

Exhibit C: Orbital Debris Assessment Report (ODAR)

**Produced by Care Weather Technologies, Inc. for the
Veery-0H Constellation**

In Accordance with NASA-STD-8719.14C and 47 CFR Part 25





Care Weather Technologies, Inc.
ODAR for the Veery-0H Constellation

Revision History

Revision	Notes	Approved By	Date
A	First Version	Patrick Walton CEO, Care Weather	8/7/2026

Table of Contents

Summary of Compliance.....	3
Section 1: Mission Overview.....	8
Section 2: Spacecraft Description.....	8
Deployable Structures.....	9
Propulsion System.....	11
Hazards.....	11
Batteries.....	11
Section 3: Assessment of Spacecraft Debris Released During Normal Operations.....	12
Section 4: Assessment of Spacecraft Intentional Breakups and Potential for Explosions.....	13
Section 5: Assessment of Spacecraft Potential for On Orbit Collisions.....	13
Section 6: Assessment of Spacecraft Post-mission Disposal Plans and Procedures.....	14
Section 7: Assessment of Spacecraft Re-entry Hazards.....	19
Section 8: Assessment for Tether Missions.....	19
Sections 9-14: Launch Vehicle.....	19
References.....	20
Appendix A: Activity Log From NASA DAS.....	21
Sun Synchronous Orbit.....	21
Mid-Inclination Orbit.....	34
Near Polar Orbit.....	47
Appendix B: Activity Log From NASA DAS for Orbital Lifetime Requirement.....	61
Sun Synchronous Orbit.....	61
Mid-Inclination Orbit.....	65
Near Polar Orbit.....	69

Summary of Compliance

This document addresses Sections 1 through 8 of Process for Limiting Orbital Debris, NASA-STD-8719.14C; sections 9 through 14 are in the domain of the launch provider and are addressed by others. Tables 1-2 on the following pages demonstrate the compliant status of the Veery-0H satellites with respect to the applicable orbital requirements.

Table 1. Compliance Assessment Per Requirement of NASA-STD-8719.14C

Requirement	Assessment	Comments	Section
4.3-1 Planned Debris Release Passing Through LEO	Not Applicable	No ≥ 1 mm object release expected from planned operations.	Section 3
4.3-2 Planned Debris Release Passing Near GEO	Not Applicable	No orbits near GEO.	Section 3
4.4-1 Accidental Explosions	Compliant	Batteries too small to produce debris.	Section 4
4.4-2 Battery Passivation	Compliant	Batteries too small to produce debris.	Section 4
4.4-3 Long-Term Risk To Other Space Systems From Planned Breakups	Not Applicable	No planned breakups.	Section 4
4.4-4 Short-Term Risk To Other Space Systems From Planned Breakups	Not Applicable	No planned breakups.	Section 4
4.5-1 Probability Of Collision With Large Objects	Compliant	See Appendix A.	Section 5
4.5-2 Probability Of Damage From Small Objects	Not Applicable	No maneuver or passivation is required for disposal via atmospheric reentry.	Section 5
4.6-1 Post-mission Disposal Passing Through LEO	Compliant	Atmospheric reentry, see Appendix B.	Section 6

4.6-2 Post-mission Disposal Passing Through GEO	Not Applicable	No orbits near GEO.	Section 6
4.6-3 Post-mission Disposal Between LEO And GEO	Not Applicable	No orbits above LEO.	Section 6
4.6-4 Reliability Of Post-Mission Disposal Operations	Not Applicable	Disposed by atmospheric reentry.	Section 6
4.7-1 Casualty Risk From Reentry Debris	Compliant	See Appendix A.	Section 7

Table 2. Statement Fulfilling Requirements of 47 CFR § 25.114(d)(14) and 25.122(d)(6)

Paragraph / Requirement	Assessment	Comments	Related Section
§ 25.114(d)(14)(i) Debris Release	Not Applicable	No releases are planned, therefore this section is not applicable.	Section 3
§ 25.114(d)(14)(ii) Small Debris Collision Preventing Deorbit	Not Applicable	No maneuver or passivation is required for disposal via atmospheric reentry.	Section 5, Section 6, Appendix A
§ 25.114(d)(14)(iii) Explosion / Breakup	Compliant	The satellite has no pressure vessels or hazardous materials. Flight-proven protective circuitry manages the lithium batteries to prevent over-charge, over-discharge, and over-temperature conditions, protecting against debris-producing failure.	Section 4
§ 25.114(d)(14)(iv) Collision Avoidance	Compliant	Care Weather has assessed the probability of collisions with DAS analysis and has mitigated risk through design of the spacecraft.	Section 2, Section 5
§ 25.114(d)(14)(iv)(A)(1)	Compliant	DAS analysis confirms the probability of collision with objects >10 cm is less than 0.001.	Section 5, Appendix A

Collision Risk with Large Objects			
§ 25.114(d)(14)(iv)(A)(2) Space Station Collision Avoidance	Compliant	Care Weather will maintain a designated technical point of contact to respond to all conjunction alerts and Space Situational Awareness (SSA) inquiries and take all possible steps to mitigate collision risk.	Section 5
§ 25.114(d)(14)(iv)(A)(3) Inhabitable Space Station Collision	Compliant	While the mission does not intersect the orbits of inhabitable stations directly, the satellite will eventually decay through those altitude regimes. DAS analysis confirms the collision probability is <0.001. Upon receipt of a conjunction warning, Care Weather will take all possible steps to coordinate and mitigate collision risk.	Section 5
§ 25.114(d)(14)(iv)(A)(4) Orbital Maintenance	Not Applicable	There will be no orbital maintenance maneuvers.	Section 2
§ 25.114(d)(14)(iv)(A)(5) Collision Mitigation	Compliant	Care Weather certifies that upon receipt of a space situational awareness conjunction warning, the operator will review and take all possible steps to assess and mitigate collision risk.	Section 5
§ 25.114(d)(14)(iv)(B) Geostationary Orbit	Not Applicable	Not applicable, the satellite will be launched in Low Earth Orbit.	Section 1
§ 25.114(d)(14)(v) Trackability	Compliant	The satellite is trackable in Low Earth Orbit since its smallest dimension is larger than 10 cm.	Section 2
§ 25.114(d)(14)(v)(A) Identification Plan	Compliant	As available, the spacecraft will downlink GPS data to facilitate identification.	Section 5

§ 25.114(d)(14)(v)(B) Registration	Compliant	Care Weather ensures spacecraft trackability by registering each satellite before launch with the 18th Space Control Squadron or successor entity.	Section 5
§ 25.114(d)(14)(v)(C) Information Sharing Plan	Compliant	As available, the spacecraft will submit orbital parameter data to the 18th Space Control Squadron or successor entity to facilitate identification.	Section 5
§ 25.114(d)(14)(vi) Planned Proximity Operations	Not Applicable	There are no planned proximity operations or planned debris generation.	Section 3, Section 4, Section 5
§ 25.114(d)(14)(vii) Post-Mission Disposal	Compliant	Disposal is achieved via passive uncontrolled atmospheric re-entry. The Veery-0H orbits and deployable configuration are designed to facilitate post-mission disposal within six years of launch.	Section 6, Appendix B
§ 25.114(d)(14)(vii)(D)(2) (ii) Earth Surface Casualty Risk	Compliant	As demonstrated via the NASA DAS analysis, the probability of human casualty is 0.0.	Section 7, Appendix A

Section 1: Mission Overview

The Veery-0H satellites (Veery-0HA, Veery-0HB, Veery-0HC, and Veery-0HD) are designed to demonstrate multiple hardware and software technologies required for miniaturized radar scatterometry. Care Weather expects the four satellites to each launch into one of the orbits given in Table 3.

Table 3: Potential Veery-0H Orbits

Orbit	Inclination	Altitude
Sun-synchronous	$97.5^{\circ} \pm 0.5^{\circ}$	510±20 km
Near-polar	$88^{\circ} \pm 3.0^{\circ}$	500±20 km
Mid-inclination	$46.5^{\circ} \pm 6.5^{\circ}$	510±25 km

Section 2: Spacecraft Description

The Veery-0H satellites use a standard 3U cubesat form factor with integrated rails and an added tuna can volume. The maximum stowed dimensions are 41 cm x 12 cm x 11 cm.

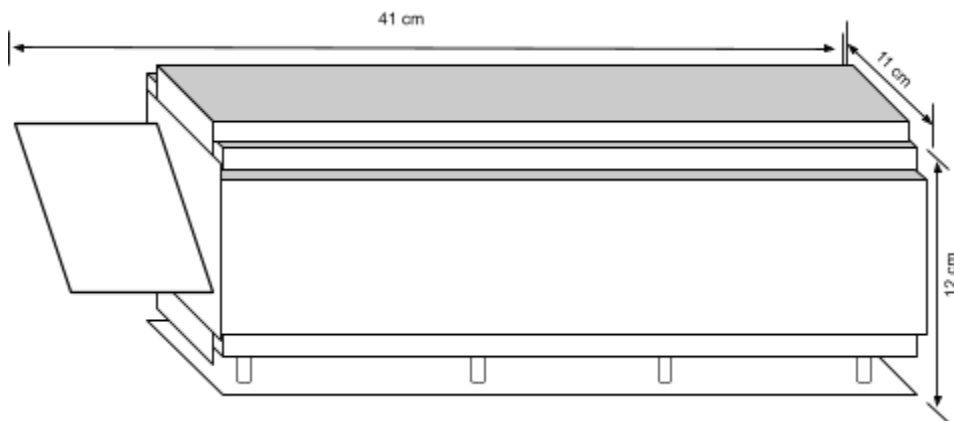


Figure 1. Stowed configuration of the Veery-0H Satellites

Some hardware systems will be introduced on satellites launched later, (the Veery-0HB, Veery-0HC, and Veery-0HD satellites). The debris simulations of Appendix A use the maximum envelope of planned components.

As new hardware increases the mass of the satellite, Care Weather will add deployed panels (Figures 2-3) to ensure the area-to-mass ratio exceeds the minimum required to deorbit in under 6 years (see Tables 4-5, Figure 4). These deployables are stowed for launch (Figure 1) and deployed on orbit. To be clear, the number and area of deployed panels and antennas are selected in advance of delivery for launch.

Table 4. Area-to-Mass Ratio of Deployable Configurations

Deployable Configuration	Average Cross-Sectional Area in Tumbling Mode (m ²)	Max Mass (kg)	Area-to-Mass (m ² /kg)
Bifold Deployable Panels	0.1162	3.458	0.0336
Trifold Deployable Panels	0.1502	4	0.03756

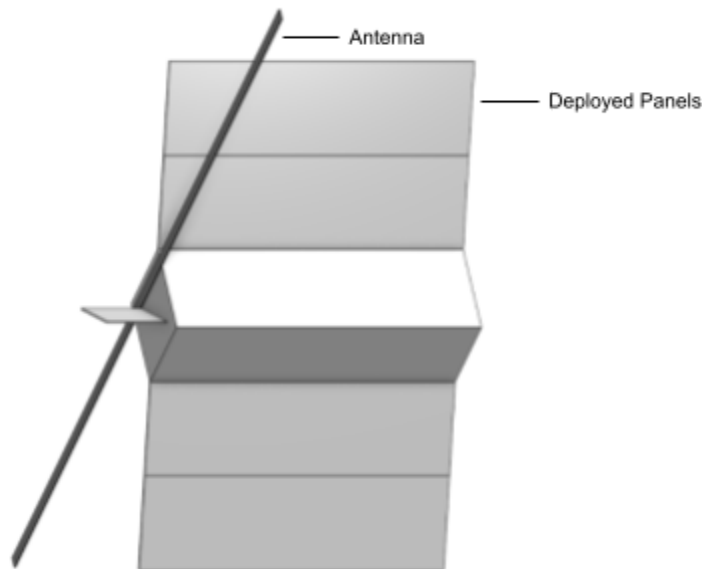


Figure 2. Deployed configuration for Veery-0H satellites with bifold deployed panels.

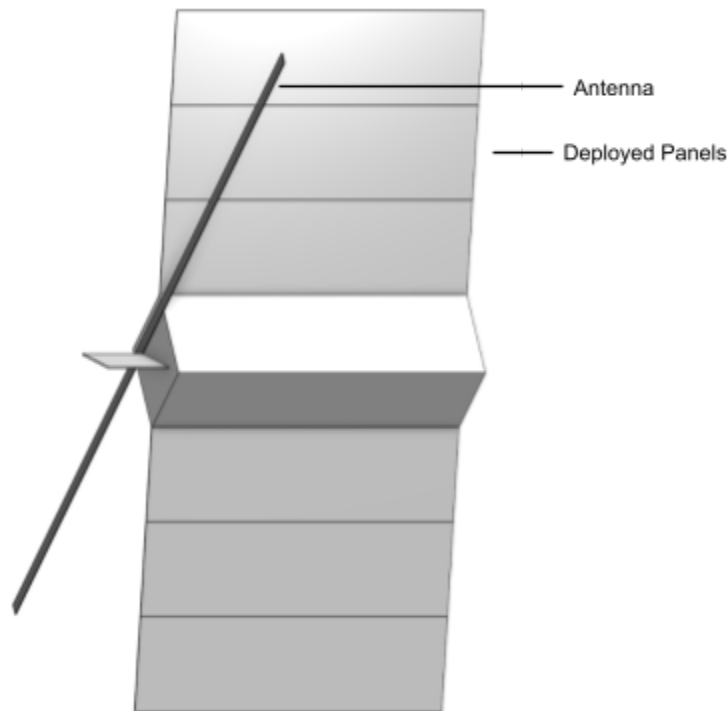


Figure 3. Deployed configuration for Veery-0H satellites with trifold deployed panels.

All Veery-0H satellites carry one dipole tape spring antenna. Starting with Veery-0HC, the satellites will have a second dipole tape spring antenna. To obtain conservative results, the orbital life simulations of Appendix B exclude the drag effects of the second dipole antenna.

Propulsion System

The satellites will not have a propulsion system.

Hazards

The Veery-0H satellites use a small copper heat pipe with approximately 1.5 grams of water as a working fluid. The ground maximum expected operating pressure is estimated to be approximately 4 barg versus an estimated burst pressure of approximately 41 barg, yielding an estimated burst factor of more than 10.

The Veery-0H satellites have no other pressure vessels, nor any hazardous or exotic materials.

Batteries

The Veery-0H satellites use Lithium batteries managed by protective control circuitry. The battery control circuitry has an extensive suite of protections that Care Weather has flight proven on past satellites, including:

1. Protection from over-charge voltage: The battery charge controller has a maximum output voltage setting. When the batteries reach this float voltage, the charger directs current to the satellite system bypassing the batteries and preventing overcharging. A microcontroller also continuously monitors charge current and can disable charging if an error condition is met.
2. Protection from over-charge current: The battery charge controller has a maximum charge current setting which is set to half the maximum charge current for the batteries.
3. Protection from over-discharge current or short circuits: The battery fuel gauge limits current draw to within the current capacity of the batteries. In addition, a low side protection circuit disables the batteries instantly if an extreme current draw is reached.
4. Protection from under-voltage: The low side circuit protection disables the batteries when voltage drops too near to the minimum battery voltage. Hysteresis is implemented to not release this error state until the batteries reach a voltage state that is higher than the shutoff voltage. In addition to this, the microcontroller puts the system to sleep during this time, enabling the batteries to charge without load.
5. Protection from over-temperature: A temperature sensing circuit internal to the battery charge controller disables charging above a temperature that is near but below the maximum allowable operating temperature of the batteries. In order to prevent discharge during this time, an analog timing circuit powers the entire system off, periodically waking briefly to check whether the temperature has dropped again to acceptable operating levels.
6. Protection from under-temperature: Lithium batteries become less efficient at colder temperatures. This causes them to produce excess waste heat, thereby increasing the minimum temperature. This is a self-stabilizing condition. With its past satellite missions, Care Weather observed reliable battery performance even at freezing temperatures.

Section 3: Assessment of Spacecraft Debris Released During Normal Operations

Requirement 4.3-1: Planned debris release passing through LEO.

No releases are planned, therefore Requirement 4.3-1 is not applicable.

Requirement 4.3-2: Planned debris release passing near GEO.

No releases are planned, therefore Requirement 4.3-2 is not applicable.

RESection 4: Assessment of Spacecraft Intentional Breakups and Potential for Explosions

Requirement 4.4-1: Limiting the risk to other space systems from accidental explosions during deployment and mission operations while in orbit about Earth or the Moon.

Due to the volume of the 3U cubesat, the batteries store limited energy, making the probability of battery explosion very low. The battery's protective circuitry further mitigates this risk (Section 2). In the event that these protections fail, the battery is more likely to vent internal gas than it is to explode. In which case, the gas would leak through vents in the satellite rather than create a pressurized container.

The satellite contains one pressure vessel: a copper heat pipe with internal pressure approximately ten times less than the pressure required to burst. Therefore its chance for breakup is negligible (Section 2) and the satellites are compliant with Requirement 4.4-1.

Requirement 4.4-2: Design for passivation after completion of mission operations while in orbit about Earth or the Moon.

Passivation of the batteries will occur from natural orbital decay and reentry, ensuring compliance with Requirement 4.4-2.

Requirement 4.4-3: Limiting the long-term risk to other space systems from planned breakups for Earth and lunar missions.

There are no plans for designed spacecraft breakups, explosions, or intentional collisions. Therefore, Requirement 4.4-3 is not applicable.

Requirement 4.4-4: Limiting the short-term risk to other space systems from planned breakups for Earth orbital missions.

There are no plans for spacecraft breakups, explosions, or intentional collisions. Therefore, Requirement 4.4-4 is not applicable.

Section 5: Assessment of Spacecraft Potential for On Orbit Collisions

Requirement 4.5-1: Limiting debris generated by collisions with large objects when in Earth orbit.

Care Weather used NASA Debris Assessment software to evaluate the probability of collision with large objects. See the output of requirement 4.5-1 of Appendix A for the DAS activity log, which shows that the maximum probability of an on orbit collision is <0.001 for each orbit in Table 3, demonstrating compliance with Requirement 4.5-1.

Requirement 4.5-2: Limiting debris generated by collisions with small objects when operating in Earth orbit, preventing post-mission disposal.

There are no propellants or attitude control components critical to post-mission disposal. The satellite meets deorbit requirements in an uncontrolled tumbling mode and reenters due to natural orbital decay. Therefore, Requirement 4.5-2 is not applicable to this mission.

Section 6: Assessment of Spacecraft Post-mission Disposal Plans and Procedures

Requirement 4.6-1: Remove space structures from LEO to reduce collision threat to future space operations.

Disposal is achieved via uncontrolled atmospheric reentry, so the orbital life depends on the area-to-mass ratio of each satellite and the phase of the solar cycle. Due to the approaching solar minimum and potential shifts in launch schedule, Care Weather performed a series of orbital lifetime simulations using NASA DAS on a range of launch dates for each of its candidate orbital regimes: Sun Synchronous, Mid-Inclination, and Near Polar (Section 1, Figure 4, Appendix B). This analysis identified the launch dates that required the highest area-to-mass ratio to passively deorbit within 6 years (Table 5).

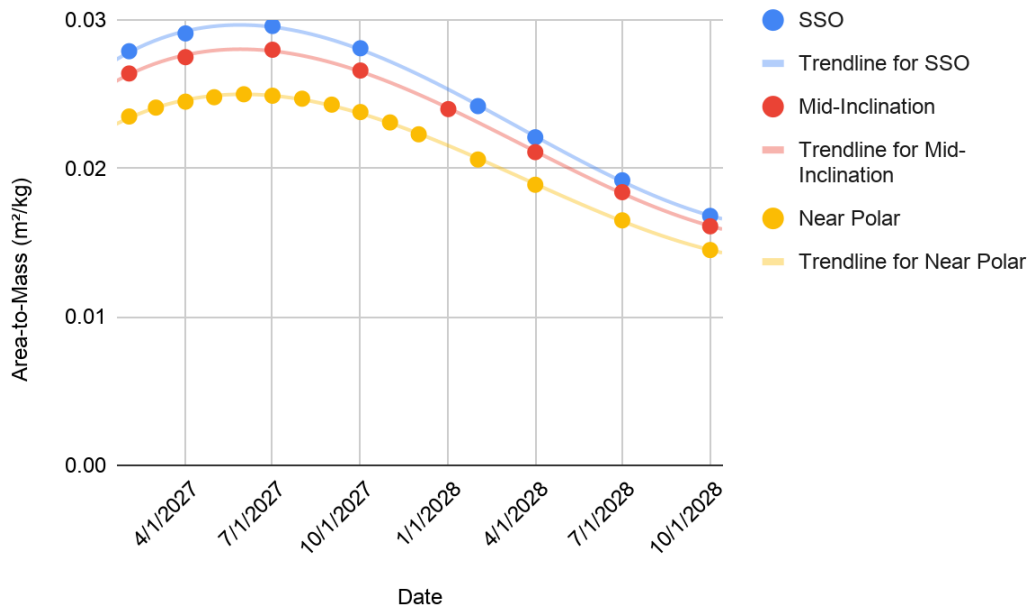


Figure 4. Area-to-Mass Ratio Required to Meet Deorbit Timeframe Over Time

Table 5. Highest Area-to-Mass Ratio Required to Deorbit Within 6 Years

	Max Altitude (km)	Launch Date with Highest Lifetime Drag	Required Area-to-Mass Ratio (m²/kg)	Resulting Orbital Lifetime (years)
Sun Synchronous Orbit	530	1 July, 2027	0.0296	<6
Mid-Inclination Orbit	535	1 July, 2027	0.0336	<6
Near Polar Orbit	520	1 June, 2027	0.025	<6

All of the satellite configurations of Figures 2-3 exceed the minimum required area-to-mass ratio required for a tumbling mode deorbit within 6 years (Table 4, Table 5). The simulations of Figures 5-7 use the required area-to-mass ratios found in Table 5 to ensure all requirements of

the satellite are met when launched from its worst-case launch date, in terms of drag, for each of the mission's candidate orbital regimes (Table 3).

This assessment of spacecraft compliance with Requirements 4.6-1 shows the Veery-0H satellites to be compliant.

Requirement 4.6-2: Remove space structures from GEO to reduce collision threat to future space operations.

This mission does not involve any spacecraft in GEO. Therefore, Requirement 4.6-2 is not applicable.

Requirement 4.6-3: Remove space structures from between LEO and GEO to reduce collision threat to future space operations.

This mission does not involve any spacecraft in orbits between LEO and GEO. Therefore, Requirement 4.6-3 is not applicable.

Requirement 4.6-4: Reliability of post-mission disposal maneuver operations in Earth orbit.

Based on the maximum deployment altitudes (see Table 3), Care Weather has conducted NASA DAS simulations, see Figure 5-7 below and Appendix B, to show the time until demise for each satellite, which is less than 6 years in each case. This demonstrates compliance with Requirement 4.6-4.

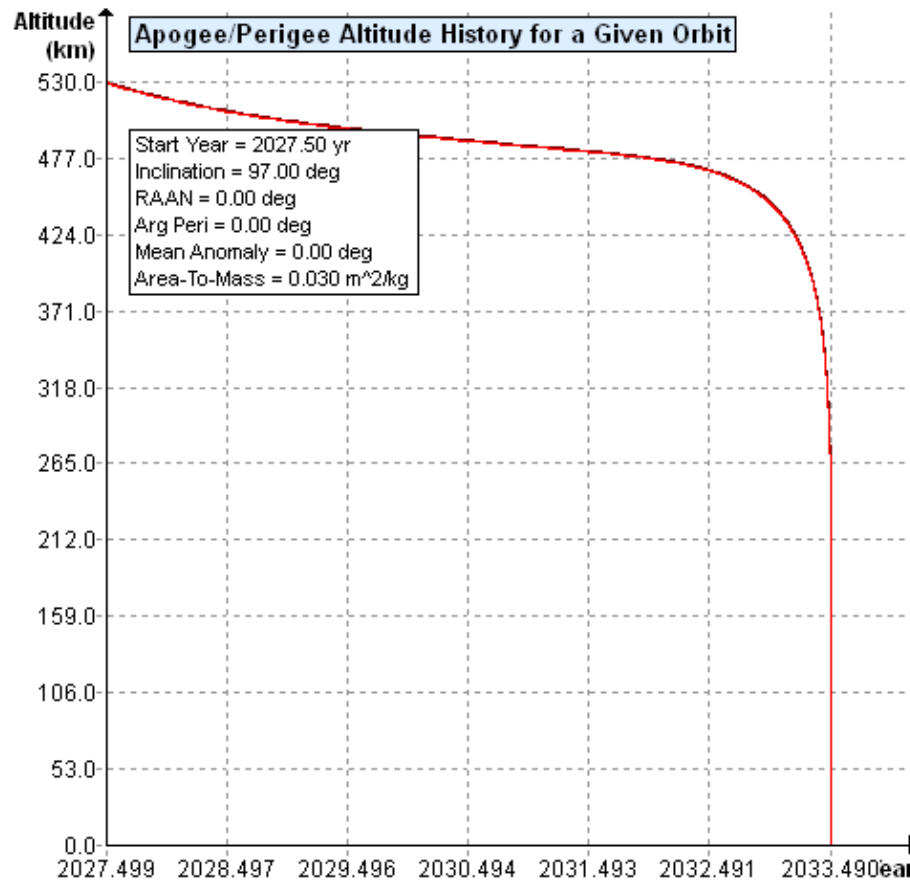


Figure 5. Sun-synchronous Orbit Altitude vs. Time For A Veery-0H Spacecraft. Obtained Using NASA DAS. See Appendix B for More Details.

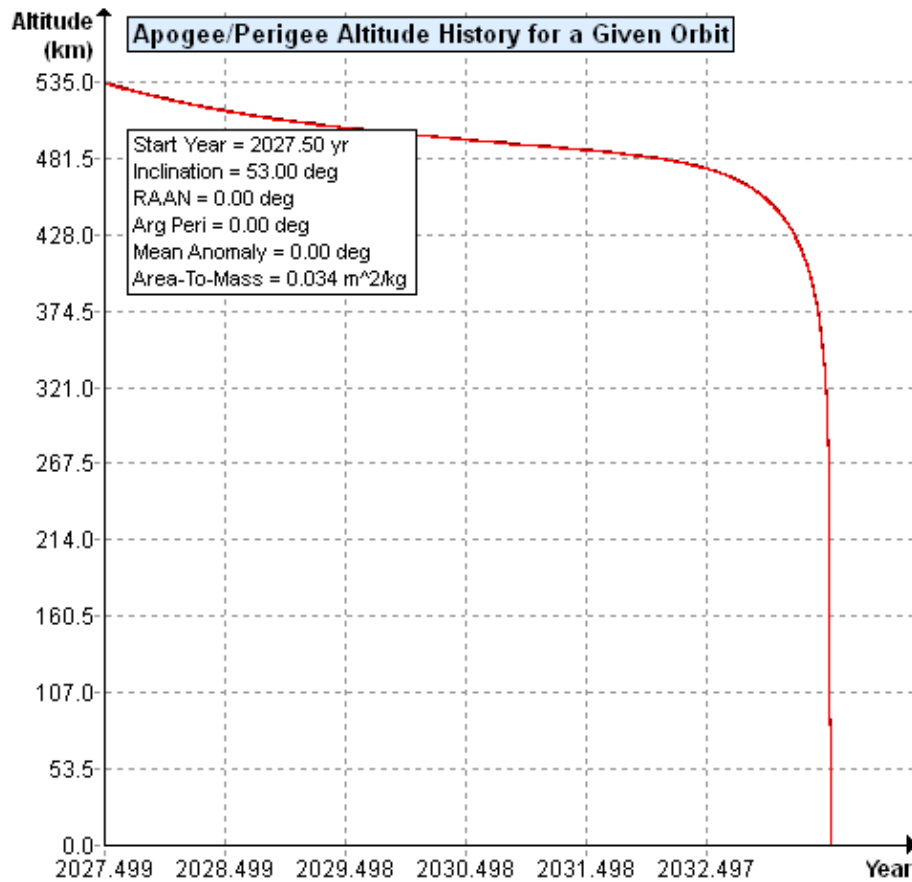


Figure 6. Mid-Inclination Orbit Altitude vs. Time For A Veery-0H Spacecraft. Obtained Using NASA DAS. See Appendix B for More Details.

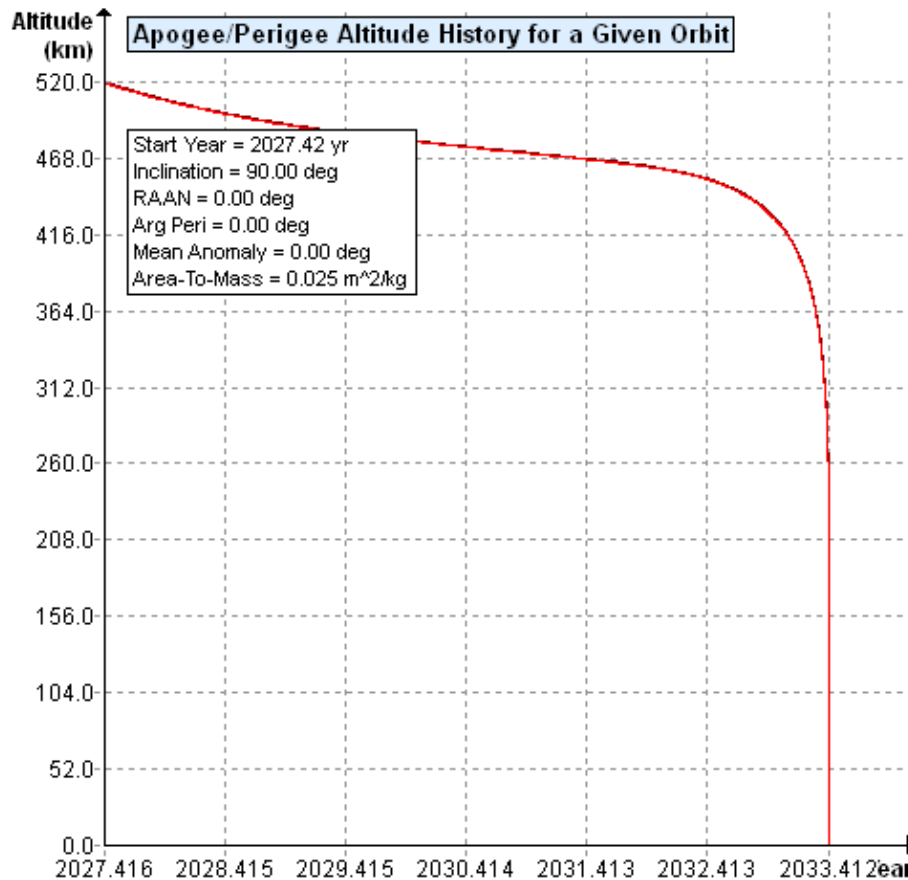


Figure 7. Near Polar Orbit Altitude vs. Time For A Veery-0H Spacecraft. Obtained Using NASA DAS. See Appendix B for More Details.

Section 7: Assessment of Spacecraft Re-entry Hazards

Requirement 4.7-1: Limit the risk of human casualty.

Care Weather assessed spacecraft re-entry hazards, using DAS, to verify Requirement 4.7-1. See Appendix A for more details. The probability of human casualty outputted by DAS is 0, thus Veery-0H satellites comply with the less than 1:10,000 probability of Human Casualty Requirement 4.7-1.

Assessment of spacecraft compliance with Requirement 4.7-1 shows that the satellites are compliant.

Section 8: Assessment for Tether Missions

No tethers are used.

Sections 9-14: Launch Vehicle

ODAR sections 9-14 pertain to the launch vehicle and are not covered here.

References

- A. [NASA Procedural Requirements for Limiting Orbital Debris Generation, NPR 8715.6E, 18 April 2024.](#)
- B. [Process for Limiting Orbital Debris, NASA-STD-8719.14C, 5 November 2021.](#)
- C. [GSFC, NASA. General Environmental Verification Standard \(GEVS\) for GSFC Flight Programs and Projects. GSFC-STD-7000A\), NASA Goddard Space Flight Center, Greenbelt, MD, USA, 2013.](#)

Appendix A: Activity Log From NASA DAS

Sun Synchronous Orbit

08 07 2026; 08:29:51AM Processing Requirement 4.3-1: Return
Status : Not Run

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

=====
End of Requirement 4.3-1
08 07 2026; 08:29:53AM Processing Requirement 4.3-2: Return
Status : Passed

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

=====
End of Requirement 4.3-2
08 07 2026; 08:54:22AM Processing Requirement 4.5-1: Return
Status : Passed

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

INPUT

Space Structure Name = Fledgeling Veery-0H Network
Satellite
Space Structure Type = Payload
Perigee Altitude = 530.000 (km)
Apogee Altitude = 530.000 (km)
Inclination = 97.000 (deg)
RAAN = 0.000 (deg)
Argument of Perigee = 0.000 (deg)

Mean Anomaly = 0.000 (deg)
Final Area-To-Mass Ratio = 0.0296 (m²/kg)
Start Year = 2027.499 (yr)
Initial Mass = 4.000 (kg)
Final Mass = 4.000 (kg)
Duration = 6.000 (yr)
Station-Kept = False
Abandoned = True
Long-Term Reentry = False

****OUTPUT****

Collision Probability = 1.3476E-05
Returned Message: Normal Processing
Date Range Message: Normal Date Range
Status = Pass

=====

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

08 07 2026; 08:54:26AM Project Data Saved To File
08 07 2026; 08:54:27AM Requirement 4.5-2: Compliant

===== End of Requirement 4.5-2 =====

08 07 2026; 08:54:30AM Processing Requirement 4.6 Return
Status : Passed

=====

Project Data

=====

****INPUT****

Space Structure Name = Fledgeling Veery-0H Network
Satellite

Space Structure Type = Payload

Perigee Altitude = 530.000000 (km)
Apogee Altitude = 530.000000 (km)
Inclination = 97.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Mean Anomaly = 0.000000 (deg)
Area-To-Mass Ratio = 0.029600 (m²/kg)
Start Year = 2027.499000 (yr)
Initial Mass = 4.000000 (kg)
Final Mass = 4.000000 (kg)
Duration = 6.000000 (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)
Long-Term Reentry = False

OUTPUT

Suggested Perigee Altitude = 530.000000 (km)
Suggested Apogee Altitude = 530.000000 (km)
Returned Error Message = Reentry during mission (no PMD req.).

Released Year = 2033 (yr)
Requirement = 61
Compliance Status = Pass

=====

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



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08 07 2026; 08:54:46AM *****Processing Requirement 4.7-1
Return Status : Passed

*****INPUT****

Item Number = 1

name = Fledgeling Veery-0H Network Satellite
quantity = 1
parent = 0
materialID = 23
type = Box
Aero Mass = 4.000000
Thermal Mass = 4.000000
Diameter/Width = 0.100000
Length = 0.340500
Height = 0.100000

name = Body-mounted side solar panels
quantity = 2
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.080000
Length = 0.100000

name = Body-mounted solar panels
quantity = 3
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.150000
Thermal Mass = 0.150000
Diameter/Width = 0.100000
Length = 0.226000

name = Body-mounted extra solar panels
quantity = 2
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.030000
Thermal Mass = 0.030000
Diameter/Width = 0.046500
Length = 0.070000

name = Chassis Rails and Crossbars
quantity = 12
parent = 1
materialID = 5
type = Box
Aero Mass = 0.084000
Thermal Mass = 0.084000
Diameter/Width = 0.010000
Length = 0.340500
Height = 0.010000

name = Batteries
quantity = 6
parent = 1
materialID = 5
type = Cylinder
Aero Mass = 0.020000
Thermal Mass = 0.020000
Diameter/Width = 0.010000
Length = 0.090000

name = Circuit Boards
quantity = 9
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000

Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = Fasteners
quantity = 90
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.000100
Thermal Mass = 0.000100
Diameter/Width = 0.002000
Length = 0.005000

name = Reaction Wheels
quantity = 6
parent = 1
materialID = 5
type = Cylinder
Aero Mass = 0.020000
Thermal Mass = 0.020000
Diameter/Width = 0.030000
Length = 0.010000

name = Reaction wheel motors
quantity = 6
parent = 1
materialID = 57
type = Cylinder
Aero Mass = 0.030000
Thermal Mass = 0.030000
Diameter/Width = 0.020000
Length = 0.020000

name = Bottom Circuit Board with C-band Antenna
quantity = 1
parent = 1

materialID = 23
type = Flat Plate
Aero Mass = 0.150000
Thermal Mass = 0.150000
Diameter/Width = 0.090000
Length = 0.323500

name = Side Circuit Boards
quantity = 2
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = VHF Antenna
quantity = 1
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.001000
Thermal Mass = 0.001000
Diameter/Width = 0.005000
Length = 0.500000

name = UHF Antenna
quantity = 1
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.001000
Thermal Mass = 0.001000
Diameter/Width = 0.005000
Length = 0.160000

name = Circuit Board with S-band Antenna
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = Circuit Board with X-band Antenna
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = Deployable Solar Panels
quantity = 2
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.150000
Thermal Mass = 0.150000
Diameter/Width = 0.100000
Length = 0.340500

name = Iridium Patch Antenna
quantity = 1
parent = 1
materialID = 1
type = Box
Aero Mass = 0.005000
Thermal Mass = 0.005000

Diameter/Width = 0.025000
Length = 0.025000
Height = 0.004000

name = Heat Pipe
quantity = 1
parent = 1
materialID = 19
type = Cylinder
Aero Mass = 0.017960
Thermal Mass = 0.017960
Diameter/Width = 0.007000
Length = 0.280000

name = Star Tracker Baffle
quantity = 1
parent = 1
materialID = 5
type = Cylinder
Aero Mass = 0.090000
Thermal Mass = 0.090000
Diameter/Width = 0.052000
Length = 0.050000

name = Radar Heat Sink
quantity = 1
parent = 1
materialID = 5
type = Box
Aero Mass = 0.520000
Thermal Mass = 0.520000
Diameter/Width = 0.082000
Length = 0.324000
Height = 0.009400

name = Star Tracker
quantity = 1



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parent = 1
materialID = 5
type = Box
Aero Mass = 0.040000
Thermal Mass = 0.040000
Diameter/Width = 0.029000
Length = 0.029000
Height = 0.017000

*****OUTPUT****

Item Number = 1

name = Fledgeling Veery-0H Network Satellite
Demise Altitude = 78.000160
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Body-mounted side solar panels
Demise Altitude = 77.206378
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Body-mounted solar panels
Demise Altitude = 77.017539
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Body-mounted extra solar panels
Demise Altitude = 77.056296
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Chassis Rails and Crossbars



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Demise Altitude = 77.017458
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Batteries
Demise Altitude = 76.807736
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Circuit Boards
Demise Altitude = 77.177679
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Fasteners
Demise Altitude = 77.609301
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Reaction Wheels
Demise Altitude = 75.556051
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Reaction wheel motors
Demise Altitude = 73.937307
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bottom Circuit Board with C-band Antenna
Demise Altitude = 77.174622



Care Weather Technologies, Inc.
ODAR for the Veery-0H Constellation

Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Side Circuit Boards
Demise Altitude = 77.177679
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = VHF Antenna
Demise Altitude = 77.983006
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = UHF Antenna
Demise Altitude = 77.930165
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Circuit Board with S-band Antenna
Demise Altitude = 77.177679
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Circuit Board with X-band Antenna
Demise Altitude = 77.177679
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Deployable Solar Panels
Demise Altitude = 77.270055
Debris Casualty Area = 0.000000



Care Weather Technologies, Inc.
ODAR for the Veery-0H Constellation

Impact Kinetic Energy = 0.000000

name = Iridium Patch Antenna

Demise Altitude = 0.000000

Debris Casualty Area = 0.304342

Impact Kinetic Energy = 0.685270

name = Heat Pipe

Demise Altitude = 77.665008

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Star Tracker Baffle

Demise Altitude = 75.556375

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Radar Heat Sink

Demise Altitude = 75.318247

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Star Tracker

Demise Altitude = 75.646424

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

===== End of Requirement 4.7-1 =====

08 07 2026; 08:54:46AM Project Data Saved To File

Mid-Inclination Orbit

08 07 2026; 08:57:06AM Processing Requirement 4.3-1: Return
Status : Not Run

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

=====
End of Requirement 4.3-1
08 07 2026; 08:57:08AM Processing Requirement 4.3-2: Return
Status : Passed

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

=====
End of Requirement 4.3-2
08 07 2026; 09:14:39AM Processing Requirement 4.5-1: Return
Status : Passed

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

INPUT

Space Structure Name = Fledgeling Veery-0H Network
Satellite
Space Structure Type = Payload
Perigee Altitude = 535.000 (km)
Apogee Altitude = 535.000 (km)
Inclination = 53.000 (deg)
RAAN = 0.000 (deg)
Argument of Perigee = 0.000 (deg)
Mean Anomaly = 0.000 (deg)



Care Weather Technologies, Inc.
ODAR for the Veery-0H Constellation

Final Area-To-Mass Ratio = 0.0336 (m²/kg)
Start Year = 2027.499 (yr)
Initial Mass = 4.000 (kg)
Final Mass = 4.000 (kg)
Duration = 6.000 (yr)
Station-Kept = False
Abandoned = True
Long-Term Reentry = False

****OUTPUT****

Collision Probability = 9.5199E-06
Returned Message: Normal Processing
Date Range Message: Normal Date Range
Status = Pass

=====

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

08 07 2026; 09:14:42AM Project Data Saved To File
08 07 2026; 09:14:44AM Requirement 4.5-2: Compliant

===== End of Requirement 4.5-2 =====

08 07 2026; 09:14:44AM Processing Requirement 4.6 Return
Status : Passed

=====

Project Data

=====

****INPUT****

Space Structure Name = Fledgeling Veery-0H Network
Satellite
Space Structure Type = Payload

Perigee Altitude = 535.000000 (km)
Apogee Altitude = 535.000000 (km)
Inclination = 53.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Mean Anomaly = 0.000000 (deg)
Area-To-Mass Ratio = 0.033600 (m²/kg)
Start Year = 2027.499000 (yr)
Initial Mass = 4.000000 (kg)
Final Mass = 4.000000 (kg)
Duration = 6.000000 (yr)
Station Kept = False
Abandoned = True
PMD Perigee Altitude = 122.451013 (km)
PMD Apogee Altitude = 133.184090 (km)
PMD Inclination = 52.950587 (deg)
PMD RAAN = 291.364372 (deg)
PMD Argument of Perigee = 277.174504 (deg)
PMD Mean Anomaly = 0.000000 (deg)
Long-Term Reentry = False

****OUTPUT****

Suggested Perigee Altitude = 122.451013 (km)
Suggested Apogee Altitude = 133.184090 (km)
Returned Error Message = Passes LEO reentry orbit criteria.

Released Year = 2033 (yr)
Requirement = 61
Compliance Status = Pass

=====

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

08 07 2026; 09:14:58AM *****Processing Requirement 4.7-1

Return Status : Passed

*****INPUT****

Item Number = 1

name = Fledgeling Veery-0H Network Satellite

quantity = 1

parent = 0

materialID = 23

type = Box

Aero Mass = 4.000000

Thermal Mass = 4.000000

Diameter/Width = 0.100000

Length = 0.340500

Height = 0.100000

name = Body-mounted side solar panels

quantity = 2

parent = 1

materialID = 23

type = Flat Plate

Aero Mass = 0.050000

Thermal Mass = 0.050000

Diameter/Width = 0.080000

Length = 0.100000

name = Body-mounted solar panels

quantity = 3

parent = 1

materialID = 23

type = Flat Plate

Aero Mass = 0.150000

Thermal Mass = 0.150000

Diameter/Width = 0.100000

Length = 0.226000

name = Body-mounted extra solar panels

quantity = 2

parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.030000
Thermal Mass = 0.030000
Diameter/Width = 0.046500
Length = 0.070000

name = Chassis Rails and Crossbars
quantity = 12
parent = 1
materialID = 5
type = Box
Aero Mass = 0.084000
Thermal Mass = 0.084000
Diameter/Width = 0.010000
Length = 0.340500
Height = 0.010000

name = Batteries
quantity = 6
parent = 1
materialID = 5
type = Cylinder
Aero Mass = 0.020000
Thermal Mass = 0.020000
Diameter/Width = 0.010000
Length = 0.090000

name = Circuit Boards
quantity = 9
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.090000

Length = 0.090000

name = Fasteners
quantity = 90
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.000100
Thermal Mass = 0.000100
Diameter/Width = 0.002000
Length = 0.005000

name = Reaction Wheels
quantity = 6
parent = 1
materialID = 5
type = Cylinder
Aero Mass = 0.020000
Thermal Mass = 0.020000
Diameter/Width = 0.030000
Length = 0.010000

name = Reaction wheel motors
quantity = 6
parent = 1
materialID = 57
type = Cylinder
Aero Mass = 0.030000
Thermal Mass = 0.030000
Diameter/Width = 0.020000
Length = 0.020000

name = Bottom Circuit Board with C-band Antenna
quantity = 1
parent = 1
materialID = 23
type = Flat Plate

Aero Mass = 0.150000
Thermal Mass = 0.150000
Diameter/Width = 0.090000
Length = 0.323500

name = Side Circuit Boards
quantity = 2
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = VHF Antenna
quantity = 1
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.001000
Thermal Mass = 0.001000
Diameter/Width = 0.005000
Length = 0.500000

name = UHF Antenna
quantity = 1
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.001000
Thermal Mass = 0.001000
Diameter/Width = 0.005000
Length = 0.160000

name = Circuit Board with S-band Antenna
quantity = 1

parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = Circuit Board with X-band Antenna
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = Deployable Solar Panels
quantity = 2
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.150000
Thermal Mass = 0.150000
Diameter/Width = 0.100000
Length = 0.340500

name = Iridium Patch Antenna
quantity = 1
parent = 1
materialID = 1
type = Box
Aero Mass = 0.005000
Thermal Mass = 0.005000
Diameter/Width = 0.025000
Length = 0.025000

Height = 0.004000

name = Heat Pipe

quantity = 1

parent = 1

materialID = 19

type = Cylinder

Aero Mass = 0.017960

Thermal Mass = 0.017960

Diameter/Width = 0.007000

Length = 0.280000

name = Star Tracker Baffle

quantity = 1

parent = 1

materialID = 5

type = Cylinder

Aero Mass = 0.090000

Thermal Mass = 0.090000

Diameter/Width = 0.052000

Length = 0.050000

name = Radar Heat Sink

quantity = 1

parent = 1

materialID = 5

type = Box

Aero Mass = 0.520000

Thermal Mass = 0.520000

Diameter/Width = 0.082000

Length = 0.324000

Height = 0.009400

name = Star Tracker

quantity = 1

parent = 1

materialID = 5

type = Box
Aero Mass = 0.040000
Thermal Mass = 0.040000
Diameter/Width = 0.029000
Length = 0.029000
Height = 0.017000

*****OUTPUT****

Item Number = 1

name = Fledgeling Veery-0H Network Satellite
Demise Altitude = 78.001824
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Body-mounted side solar panels
Demise Altitude = 77.103926
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Body-mounted solar panels
Demise Altitude = 76.876759
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Body-mounted extra solar panels
Demise Altitude = 76.934842
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Chassis Rails and Crossbars
Demise Altitude = 76.909298
Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Batteries

Demise Altitude = 76.668715

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Circuit Boards

Demise Altitude = 77.068907

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Fasteners

Demise Altitude = 77.559883

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Reaction Wheels

Demise Altitude = 75.267159

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Reaction wheel motors

Demise Altitude = 73.292669

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Bottom Circuit Board with C-band Antenna

Demise Altitude = 77.052990

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Side Circuit Boards
Demise Altitude = 77.068907
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = VHF Antenna
Demise Altitude = 77.984202
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = UHF Antenna
Demise Altitude = 77.927063
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Circuit Board with S-band Antenna
Demise Altitude = 77.068907
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Circuit Board with X-band Antenna
Demise Altitude = 77.068907
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Deployable Solar Panels
Demise Altitude = 77.167712
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000



Care Weather Technologies, Inc.
ODAR for the Veery-0H Constellation

name = Iridium Patch Antenna
Demise Altitude = 0.000000
Debris Casualty Area = 0.304342
Impact Kinetic Energy = 0.684727

name = Heat Pipe
Demise Altitude = 77.620665
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Star Tracker Baffle
Demise Altitude = 75.275465
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Radar Heat Sink
Demise Altitude = 74.967860
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Star Tracker
Demise Altitude = 75.372228
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

===== End of Requirement 4.7-1 =====

08 07 2026; 09:14:58AM Project Data Saved To File

Near Polar Orbit

08 07 2026; 09:17:20AM Processing Requirement 4.3-1: Return
Status : Not Run

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

=====
End of Requirement 4.3-1 =====
08 07 2026; 09:17:22AM Processing Requirement 4.3-2: Return
Status : Passed

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

=====
End of Requirement 4.3-2 =====
08 07 2026; 10:37:10AM Processing Requirement 4.5-1: Return
Status : Passed

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

****INPUT****

Space Structure Name = Fledgeling Veery-0H Network
Satellite
Space Structure Type = Payload
Perigee Altitude = 520.000 (km)
Apogee Altitude = 520.000 (km)
Inclination = 90.000 (deg)
RAAN = 0.000 (deg)
Argument of Perigee = 0.000 (deg)

Mean Anomaly = 0.000 (deg)
Final Area-To-Mass Ratio = 0.0250 (m²/kg)
Start Year = 2027.416 (yr)
Initial Mass = 4.000 (kg)
Final Mass = 4.000 (kg)
Duration = 6.000 (yr)
Station-Kept = False
Abandoned = True
Long-Term Reentry = False

****OUTPUT****

Collision Probability = 1.0950E-05
Returned Message: Normal Processing
Date Range Message: Normal Date Range
Status = Pass

=====

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

08 07 2026; 10:37:13AM Project Data Saved To File
08 07 2026; 10:37:14AM Requirement 4.5-2: Compliant

===== End of Requirement 4.5-2 =====

08 07 2026; 10:37:15AM Processing Requirement 4.6 Return
Status : Passed

=====

Project Data

=====

****INPUT****

Space Structure Name = Fledgeling Veery-0H Network
Satellite

Space Structure Type = Payload

Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Mean Anomaly = 0.000000 (deg)
Area-To-Mass Ratio = 0.025000 (m²/kg)
Start Year = 2027.416000 (yr)
Initial Mass = 4.000000 (kg)
Final Mass = 4.000000 (kg)
Duration = 6.000000 (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)
Long-Term Reentry = False

OUTPUT

Suggested Perigee Altitude = 520.000000 (km)
Suggested Apogee Altitude = 520.000000 (km)
Returned Error Message = Reentry during mission (no PMD req.).

Released Year = 2033 (yr)
Requirement = 61
Compliance Status = Pass

=====

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



Care Weather Technologies, Inc.
ODAR for the Veery-0H Constellation

08 07 2026; 10:37:22AM *****Processing Requirement 4.7-1
Return Status : Passed

*****INPUT****

Item Number = 1

name = Fledgeling Veery-0H Network Satellite
quantity = 1
parent = 0
materialID = 23
type = Box
Aero Mass = 4.000000
Thermal Mass = 4.000000
Diameter/Width = 0.100000
Length = 0.340500
Height = 0.100000

name = Body-mounted side solar panels
quantity = 2
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.080000
Length = 0.100000

name = Body-mounted solar panels
quantity = 3
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.150000
Thermal Mass = 0.150000
Diameter/Width = 0.100000
Length = 0.226000

name = Body-mounted extra solar panels
quantity = 2
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.030000
Thermal Mass = 0.030000
Diameter/Width = 0.046500
Length = 0.070000

name = Chassis Rails and Crossbars
quantity = 12
parent = 1
materialID = 5
type = Box
Aero Mass = 0.084000
Thermal Mass = 0.084000
Diameter/Width = 0.010000
Length = 0.340500
Height = 0.010000

name = Batteries
quantity = 6
parent = 1
materialID = 5
type = Cylinder
Aero Mass = 0.020000
Thermal Mass = 0.020000
Diameter/Width = 0.010000
Length = 0.090000

name = Circuit Boards
quantity = 9
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000

Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = Fasteners
quantity = 90
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.000100
Thermal Mass = 0.000100
Diameter/Width = 0.002000
Length = 0.005000

name = Reaction Wheels
quantity = 6
parent = 1
materialID = 5
type = Cylinder
Aero Mass = 0.020000
Thermal Mass = 0.020000
Diameter/Width = 0.030000
Length = 0.010000

name = Reaction wheel motors
quantity = 6
parent = 1
materialID = 57
type = Cylinder
Aero Mass = 0.030000
Thermal Mass = 0.030000
Diameter/Width = 0.020000
Length = 0.020000

name = Bottom Circuit Board with C-band Antenna
quantity = 1
parent = 1

materialID = 23
type = Flat Plate
Aero Mass = 0.150000
Thermal Mass = 0.150000
Diameter/Width = 0.090000
Length = 0.323500

name = Side Circuit Boards
quantity = 2
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = VHF Antenna
quantity = 1
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.001000
Thermal Mass = 0.001000
Diameter/Width = 0.005000
Length = 0.500000

name = UHF Antenna
quantity = 1
parent = 1
materialID = 54
type = Cylinder
Aero Mass = 0.001000
Thermal Mass = 0.001000
Diameter/Width = 0.005000
Length = 0.160000

name = Circuit Board with S-band Antenna
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = Circuit Board with X-band Antenna
quantity = 1
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.050000
Thermal Mass = 0.050000
Diameter/Width = 0.090000
Length = 0.090000

name = Deployable Solar Panels
quantity = 2
parent = 1
materialID = 23
type = Flat Plate
Aero Mass = 0.150000
Thermal Mass = 0.150000
Diameter/Width = 0.100000
Length = 0.340500

name = Iridium Patch Antenna
quantity = 1
parent = 1
materialID = 1
type = Box
Aero Mass = 0.005000
Thermal Mass = 0.005000

Diameter/Width = 0.025000
Length = 0.025000
Height = 0.004000

name = Heat Pipe
quantity = 1
parent = 1
materialID = 19
type = Cylinder
Aero Mass = 0.017960
Thermal Mass = 0.017960
Diameter/Width = 0.007000
Length = 0.280000

name = Star Tracker Baffle
quantity = 1
parent = 1
materialID = 5
type = Cylinder
Aero Mass = 0.090000
Thermal Mass = 0.090000
Diameter/Width = 0.052000
Length = 0.050000

name = Radar Heat Sink
quantity = 1
parent = 1
materialID = 5
type = Box
Aero Mass = 0.520000
Thermal Mass = 0.520000
Diameter/Width = 0.082000
Length = 0.324000
Height = 0.009400

name = Star Tracker
quantity = 1

parent = 1
materialID = 5
type = Box
Aero Mass = 0.040000
Thermal Mass = 0.040000
Diameter/Width = 0.029000
Length = 0.029000
Height = 0.017000

*****OUTPUT****

Item Number = 1

name = Fledgeling Veery-0H Network Satellite
Demise Altitude = 78.003782
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Body-mounted side solar panels
Demise Altitude = 77.199740
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Body-mounted solar panels
Demise Altitude = 76.997376
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Body-mounted extra solar panels
Demise Altitude = 77.043008
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Chassis Rails and Crossbars



Care Weather Technologies, Inc.
ODAR for the Veery-0H Constellation

Demise Altitude = 77.004058
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Batteries
Demise Altitude = 76.787997
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Circuit Boards
Demise Altitude = 77.164045
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Fasteners
Demise Altitude = 77.600858
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Reaction Wheels
Demise Altitude = 75.517185
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Reaction wheel motors
Demise Altitude = 73.851126
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bottom Circuit Board with C-band Antenna
Demise Altitude = 77.161150



Care Weather Technologies, Inc.
ODAR for the Veery-0H Constellation

Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Side Circuit Boards
Demise Altitude = 77.164045
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = VHF Antenna
Demise Altitude = 77.986555
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = UHF Antenna
Demise Altitude = 77.934129
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Circuit Board with S-band Antenna
Demise Altitude = 77.164045
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Circuit Board with X-band Antenna
Demise Altitude = 77.164045
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Deployable Solar Panels
Demise Altitude = 77.256270
Debris Casualty Area = 0.000000



Care Weather Technologies, Inc.
ODAR for the Veery-0H Constellation

Impact Kinetic Energy = 0.000000

name = Iridium Patch Antenna

Demise Altitude = 0.000000

Debris Casualty Area = 0.304342

Impact Kinetic Energy = 0.685331

name = Heat Pipe

Demise Altitude = 77.663261

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Star Tracker Baffle

Demise Altitude = 75.517521

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Radar Heat Sink

Demise Altitude = 75.263961

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

name = Star Tracker

Demise Altitude = 75.607283

Debris Casualty Area = 0.000000

Impact Kinetic Energy = 0.000000

===== End of Requirement 4.7-1 =====

08 07 2026; 10:37:22AM Project Data Saved To File

Appendix B: Activity Log From NASA DAS for Orbital Lifetime Requirement

Sun Synchronous Orbit

06 17 2026; 13:49:09PM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.088000 (yr)
Perigee Altitude = 530.000000 (km)
Apogee Altitude = 530.000000 (km)
Inclination = 97.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.027800 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.994998 (yr)
Time Spent in LEO during Lifetime = 5.994938 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
06 17 2026; 13:49:25PM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.249000 (yr)

Perigee Altitude = 530.000000 (km)
Apogee Altitude = 530.000000 (km)
Inclination = 97.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.029000 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.999132 (yr)
Time Spent in LEO during Lifetime = 5.999132 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
06 17 2026; 13:49:43PM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.499000 (yr)
Perigee Altitude = 530.000000 (km)
Apogee Altitude = 530.000000 (km)
Inclination = 97.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.029500 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.996393 (yr)
Time Spent in LEO during Lifetime = 5.996393 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
06 17 2026; 13:50:11PM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.751000 (yr)
Perigee Altitude = 530.000000 (km)
Apogee Altitude = 530.000000 (km)
Inclination = 97.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.028000 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.996226 (yr)
Time Spent in LEO during Lifetime = 5.996183 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
06 17 2026; 13:50:27PM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.087000 (yr)
Perigee Altitude = 530.000000 (km)
Apogee Altitude = 530.000000 (km)
Inclination = 97.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.024100 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.994158 (yr)
Time Spent in LEO during Lifetime = 5.994158 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered
06 17 2026; 13:50:53PM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.251000 (yr)
Perigee Altitude = 530.000000 (km)
Apogee Altitude = 530.000000 (km)
Inclination = 97.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.022000 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.996561 (yr)
Time Spent in LEO during Lifetime = 5.996561 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered
06 17 2026; 13:51:13PM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.500000 (yr)
Perigee Altitude = 530.000000 (km)
Apogee Altitude = 530.000000 (km)
Inclination = 97.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.019100 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.999298 (yr)
Time Spent in LEO during Lifetime = 5.999298 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered
06 17 2026; 13:51:52PM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.751000 (yr)
Perigee Altitude = 530.000000 (km)
Apogee Altitude = 530.000000 (km)
Inclination = 97.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.016700 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.996894 (yr)
Time Spent in LEO during Lifetime = 5.996894 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered

Mid-Inclination Orbit

08 04 2026; 08:05:20AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.088000 (yr)
Perigee Altitude = 535.000000 (km)
Apogee Altitude = 535.000000 (km)
Inclination = 53.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.031800 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.988683 (yr)
Time Spent in LEO during Lifetime = 5.988683 (yr)

Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
08 04 2026; 08:05:30AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.249000 (yr)
Perigee Altitude = 535.000000 (km)
Apogee Altitude = 535.000000 (km)
Inclination = 53.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.033100 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.999299 (yr)
Time Spent in LEO during Lifetime = 5.999299 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
08 04 2026; 08:05:39AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.499000 (yr)
Perigee Altitude = 535.000000 (km)
Apogee Altitude = 535.000000 (km)
Inclination = 53.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.033600 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.999131 (yr)

Time Spent in LEO during Lifetime = 5.999131 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
08 04 2026; 08:05:53AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.751000 (yr)
Perigee Altitude = 535.000000 (km)
Apogee Altitude = 535.000000 (km)
Inclination = 53.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.031900 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.996226 (yr)
Time Spent in LEO during Lifetime = 5.996226 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
08 04 2026; 08:06:05AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.003000 (yr)
Perigee Altitude = 535.000000 (km)
Apogee Altitude = 535.000000 (km)
Inclination = 53.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.028600 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.996728 (yr)
Time Spent in LEO during Lifetime = 5.996728 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
08 04 2026; 08:06:17AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.251000 (yr)
Perigee Altitude = 535.000000 (km)
Apogee Altitude = 535.000000 (km)
Inclination = 53.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.025000 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.996729 (yr)
Time Spent in LEO during Lifetime = 5.996729 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered
08 04 2026; 08:06:30AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.500000 (yr)
Perigee Altitude = 535.000000 (km)
Apogee Altitude = 535.000000 (km)
Inclination = 53.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.021700 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.997735 (yr)
Time Spent in LEO during Lifetime = 5.997735 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered
08 04 2026; 08:06:45AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.751000 (yr)
Perigee Altitude = 535.000000 (km)
Apogee Altitude = 535.000000 (km)
Inclination = 53.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.019000 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.992090 (yr)
Time Spent in LEO during Lifetime = 5.992090 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered

Near Polar Orbit

****INPUT****

Start Year = 2027.088000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)

Area-To-Mass Ratio = 0.023500 (m^2/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.994999 (yr)
Time Spent in LEO during Lifetime = 5.994999 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:55:06AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.164000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.024100 (m^2/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.987122 (yr)
Time Spent in LEO during Lifetime = 5.987122 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:55:15AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.249000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)

Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.024500 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.997736 (yr)
Time Spent in LEO during Lifetime = 5.997736 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:55:31AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.332000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.024800 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.999466 (yr)
Time Spent in LEO during Lifetime = 5.999466 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:55:42AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.416000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)

RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.025000 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.994325 (yr)
Time Spent in LEO during Lifetime = 5.994325 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:55:56AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.499000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.024900 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.999466 (yr)
Time Spent in LEO during Lifetime = 5.999466 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:56:08AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.584000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)

Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.024700 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.997063 (yr)
Time Spent in LEO during Lifetime = 5.997045 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:56:22AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.668000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.024300 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.996896 (yr)
Time Spent in LEO during Lifetime = 5.996896 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:56:35AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.751000 (yr)
Perigee Altitude = 520.000000 (km)

Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.023800 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.993823 (yr)
Time Spent in LEO during Lifetime = 5.993823 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:56:55AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.836000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.023100 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.994159 (yr)
Time Spent in LEO during Lifetime = 5.994159 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:57:14AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2027.918000 (yr)

Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.022300 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.996896 (yr)
Time Spent in LEO during Lifetime = 5.996896 (yr)
Last year of Propagation = 2033 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:57:40AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.087000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.020600 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.995166 (yr)
Time Spent in LEO during Lifetime = 5.995166 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:58:13AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.251000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.018900 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.994828 (yr)
Time Spent in LEO during Lifetime = 5.994828 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:58:25AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.500000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.016500 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.995163 (yr)
Time Spent in LEO during Lifetime = 5.995129 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered
07 31 2026; 10:58:37AM Science and Engineering - Orbit
Lifetime/Dwell Time

****INPUT****

Start Year = 2028.751000 (yr)
Perigee Altitude = 520.000000 (km)
Apogee Altitude = 520.000000 (km)
Inclination = 90.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.014500 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 5.989686 (yr)
Time Spent in LEO during Lifetime = 5.989655 (yr)
Last year of Propagation = 2034 (yr)
Returned Error Message: Object reentered