
Length = 0.104000  
name = Shaft  
quantity = 1  
parent = 1  
materialID = 8  
type = Cylinder  
Aero Mass = 0.028930  
Thermal Mass = 0.028930  
Diameter/Width = 0.015000  
Length = 0.082000  
name = Top Connector  
quantity = 2  
parent = 1  
materialID = 50  
type = Flat Plate  
Aero Mass = 0.014240  
Thermal Mass = 0.014240  
Diameter/Width = 0.050000  
Length = 0.057900  
name = SidePlate  
quantity = 2  
parent = 1  
materialID = 50  
type = Flat Plate  
Aero Mass = 0.048120  
Thermal Mass = 0.048120  
Diameter/Width = 0.082000  
Length = 0.104000  
name = Battery Adapter - Side A  
quantity = 1  
parent = 1  
materialID = 76  
type = Flat Plate

Aero Mass = 0.016780  
Thermal Mass = 0.016780  
Diameter/Width = 0.070690  
Length = 0.101990  
name = Battery Adapter - Side A Lid  
quantity = 1  
parent = 1  
materialID = 76  
type = Flat Plate  
Aero Mass = 0.008580  
Thermal Mass = 0.008580  
Diameter/Width = 0.070690  
Length = 0.101990  
name = Battery Adapter - Side A Lid Screws (m.25)  
quantity = 7  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000360  
Thermal Mass = 0.000360  
Diameter/Width = 0.004750  
Length = 0.009380  
name = Battery Adapter - Side B  
quantity = 1  
parent = 1  
materialID = 76  
type = Flat Plate  
Aero Mass = 0.012890  
Thermal Mass = 0.012890  
Diameter/Width = 0.055000  
Length = 0.092900  
name = Battery Adapter - Side B Lid  
quantity = 1  
parent = 1  
materialID = 76  
type = Flat Plate  
Aero Mass = 0.008280  
Thermal Mass = 0.008280  
Diameter/Width = 0.055000  
Length = 0.082900  
name = Battery Adapter - Side B Lid Screws (m.25)  
quantity = 5  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000360  
Thermal Mass = 0.000360  
Diameter/Width = 0.004750  
Length = 0.009380  
name = SidePlateScrews (m2.5)  
quantity = 2  
parent = 1  
materialID = 54  
type = Cylinder

Aero Mass = 0.000360  
Thermal Mass = 0.000360  
Diameter/Width = 0.004750  
Length = 0.009380  
name = Roller A  
quantity = 3  
parent = 1  
materialID = 77  
type = Cylinder  
Aero Mass = 0.006080  
Thermal Mass = 0.006080  
Diameter/Width = 0.012800  
Length = 0.072000  
name = Roller B1  
quantity = 1  
parent = 1  
materialID = 77  
type = Cylinder  
Aero Mass = 0.004750  
Thermal Mass = 0.004750  
Diameter/Width = 0.010000  
Length = 0.072000  
name = Roller B2  
quantity = 1  
parent = 1  
materialID = 77  
type = Cylinder  
Aero Mass = 0.007600  
Thermal Mass = 0.007600  
Diameter/Width = 0.016000  
Length = 0.072000  
name = Spool  
quantity = 1  
parent = 1  
materialID = 77  
type = Cylinder  
Aero Mass = 0.083910  
Thermal Mass = 0.083910  
Diameter/Width = 0.054000  
Length = 0.054000  
name = Bearings  
quantity = 12  
parent = 1  
materialID = 76  
type = Cylinder  
Aero Mass = 0.002590  
Thermal Mass = 0.002590  
Diameter/Width = 0.015000  
Length = 0.025000  
name = Encoder  
quantity = 1  
parent = 1  
materialID = 76  
type = Cylinder

Aero Mass = 0.002170  
Thermal Mass = 0.002170  
Diameter/Width = 0.011330  
Length = 0.021310  
name = DF13 DS-20 Cable Tip 2  
quantity = 1  
parent = 1  
materialID = 76  
type = Box  
Aero Mass = 0.000040  
Thermal Mass = 0.000040  
Diameter/Width = 0.002500  
Length = 0.015000  
Height = 0.002500  
name = Encoder - Cable  
quantity = 4  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.003000  
Length = 0.100000  
name = DuPont 2.54mm Pitch Connector  
quantity = 4  
parent = 1  
materialID = 76  
type = Box  
Aero Mass = 0.000040  
Thermal Mass = 0.000040  
Diameter/Width = 0.006000  
Length = 0.006000  
Height = 0.001500  
name = Encoder - Screw  
quantity = 2  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000150  
Thermal Mass = 0.000150  
Diameter/Width = 0.004000  
Length = 0.004750  
name = Servo  
quantity = 1  
parent = 1  
materialID = 8  
type = Box  
Aero Mass = 0.045360  
Thermal Mass = 0.045360  
Diameter/Width = 0.025000  
Length = 0.035000  
Height = 0.020000  
name = Servo Shaft  
quantity = 1

parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.007120  
Thermal Mass = 0.007120  
Diameter/Width = 0.006000  
Length = 0.032000  
name = Servo Screw F1  
quantity = 1  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000180  
Thermal Mass = 0.000180  
Diameter/Width = 0.002500  
Length = 0.004750  
name = Servo Arm  
quantity = 1  
parent = 1  
materialID = 8  
type = Box  
Aero Mass = 0.000440  
Thermal Mass = 0.000440  
Diameter/Width = 0.006950  
Length = 0.013320  
Height = 0.004300  
name = Servo Cable  
quantity = 3  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.003000  
Length = 0.080000  
name = Servo Holder  
quantity = 1  
parent = 1  
materialID = 76  
type = Box  
Aero Mass = 0.001110  
Thermal Mass = 0.001110  
Diameter/Width = 0.008850  
Length = 0.040240  
Height = 0.003900  
name = Servo Holder Screws F2 (m2.5)  
quantity = 2  
parent = 1  
materialID = 54  
type = Cylinder  
Aero Mass = 0.000360  
Thermal Mass = 0.000360  
Diameter/Width = 0.004750  
Length = 0.009380

name = Tape Spring  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.033120  
Thermal Mass = 0.033120  
Diameter/Width = 0.390000  
Length = 0.800000  
name = Top Solar PCB  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell  
quantity = 1  
parent = 1  
materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.332000  
name = Batteries  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000

```

Length = 0.050000
Height = 0.008000
name = Main PCB
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.060000
Thermal Mass = 0.060000
Diameter/Width = 0.111000
Length = 0.114000
name = Fasteners / Spacers
quantity = 4
parent = 1
materialID = 54
type = Box
Aero Mass = 0.002250
Thermal Mass = 0.002250
Diameter/Width = 0.007000
Length = 0.010000
Height = 0.007000
name = Cabling
quantity = 1
parent = 1
materialID = 19
type = Box
Aero Mass = 0.005000
Thermal Mass = 0.005000
Diameter/Width = 0.010000
Length = 0.070000
Height = 0.001000
name = Damping
quantity = 1
parent = 1
materialID = 46
type = Box
Aero Mass = 0.010000
Thermal Mass = 0.010000
Diameter/Width = 0.010000
Length = 0.035000
Height = 0.005000
*****OUTPUT****
Item Number = 1
name = THINSAT2E
Demise Altitude = 77.995804
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Chassis - Side A
Demise Altitude = 75.284004
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Chassis - Side B

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Demise Altitude = 75.203697
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Chassis - Side C
Demise Altitude = 76.064804
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Chassis - Side D
Demise Altitude = 74.225128
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Chassis screws (m3.0)
Demise Altitude = 76.957863
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Chassis nut (m3.0)
Demise Altitude = 76.497223
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Chassis screws (m2.5)
Demise Altitude = 77.096413
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = PCB screws (m2.0)
Demise Altitude = 77.253853
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = PCB
Demise Altitude = 76.291695
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = BreakOutBoard
Demise Altitude = 76.670433
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = DF13 DS-20 Cable Tip
Demise Altitude = 77.807114
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = DF13 Cable
Demise Altitude = 77.341705
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****

```



```

name = Dual Cell Li-Po Battery
Demise Altitude = 75.164665
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Camera - Mount
Demise Altitude = 77.863518
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Camera - MountScrews (m2.5)
Demise Altitude = 77.096413
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Camera - Lens
Demise Altitude = 76.355637
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Camera - Cable
Demise Altitude = 77.415916
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Camera - Board
Demise Altitude = 77.315422
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Camera - Board Screws (m2.5)
Demise Altitude = 77.096413
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SideWall
Demise Altitude = 77.335800
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Shaft
Demise Altitude = 75.683304
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Connector
Demise Altitude = 77.640793
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SidePlate
Demise Altitude = 77.504608
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

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*****
name = Battery Adapter - Side A
Demise Altitude = 77.880386
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Battery Adapter - Side A Lid
Demise Altitude = 77.938171
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Battery Adapter - Side A Lid Screws (m.25)
Demise Altitude = 77.096413
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Battery Adapter - Side B
Demise Altitude = 77.880341
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Battery Adapter - Side B Lid
Demise Altitude = 77.913406
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Battery Adapter - Side B Lid Screws (m.25)
Demise Altitude = 77.096413
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = SidePlateScrews (m2.5)
Demise Altitude = 77.096413
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Roller A
Demise Altitude = 77.814148
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Roller B1
Demise Altitude = 77.830650
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Roller B2
Demise Altitude = 77.805862
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Spool
Demise Altitude = 76.992340
Debris Casualty Area = 0.000000

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Impact Kinetic Energy = 0.000000
*****
name = Bearings
Demise Altitude = 77.855377
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Encoder
Demise Altitude = 77.822166
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = DF13 DS-20 Cable Tip 2
Demise Altitude = 77.987526
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Encoder - Cable
Demise Altitude = 77.179657
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = DuPont 2.54mm Pitch Connector
Demise Altitude = 77.979156
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Encoder - Screw
Demise Altitude = 77.340492
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Servo
Demise Altitude = 73.572090
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Servo Shaft
Demise Altitude = 73.368507
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Servo Screw F1
Demise Altitude = 76.752975
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Servo Arm
Demise Altitude = 77.606148
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Servo Cable
Demise Altitude = 76.990959

```

```

Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Servo Holder
Demise Altitude = 77.929756
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Servo Holder Screws F2 (m2.5)
Demise Altitude = 77.096413
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Tape Spring
Demise Altitude = 77.961639
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB
Demise Altitude = 77.271339
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell
Demise Altitude = 77.714531
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Sep Switches
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016994
*****
name = Solar Fold Out
Demise Altitude = 0.000000
Debris Casualty Area = 0.532707
Impact Kinetic Energy = 0.217594
*****
name = Batteries
Demise Altitude = 75.758980
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB
Demise Altitude = 76.916794
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers
Demise Altitude = 73.225967
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Cabling

```

```

Demise Altitude = 77.140755
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping
Demise Altitude = 72.331490
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
===== End of Requirement 4.7-1 =====
10 26 2020; 14:23:44PM Project Data Saved To File
10 26 2020; 14:24:37PM Processing Requirement 4.5-1:      Return Status :
Passed
=====
Run Data
=====
**INPUT**
    Space Structure Name = THINSAT2E
    Space Structure Type = Payload
    Perigee Altitude = 180.000 (km)
    Apogee Altitude = 260.000 (km)
    Inclination = 51.600 (deg)
    RAAN = 0.000 (deg)
    Argument of Perigee = 0.000 (deg)
    Mean Anomaly = 0.000 (deg)
    Final Area-To-Mass Ratio = 0.0097 (m^2/kg)
    Start Year = 2021.000 (yr)
    Initial Mass = 1.477 (kg)
    Final Mass = 1.477 (kg)
    Duration = 1.000 (yr)
    Station-Kept = False
    Abandoned = True
**OUTPUT**
    Collision Probability = 1.4701E-11
    Returned Message: Normal Processing
    Date Range Message: Normal Date Range
    Status = Pass
=====
===== End of Requirement 4.5-1 =====

```

**2F**

10 26 2020; 05:51:39AM Processing Requirement 4.6 Return Status :  
Passed

=====

Project Data

=====

\*\*INPUT\*\*

Space Structure Name = THINSAT2F  
Space Structure Type = Payload  
Perigee Altitude = 180.000000 (km)  
Apogee Altitude = 260.000000 (km)  
Inclination = 51.600000 (deg)  
RAAN = 0.000000 (deg)  
Argument of Perigee = 0.000000 (deg)  
Mean Anomaly = 0.000000 (deg)  
Area-To-Mass Ratio = 0.013900 (m<sup>2</sup>/kg)  
Start Year = 2021.000000 (yr)  
Initial Mass = 0.852000 (kg)  
Final Mass = 0.852000 (kg)  
Duration = 1.000000 (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\*\*

Suggested Perigee Altitude = 180.000000 (km)  
Suggested Apogee Altitude = 260.000000 (km)  
Returned Error Message = Reentry during mission (no PMD req.).  
Released Year = 2021 (yr)  
Requirement = 61  
Compliance Status = Pass

=====

===== End of Requirement 4.6 =====

10 26 2020; 05:51:39AM \*\*\*\*\*Processing Requirement 4.7-1

Return Status : Passed

\*\*\*\*\*INPUT\*\*\*\*

Item Number = 1  
name = THINSAT2F  
quantity = 1  
parent = 0  
materialID = 9  
type = Box  
Aero Mass = 0.852000  
Thermal Mass = 0.852000  
Diameter/Width = 0.114200  
Length = 0.412100  
Height = 0.030000  
name = External Structure 2F1  
quantity = 1

parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.116000  
Thermal Mass = 0.116000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Tabs 2F1  
quantity = 2  
parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.006000  
Thermal Mass = 0.006000  
Diameter/Width = 0.013000  
Length = 0.051000  
Height = 0.006000  
name = Top Solar PCB 2F1  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = RX Antenna 2F1  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.002000  
Thermal Mass = 0.002000  
Diameter/Width = 0.020000  
Length = 0.030000  
name = Sep Switches 2F1  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out 2F1  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800

Length = 0.118000  
name = Batteries 2F1  
quantity = 6  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCB 2F1  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ADCS PCB 2F1  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.052000  
Length = 0.108000  
name = RX PCB 2F1  
quantity = 2  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.019000  
Thermal Mass = 0.019000  
Diameter/Width = 0.053000  
Length = 0.071000  
name = Torquer Coils 2F1  
quantity = 3  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.011000  
Thermal Mass = 0.011000  
Diameter/Width = 0.020000  
Length = 0.009000  
name = Reaction Wheel 2F1  
quantity = 1  
parent = 1  
materialID = 19  
type = Cylinder  
Aero Mass = 0.022000  
Thermal Mass = 0.022000



Diameter/Width = 0.020000  
Length = 0.014000  
name = IR Sensor 2F1  
quantity = 1  
parent = 1  
materialID = 23  
type = Cylinder  
Aero Mass = 0.002000  
Thermal Mass = 0.002000  
Diameter/Width = 0.009000  
Length = 0.017000  
name = Fasteners / Spacers 2F1  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling 2F1  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping 2F1  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = NSL-SB 2F1  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.026000  
Thermal Mass = 0.026000  
Diameter/Width = 0.051000  
Length = 0.107000  
name = External Structure 1F2  
quantity = 1  
parent = 1  
materialID = 9

type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCBe 1F2  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Celle 1F2  
quantity = 1  
parent = 1  
materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switchese 1F2  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Oute 1F2  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteriese 1F2  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000  
Height = 0.008000  
name = Main PCBe 1F2

```

quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.060000
Thermal Mass = 0.060000
Diameter/Width = 0.111000
Length = 0.114000
name = Fasteners / Spacerse 1F2
quantity = 4
parent = 1
materialID = 54
type = Box
Aero Mass = 0.002250
Thermal Mass = 0.002250
Diameter/Width = 0.007000
Length = 0.010000
Height = 0.007000
name = Cablinge 1F2
quantity = 1
parent = 1
materialID = 19
type = Box
Aero Mass = 0.005000
Thermal Mass = 0.005000
Diameter/Width = 0.010000
Length = 0.070000
Height = 0.001000
name = Dampinge 1F2
quantity = 1
parent = 1
materialID = 46
type = Box
Aero Mass = 0.010000
Thermal Mass = 0.010000
Diameter/Width = 0.010000
Length = 0.035000
Height = 0.005000
name = NSL-SBe 1F2
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.026000
Thermal Mass = 0.026000
Diameter/Width = 0.051000
Length = 0.107000
*****OUTPUT****
Item Number = 1
name = THINSAT2F
Demise Altitude = 77.992195
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****

```

name = External Structure 2F1  
Demise Altitude = 73.297333  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Tabs 2F1  
Demise Altitude = 76.174889  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Top Solar PCB 2F1  
Demise Altitude = 76.532730  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = RX Antenna 2F1  
Demise Altitude = 77.220436  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Sep Switches 2F1  
Demise Altitude = 0.000000  
Debris Casualty Area = 0.737095  
Impact Kinetic Energy = 0.016995  
\*\*\*\*\*  
name = Solar Fold Out 2F1  
Demise Altitude = 0.000000  
Debris Casualty Area = 0.458903  
Impact Kinetic Energy = 0.612341  
\*\*\*\*\*  
name = Batteries 2F1  
Demise Altitude = 73.825371  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Main PCB 2F1  
Demise Altitude = 75.848381  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = ADCS PCB 2F1  
Demise Altitude = 77.398155  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = RX PCB 2F1  
Demise Altitude = 76.402946  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000  
\*\*\*\*\*  
name = Torquer Coils 2F1  
Demise Altitude = 73.427597  
Debris Casualty Area = 0.000000  
Impact Kinetic Energy = 0.000000

```

*****
name = Reaction Wheel 2F1
Demise Altitude = 71.108200
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = IR Sensor 2F1
Demise Altitude = 76.474518
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers 2F1
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711736
*****
name = Cabling 2F1
Demise Altitude = 76.210526
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping 2F1
Demise Altitude = 65.582031
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = NSL-SB 2F1
Demise Altitude = 76.446625
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = External Structure 1F2
Demise Altitude = 75.701828
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCBe 1F2
Demise Altitude = 76.532730
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Celle 1F2
Demise Altitude = 0.000000
Debris Casualty Area = 0.462400
Impact Kinetic Energy = 0.063711
*****
name = Sep Switchese 1F2
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016995
*****
name = Solar Fold Oute 1F2
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903

```

```

Impact Kinetic Energy = 0.612341
*****
name = Batteriese 1F2
Demise Altitude = 73.825371
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCBe 1F2
Demise Altitude = 75.848381
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacerse 1F2
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711736
*****
name = Cablinge 1F2
Demise Altitude = 76.210526
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Dampinge 1F2
Demise Altitude = 65.582031
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = NSL-SBe 1F2
Demise Altitude = 76.446625
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
===== End of Requirement 4.7-1 =====
10 26 2020; 05:51:39AM Project Data Saved To File
10 26 2020; 05:52:22AM Processing Requirement 4.5-1:      Return Status :
Passed
=====
Run Data
=====
**INPUT**
    Space Structure Name = THINSAT2F
    Space Structure Type = Payload
    Perigee Altitude = 180.000 (km)
    Apogee Altitude = 260.000 (km)
    Inclination = 51.600 (deg)
    RAAN = 0.000 (deg)
    Argument of Perigee = 0.000 (deg)
    Mean Anomaly = 0.000 (deg)
    Final Area-To-Mass Ratio = 0.0139 (m^2/kg)
    Start Year = 2021.000 (yr)
    Initial Mass = 0.852 (kg)
    Final Mass = 0.852 (kg)
    Duration = 1.000 (yr)
    Station-Kept = False

```

```
Abandoned = True
**OUTPUT**
Collision Probability = 9.1143E-12
Returned Message: Normal Processing
Date Range Message: Normal Date Range
Status = Pass
=====
===== End of Requirement 4.5-1 =====
```

## 2G 2H 2I (Identical Satellites)

10 26 2020; 05:59:33AM Processing Requirement 4.6 Return Status :  
Passed

=====

Project Data

=====

\*\*INPUT\*\*

Space Structure Name = THINSAT2G  
Space Structure Type = Payload  
Perigee Altitude = 180.000000 (km)  
Apogee Altitude = 260.000000 (km)  
Inclination = 51.600000 (deg)  
RAAN = 0.000000 (deg)  
Argument of Perigee = 0.000000 (deg)  
Mean Anomaly = 0.000000 (deg)  
Area-To-Mass Ratio = 0.028200 (m<sup>2</sup>/kg)  
Start Year = 2021.000000 (yr)  
Initial Mass = 0.280000 (kg)  
Final Mass = 0.280000 (kg)  
Duration = 1.000000 (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\*\*

Suggested Perigee Altitude = 180.000000 (km)  
Suggested Apogee Altitude = 260.000000 (km)  
Returned Error Message = Reentry during mission (no PMD req.).  
Released Year = 2021 (yr)  
Requirement = 61  
Compliance Status = Pass

=====

===== End of Requirement 4.6 =====

10 26 2020; 05:59:33AM \*\*\*\*\*Processing Requirement 4.7-1

Return Status : Passed

\*\*\*\*\*INPUT\*\*\*\*

Item Number = 1  
name = THINSAT2G  
quantity = 1  
parent = 0  
materialID = 9  
type = Box  
Aero Mass = 0.280000  
Thermal Mass = 0.280000  
Diameter/Width = 0.114200  
Length = 0.189000  
Height = 0.014300  
name = External Structure  
quantity = 1



parent = 1  
materialID = 9  
type = Box  
Aero Mass = 0.055000  
Thermal Mass = 0.055000  
Diameter/Width = 0.111000  
Length = 0.114000  
Height = 0.012500  
name = Top Solar PCB  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.040000  
Thermal Mass = 0.040000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = ISS Solar Cell  
quantity = 1  
parent = 1  
materialID = 25  
type = Flat Plate  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.080000  
Length = 0.080000  
name = Sep Switches  
quantity = 2  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.000300  
Thermal Mass = 0.000300  
Diameter/Width = 0.008200  
Length = 0.009200  
Height = 0.002700  
name = Solar Fold Out  
quantity = 1  
parent = 1  
materialID = 54  
type = Flat Plate  
Aero Mass = 0.015000  
Thermal Mass = 0.015000  
Diameter/Width = 0.050800  
Length = 0.118000  
name = Batteries  
quantity = 2  
parent = 1  
materialID = 5  
type = Box  
Aero Mass = 0.027000  
Thermal Mass = 0.027000  
Diameter/Width = 0.050000  
Length = 0.050000

Height = 0.008000  
name = Main PCB  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.060000  
Thermal Mass = 0.060000  
Diameter/Width = 0.111000  
Length = 0.114000  
name = Fasteners / Spacers  
quantity = 4  
parent = 1  
materialID = 54  
type = Box  
Aero Mass = 0.002250  
Thermal Mass = 0.002250  
Diameter/Width = 0.007000  
Length = 0.010000  
Height = 0.007000  
name = Cabling  
quantity = 1  
parent = 1  
materialID = 19  
type = Box  
Aero Mass = 0.005000  
Thermal Mass = 0.005000  
Diameter/Width = 0.010000  
Length = 0.070000  
Height = 0.001000  
name = Damping  
quantity = 1  
parent = 1  
materialID = 46  
type = Box  
Aero Mass = 0.010000  
Thermal Mass = 0.010000  
Diameter/Width = 0.010000  
Length = 0.035000  
Height = 0.005000  
name = NSL-SB  
quantity = 1  
parent = 1  
materialID = 23  
type = Flat Plate  
Aero Mass = 0.026000  
Thermal Mass = 0.026000  
Diameter/Width = 0.051000  
Length = 0.107000  
\*\*\*\*\*OUTPUT\*\*\*\*  
Item Number = 1  
name = THINSAT2G  
Demise Altitude = 77.989319  
Debris Casualty Area = 0.000000

```

Impact Kinetic Energy = 0.000000
*****
name = External Structure
Demise Altitude = 75.001839
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Top Solar PCB
Demise Altitude = 76.040993
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = ISS Solar Cell
Demise Altitude = 0.000000
Debris Casualty Area = 0.462400
Impact Kinetic Energy = 0.063711
*****
name = Sep Switches
Demise Altitude = 0.000000
Debris Casualty Area = 0.737095
Impact Kinetic Energy = 0.016994
*****
name = Solar Fold Out
Demise Altitude = 0.000000
Debris Casualty Area = 0.458903
Impact Kinetic Energy = 0.612321
*****
name = Batteries
Demise Altitude = 72.734627
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Main PCB
Demise Altitude = 75.161598
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Fasteners / Spacers
Demise Altitude = 0.000000
Debris Casualty Area = 1.480440
Impact Kinetic Energy = 0.711732
*****
name = Cabling
Demise Altitude = 75.574928
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
name = Damping
Demise Altitude = 0.000000
Debris Casualty Area = 0.379705
Impact Kinetic Energy = 5.165453
*****
name = NSL-SB
Demise Altitude = 76.003494

```

```

Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000
*****
===== End of Requirement 4.7-1 =====
10 26 2020; 05:59:33AM Project Data Saved To File
10 26 2020; 06:00:29AM Processing Requirement 4.5-1:      Return Status :
Passed
=====
Run Data
=====
**INPUT**
    Space Structure Name = THINSAT2G
    Space Structure Type = Payload
    Perigee Altitude = 180.000 (km)
    Apogee Altitude = 260.000 (km)
    Inclination = 51.600 (deg)
    RAAN = 0.000 (deg)
    Argument of Perigee = 0.000 (deg)
    Mean Anomaly = 0.000 (deg)
    Final Area-To-Mass Ratio = 0.0282 (m^2/kg)
    Start Year = 2021.000 (yr)
    Initial Mass = 0.280 (kg)
    Final Mass = 0.280 (kg)
    Duration = 1.000 (yr)
    Station-Kept = False
    Abandoned = True
**OUTPUT**
    Collision Probability = 4.0512E-12
    Returned Message: Normal Processing
    Date Range Message: Normal Date Range
    Status = Pass
=====
===== End of Requirement 4.5-1 =====
10 26 2020; 06:10:57AM Project Data Saved To File

```