

## AC5 MATERIALS LIST

| Part Number  | Description             | Shape   | No. Used<br>(Per Satellite) | Material                    | Dia or Width (m) | Length (m)   | Height<br>(m) | Area<br>(m*m) | Wall/Core<br>Thickness (m) | Face Sheet<br>Thickness (m) | Mass ea.<br>(grams) | Mass ea.<br>(kg) | Area/mass<br>(m*m/kg) |
|--------------|-------------------------|---------|-----------------------------|-----------------------------|------------------|--------------|---------------|---------------|----------------------------|-----------------------------|---------------------|------------------|-----------------------|
| AC5-4201-1   | Battery Bracket         | Box     | 2                           | 6061-T6                     | <b>0.09</b>      | <b>0.013</b> | <b>0.026</b>  | 0.001282667   |                            |                             | 12.2                | <b>0.012</b>     | <b>0.105</b>          |
| AC5-2201-1   | Reaction Wheel Block    | Box     | 1                           | 6061-T6                     | <b>0.028</b>     | <b>0.028</b> | <b>0.029</b>  | 0.000802667   |                            |                             | 15.0                | <b>0.015</b>     | <b>0.054</b>          |
| AC4-7003-1   | Antenna                 | Plate   | 2                           | Copper/Ceramic              | <b>0.05</b>      | <b>0.04</b>  | <b>0.003</b>  | 0.000756667   |                            |                             | 16.1                | <b>0.016</b>     | <b>0.047</b>          |
| 18650/CR123A | Batteries               | Cylinde | 1                           | SS                          | <b>0.018</b>     | <b>0.065</b> | -             | 0.00117       |                            |                             | 45.0                | <b>0.045</b>     | <b>0.026</b>          |
| AVO          | Beacon                  | Cylinde | 1                           | varies                      | <b>0.026</b>     | <b>0.04</b>  | <b>0.025</b>  | 0.000896667   |                            |                             | 22.7                | <b>0.023</b>     | <b>0.040</b>          |
| PSSC2-3300-1 | Circuit Boards          | Plate   | 1                           | FR4                         | <b>0.056</b>     | <b>0.056</b> | <b>0.002</b>  | 0.00112       |                            |                             | 30                  | <b>0.030</b>     | <b>0.037</b>          |
| ADIS16488    | ADIS                    | Box     | 1                           | varies                      | <b>0.044</b>     | <b>0.047</b> | <b>0.014</b>  | 0.001114      |                            |                             | 48.5                | <b>0.049</b>     | <b>0.023</b>          |
| AC5-1101-1   | Lids                    | Plate   | 1                           | 6061-T6                     | <b>0.105</b>     | <b>0.096</b> | <b>0.004</b>  | 0.003628      |                            |                             | 85.8                | <b>0.086</b>     | <b>0.042</b>          |
| AC5-4001-1   | Payload Interface Plate | Plate   | 1                           | 6061-T6                     | <b>0.097</b>     | <b>0.097</b> | <b>0.006</b>  | 0.003524333   |                            |                             | 92.3                | <b>0.092</b>     | <b>0.038</b>          |
| AC5-2700-1   | STIM                    | Box     | 1                           | 6061-T6 and other materials | <b>0.053</b>     | <b>0.048</b> | <b>0.026</b>  | 0.001723333   |                            |                             | 110                 | <b>0.110</b>     | <b>0.016</b>          |
| AC5-5000-1   | Pea Placer              | Cylinde | 1                           | 6061-T6/Vespel/Stainless    | <b>0.043</b>     | <b>0.037</b> | -             | 0.001591      |                            |                             | 117.2               | <b>0.117</b>     | <b>0.014</b>          |
| AC5-3000-1   | EM Assembly             | Box     | 1                           | FR4                         | <b>0.078</b>     | <b>0.089</b> | <b>0.047</b>  | 0.004930333   |                            |                             | 275                 | <b>0.275</b>     | <b>0.018</b>          |
| AC5-4000-1   | Payload Assembly        | Box     | 1                           | FR4/ 6061-T6/Glass          | <b>0.097</b>     | <b>0.097</b> | <b>0.092</b>  | 0.009085667   |                            |                             | 573                 | <b>0.573</b>     | <b>0.016</b>          |
| AC5-2001-1   | Body Structure          | Box     | 1                           | 6061-T6                     | <b>0.105</b>     | <b>0.105</b> | <b>0.165</b>  | 0.015225      |                            |                             | 582.0               | <b>0.582</b>     | <b>0.026</b>          |
| CSTT-1       | CSTT cover              | Plate   | 1                           | Varies                      | <b>0.1</b>       | <b>0.083</b> | <b>0.006</b>  | 0.0042        |                            |                             | 20.0                | <b>0.020</b>     | <b>0.210</b>          |
| AC5-5100-1   | Pea                     | Cylinde | 10                          | Brass/Glass                 | <b>0.008</b>     | <b>0.013</b> | -             | 0.0001068     |                            |                             | 1.2                 | <b>0.001</b>     | <b>0.089</b>          |
| CSTT-2       | Tether                  | Cylinde | 1                           | Mylar                       | <b>0.08</b>      | <b>12</b>    | -             | 0.3136        |                            |                             | 18.0                | <b>0.018</b>     | <b>17.422</b>         |

## Instructions

1. Lump together identical items (like circuit boards, batteries, antenna, lids)
2. Get smallest area from the L, W, H dimensions (this is the worst case orientation)
3. For tether collision assessemnt, Use AC5 body and one end and Tether cover (8x8x0.5cm, 20 grams) as other (tether is 75mm wide, by like 0.1mm thick and 12 meters long)

## NOTES:

1. Headings for subassemblies are in BOLD
2. Purchased items are in shaded Part Number cells.