

01 03 2022; 16:15:32PM Activity Log Started
01 03 2022; 16:15:33PM Opened Project H:\DAS\DAS 3.0\DAS3.1.2\project\AC16\
01 03 2022; 16:16:05PM Mission Editor Changes Applied
01 03 2022; 16:16:06PM Project Data Saved To File

01 03 2022; 16:16:21PM Processing Requirement 4.3-1: Return Status : Not Run

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No Project Data Available
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===== End of Requirement 4.3-1 =====

01 03 2022; 16:16:23PM Processing Requirement 4.3-2: Return Status : Passed

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No Project Data Available
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===== End of Requirement 4.3-2 =====

01 03 2022; 16:38:17PM Processing Requirement 4.5-1: Return Status : Passed

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Run Data
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****INPUT****

Space Structure Name = AC16
Space Structure Type = Payload
Perigee Altitude = 525.000 (km)
Apogee Altitude = 525.000 (km)
Inclination = 50.000 (deg)
RAAN = 0.000 (deg)
Argument of Perigee = 0.000 (deg)
Mean Anomaly = 0.000 (deg)
Final Area-To-Mass Ratio = 0.0086 (m²/kg)
Start Year = 2022.750 (yr)
Initial Mass = 9.372 (kg)
Final Mass = 9.372 (kg)
Duration = 1.000 (yr)
Station-Kept = False
Abandoned = True

****OUTPUT****

Collision Probability = 5.7513E-07
Returned Message: Normal Processing
Date Range Message: Normal Date Range
Status = Pass

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

01 03 2022; 16:38:19PM

Processing Requirement 4.6: Return Status : Passed

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Project Data

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****INPUT****

Space Structure Name = AC16
Space Structure Type = Payload

Perigee Altitude = 525.000000 (km)
Apogee Altitude = 525.000000 (km)
Inclination = 50.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Mean Anomaly = 0.000000 (deg)
Area-To-Mass Ratio = 0.008564 (m²/kg)
Start Year = 2022.750000 (yr)
Initial Mass = 9.372000 (kg)
Final Mass = 9.372000 (kg)
Duration = 1.000000 (yr)
Station Kept = False
Abandoned = True
PMD Perigee Altitude = 516.239245 (km)
PMD Apogee Altitude = 521.783624 (km)
PMD Inclination = 49.999463 (deg)
PMD RAAN = 22.214898 (deg)
PMD Argument of Perigee = 14.060179 (deg)
PMD Mean Anomaly = 0.000000 (deg)

****OUTPUT****

Suggested Perigee Altitude = 516.239245 (km)
Suggested Apogee Altitude = 521.783624 (km)
Returned Error Message = Passes LEO reentry orbit criteria.

Released Year = 2029 (yr)
Requirement = 61
Compliance Status = Pass

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

01 03 2022; 16:38:32PM

Processing Requirement 4.7-1: Return Status : Passed

*****INPUT*****

Item Number = 1

name = AC16
quantity = 1
parent = 0
materialID = 9
type = Box
Aero Mass = 9.372000
Thermal Mass = 9.372000
Diameter/Width = 0.226300
Length = 0.396300
Height = 0.100000

name = -Y Base Plate
quantity = 1
parent = 1
materialID = 9
type = Box
Aero Mass = 2.987200
Thermal Mass = 1.126000
Diameter/Width = 0.226000
Length = 0.346000
Height = 0.024000

name = SCR-104
quantity = 1
parent = 2
materialID = 8
type = Box
Aero Mass = 0.300000
Thermal Mass = 0.300000
Diameter/Width = 0.083000
Length = 0.083000
Height = 0.064000

name = NFOV Star Tracker
quantity = 1
parent = 2
materialID = 8
type = Cylinder
Aero Mass = 0.150000
Thermal Mass = 0.150000
Diameter/Width = 0.046000
Length = 0.104000

name = Bracket-Strut
quantity = 1
parent = 2
materialID = 8
type = Cylinder
Aero Mass = 0.020000
Thermal Mass = 0.020000
Diameter/Width = 0.010000
Length = 0.104000

name = Bracket-Spacer
quantity = 48
parent = 2
materialID = 8
type = Cylinder
Aero Mass = 0.000400
Thermal Mass = 0.000400
Diameter/Width = 0.006000
Length = 0.007000

name = Bracket-Stack Top
quantity = 2
parent = 2
materialID = 8
type = Box
Aero Mass = 0.008000
Thermal Mass = 0.008000
Diameter/Width = 0.016000
Length = 0.784000
Height = 0.010000

name = Bracket-Battery
quantity = 2
parent = 2
materialID = 8
type = Box
Aero Mass = 0.045000

Thermal Mass = 0.045000
Diameter/Width = 0.084000
Length = 0.088000
Height = 0.027000

name = Bracket-Electronics Plate
quantity = 1
parent = 2
materialID = 8
type = Box
Aero Mass = 0.064000
Thermal Mass = 0.064000
Diameter/Width = 0.089000
Length = 0.183000
Height = 0.004000

name = Bracket-Payload Interface
quantity = 1
parent = 2
materialID = 8
type = Box
Aero Mass = 0.020000
Thermal Mass = 0.020000
Diameter/Width = 0.084000
Length = 0.084000
Height = 0.003000

name = Bracket-Battery Heater
quantity = 2
parent = 2
materialID = 8
type = Box
Aero Mass = 0.056000
Thermal Mass = 0.056000
Diameter/Width = 0.053000
Length = 0.077000
Height = 0.008000

name = Bus PCBs (-Y)
quantity = 12
parent = 2
materialID = 23
type = Box
Aero Mass = 0.045000
Thermal Mass = 0.045000
Diameter/Width = 0.080000
Length = 0.080000
Height = 0.004000

name = Payload PCBs
quantity = 5
parent = 2
materialID = 23
type = Box
Aero Mass = 0.022000
Thermal Mass = 0.022000
Diameter/Width = 0.060000
Length = 0.080000
Height = 0.003000

name = Battery
quantity = 8
parent = 2
materialID = 54
type = Cylinder
Aero Mass = 0.045000
Thermal Mass = 0.045000
Diameter/Width = 0.018000
Length = 0.065000

name = Torque Rod
quantity = 3
parent = 2
materialID = -1
type = Cylinder
Aero Mass = 0.020000
Thermal Mass = 0.020000
Diameter/Width = 0.008000
Length = 0.079000

name = +Y Base Plate
quantity = 1
parent = 1
materialID = 9
type = Box
Aero Mass = 1.988000
Thermal Mass = 0.864000
Diameter/Width = 0.226000
Length = 0.346000
Height = 0.016000

name = Reaction Wheel with Motor
quantity = 3
parent = 16
materialID = 54
type = Cylinder

Aero Mass = 0.100000
Thermal Mass = 0.100000
Diameter/Width = 0.033000
Length = 0.040000

name = Bracket-Reaction Wheel
quantity = 1
parent = 16
materialID = 8
type = Box
Aero Mass = 0.059000
Thermal Mass = 0.059000
Diameter/Width = 0.048000
Length = 0.056000
Height = 0.025000

name = Counterweight
quantity = 1
parent = 16
materialID = 70
type = Box
Aero Mass = 0.642000
Thermal Mass = 0.642000
Diameter/Width = 0.047000
Length = 0.152000
Height = 0.029000

name = STIM210
quantity = 1
parent = 16
materialID = 23
type = Box
Aero Mass = 0.052000
Thermal Mass = 0.052000
Diameter/Width = 0.039000
Length = 0.045000
Height = 0.022000

name = Bus PCB (+Y)
quantity = 1
parent = 16
materialID = 23
type = Box
Aero Mass = 0.005000
Thermal Mass = 0.005000
Diameter/Width = 0.038000
Length = 0.064000
Height = 0.002000

name = MDA
quantity = 1
parent = 16
materialID = 8
type = Box
Aero Mass = 0.066000
Thermal Mass = 0.066000
Diameter/Width = 0.092000
Length = 0.179000
Height = 0.003000

name = -X Side Plate
quantity = 1
parent = 1
materialID = 9
type = Box
Aero Mass = 0.275500
Thermal Mass = 0.149000
Diameter/Width = 0.092000
Length = 0.346000
Height = 0.002000

name = NVIDIA
quantity = 1
parent = 23
materialID = 23
type = Box
Aero Mass = 0.123000
Thermal Mass = 0.123000
Diameter/Width = 0.050000
Length = 0.087000
Height = 0.018000

name = Wing Release (-X)
quantity = 1
parent = 23
materialID = 50
type = Box
Aero Mass = 0.003500
Thermal Mass = 0.003500
Diameter/Width = 0.014000
Length = 0.051000
Height = 0.007000

name = +X Side Plate
quantity = 1
parent = 1

materialID = 9
type = Box
Aero Mass = 0.413500
Thermal Mass = 0.151000
Diameter/Width = 0.089000
Length = 0.346000
Height = 0.006000

name = Wing Release (+X)
quantity = 1
parent = 26
materialID = 50
type = Box
Aero Mass = 0.003500
Thermal Mass = 0.003500
Diameter/Width = 0.014000
Length = 0.051000
Height = 0.007000

name = CSAC Payload
quantity = 1
parent = 26
materialID = 23
type = Box
Aero Mass = 0.109000
Thermal Mass = 0.109000
Diameter/Width = 0.079000
Length = 0.094000
Height = 0.014000

name = Radiation Payload
quantity = 1
parent = 26
materialID = 8
type = Box
Aero Mass = 0.150000
Thermal Mass = 0.150000
Diameter/Width = 0.061000
Length = 0.062000
Height = 0.030000

name = -Z End Plate
quantity = 1
parent = 1
materialID = 9
type = Box
Aero Mass = 0.350000
Thermal Mass = 0.172000

Diameter/Width = 0.113000
Length = 0.239000
Height = 0.017000

name = SEHS Sensor
quantity = 4
parent = 30
materialID = 8
type = Box
Aero Mass = 0.015500
Thermal Mass = 0.015500
Diameter/Width = 0.015000
Length = 0.044000
Height = 0.015000

name = Sensor PCB
quantity = 1
parent = 30
materialID = 23
type = Box
Aero Mass = 0.011000
Thermal Mass = 0.011000
Diameter/Width = 0.057000
Length = 0.060000
Height = 0.002000

name = Antenna
quantity = 3
parent = 30
materialID = 40
type = Box
Aero Mass = 0.030000
Thermal Mass = 0.030000
Diameter/Width = 0.050000
Length = 0.050000
Height = 0.050000

name = Antenna Plate
quantity = 3
parent = 30
materialID = 8
type = Box
Aero Mass = 0.005000
Thermal Mass = 0.005000
Diameter/Width = 0.050000
Length = 0.050000
Height = 0.001000

name = +Z End Plate
quantity = 1
parent = 1
materialID = 9
type = Box
Aero Mass = 0.812000
Thermal Mass = 0.140000
Diameter/Width = 0.113000
Length = 0.226000
Height = 0.013000

name = Thruster
quantity = 1
parent = 35
materialID = 8
type = Box
Aero Mass = 0.523000
Thermal Mass = 0.523000
Diameter/Width = 0.063000
Length = 0.064000
Height = 0.050000

name = MFOV Star Tracker
quantity = 1
parent = 35
materialID = 8
type = Cylinder
Aero Mass = 0.073000
Thermal Mass = 0.073000
Diameter/Width = 0.042000
Length = 0.046000

name = Payload Camera
quantity = 1
parent = 35
materialID = 8
type = Cylinder
Aero Mass = 0.076000
Thermal Mass = 0.076000
Diameter/Width = 0.034000
Length = 0.069000

name = Bracket-Flashlight
quantity = 1
parent = 1
materialID = 8
type = Box
Aero Mass = 2.253000

Thermal Mass = 0.816000
Diameter/Width = 0.104000
Length = 0.205000
Height = 0.103000

name = Laser
quantity = 1
parent = 39
materialID = 8
type = Box
Aero Mass = 0.415000
Thermal Mass = 0.415000
Diameter/Width = 0.082000
Length = 0.121000
Height = 0.031000

name = Secondary Optic
quantity = 1
parent = 39
materialID = 8
type = Box
Aero Mass = 0.196000
Thermal Mass = 0.196000
Diameter/Width = 0.058000
Length = 0.101000
Height = 0.041000

name = Flashlight PCBs
quantity = 4
parent = 39
materialID = 23
type = Box
Aero Mass = 0.100000
Thermal Mass = 0.100000
Diameter/Width = 0.082000
Length = 0.104000
Height = 0.007000

name = Receiver
quantity = 1
parent = 39
materialID = 8
type = Cylinder
Aero Mass = 0.321000
Thermal Mass = 0.321000
Diameter/Width = 0.053000
Length = 0.089000

name = FSM
quantity = 1
parent = 39
materialID = 8
type = Box
Aero Mass = 0.105000
Thermal Mass = 0.105000
Diameter/Width = 0.041000
Length = 0.041000
Height = 0.037000

name = AC16 Wing
quantity = 2
parent = 1
materialID = 23
type = Box
Aero Mass = 0.133000
Thermal Mass = 0.133000
Diameter/Width = 0.085000
Length = 0.318000
Height = 0.006000

name = Solar Cells
quantity = 20
parent = 1
materialID = 80
type = Box
Aero Mass = 0.001300
Thermal Mass = 0.001300
Diameter/Width = 0.040000
Length = 0.069000
Height = 0.000500

*****OUTPUT****

Item Number = 1

name = AC16
Demise Altitude = 77.999580
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = -Y Base Plate
Demise Altitude = 74.247047
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = SCR-104
Demise Altitude = 69.156586
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = NFOV Star Tracker
Demise Altitude = 70.744698
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bracket-Strut
Demise Altitude = 72.898643
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bracket-Spacer
Demise Altitude = 73.846344
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bracket-Stack Top
Demise Altitude = 74.204079
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bracket-Battery
Demise Altitude = 73.203415
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bracket-Electronics Plate
Demise Altitude = 73.237892
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bracket-Payload Interface
Demise Altitude = 73.583267
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bracket-Battery Heater
Demise Altitude = 72.005417
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bus PCBs (-Y)
Demise Altitude = 73.191605
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Payload PCBs
Demise Altitude = 73.651779
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Battery
Demise Altitude = 67.099358
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Torque Rod
Demise Altitude = 70.637909
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = +Y Base Plate
Demise Altitude = 74.918579
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Reaction Wheel with Motor
Demise Altitude = 62.757206
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bracket-Reaction Wheel
Demise Altitude = 72.340469
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Counterweight
Demise Altitude = 72.182953
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = STIM210
Demise Altitude = 72.849518
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bus PCB (+Y)
Demise Altitude = 74.684250
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = MDA
Demise Altitude = 73.784813
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = -X Side Plate
Demise Altitude = 76.862976
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = NVIDIA
Demise Altitude = 73.929306
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Wing Release (-X)
Demise Altitude = 76.706429
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = +X Side Plate
Demise Altitude = 76.902092
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Wing Release (+X)
Demise Altitude = 76.759193
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = CSAC Payload
Demise Altitude = 74.923935
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Radiation Payload
Demise Altitude = 71.819023
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = -Z End Plate
Demise Altitude = 76.747108
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = SEHS Sensor
Demise Altitude = 75.146469
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Sensor PCB
Demise Altitude = 76.295860
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Antenna
Demise Altitude = 75.259636
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Antenna Plate
Demise Altitude = 76.344986
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = +Z End Plate
Demise Altitude = 76.945580
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Thruster
Demise Altitude = 66.191589
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = MFOV Star Tracker
Demise Altitude = 73.630066
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Payload Camera
Demise Altitude = 73.893211
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Bracket-Flashlight
Demise Altitude = 74.175926
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Laser
Demise Altitude = 68.313347
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Secondary Optic
Demise Altitude = 71.018517
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Flashlight PCBs
Demise Altitude = 72.656822
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Receiver
Demise Altitude = 67.736275
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = FSM
Demise Altitude = 70.032860
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = AC16 Wing
Demise Altitude = 77.125145
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

name = Solar Cells
Demise Altitude = 77.918556
Debris Casualty Area = 0.000000
Impact Kinetic Energy = 0.000000

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

01 03 2022; 16:38:33PM Project Data Saved To File
01 03 2022; 16:39:14PM Science and Engineering - Orbit Lifetime/Dwell Time

****INPUT****

Start Year = 2022.750000 (yr)
Perigee Altitude = 525.000000 (km)
Apogee Altitude = 525.000000 (km)
Inclination = 50.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.002524 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 22.817248 (yr)
Time Spent in LEO during Lifetime = 22.817248 (yr)
Last year of Propagation = 2045 (yr)
Returned Error Message: Object reentered
01 03 2022; 16:39:24PM Science and Engineering - Orbit Lifetime/Dwell Time

****INPUT****

Start Year = 2022.750000 (yr)
Perigee Altitude = 525.000000 (km)
Apogee Altitude = 525.000000 (km)
Inclination = 50.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.008564 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 6.921287 (yr)

Time Spent in LEO during Lifetime = 6.921287 (yr)

Last year of Propagation = 2029 (yr)

Returned Error Message: Object reentered

01 03 2022; 16:39:33PM Science and Engineering - Orbit Lifetime/Dwell Time

****INPUT****

Start Year = 2022.750000 (yr)
Perigee Altitude = 525.000000 (km)
Apogee Altitude = 525.000000 (km)
Inclination = 50.000000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Area-To-Mass Ratio = 0.014600 (m²/kg)

****OUTPUT****

Orbital Lifetime from Startyr = 3.674196 (yr)

Time Spent in LEO during Lifetime = 3.674196 (yr)

Last year of Propagation = 2026 (yr)

Returned Error Message: Object reentered

01 03 2022; 16:40:03PM Project Data Saved To File

01 03 2022; 16:40:32PM Project Data Saved To File