

AirBus-AE525 Wingbox contest (Fall 2019)

- Design and Build the **lightest semi-monocoque wingbox**

Geometry

Notes:

1. Active length of 46 inches + 1 inch for potting end
- 2.

Scoring rubric

The designs were scored based on the following formula

$$Score = S_{performance} + 2 S_{analysis} + 2 S_{report}$$

$$S_{performance} = 0.5 \frac{P_{max}}{W_{Wing}} + 0.5 \frac{Q}{t_Q} + 0.05 \left(\frac{P_{max}}{t_{max}} + \frac{P_{max}}{\chi_{max}} \right) + 4 \frac{10 W_{Wing}}{0.5} + 5 \frac{W_{adhesive}}{W_{Wing}}$$

$$S_{analysis} = 10 / 14 f / P_{max}, P_{pred}, 0.1 \left(\frac{10}{20} + \frac{10}{14} f / t_Q, t_{Q_pred}, 0.1 \right) + 20 / 14 f / t_{15}, t_{15_pred}, 0.1 \left(\frac{10}{20} + \frac{10}{14} f / t_{15}, t_{15_pred}, 0.1 \right)$$

~ Total weight of parts before assembly

~ weight of wingbox after assembly (lbs)

(should not exceed 0.7 lbs)

= / 0 ~ Weight of adhesive

_{max} ~ Measured fai



AIRBUS



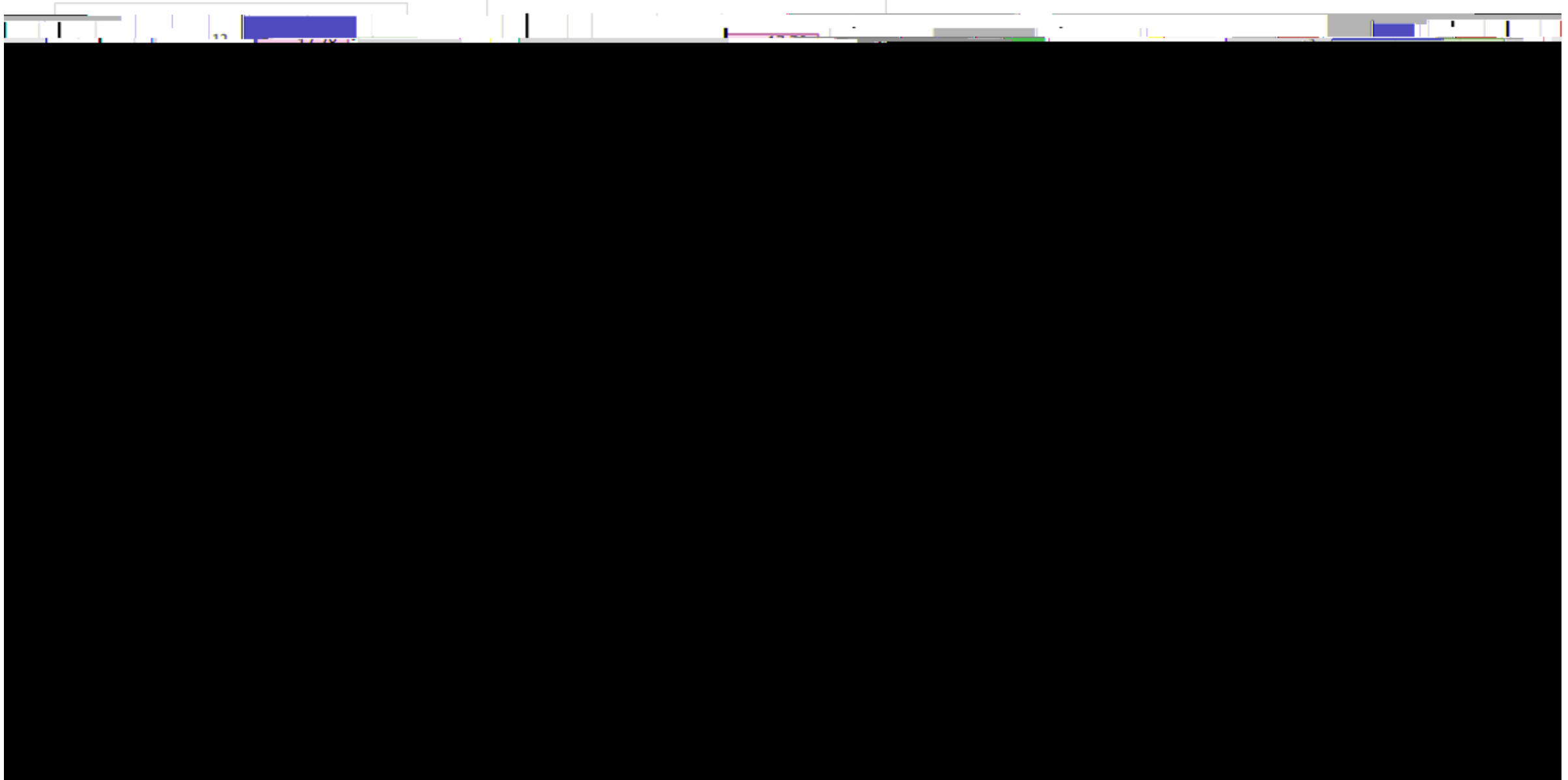
AirBUS-AE525 Wingbox contest (2019 Fall) :Winners

- 1ST PLACE
 - Yie Jian Chee, Christopher Mueller, Nelson Ghee, Sivaganeshwar Subramaniam
- 2ND PLACE
 - John Randall, Connor Devlin, Cameron Hoover, Daniel Pine
- 3RD PLACE
 - Christopher Trevino, Lan Nguyen, Yasaman Teherirozbahani, Kristopher Stewart

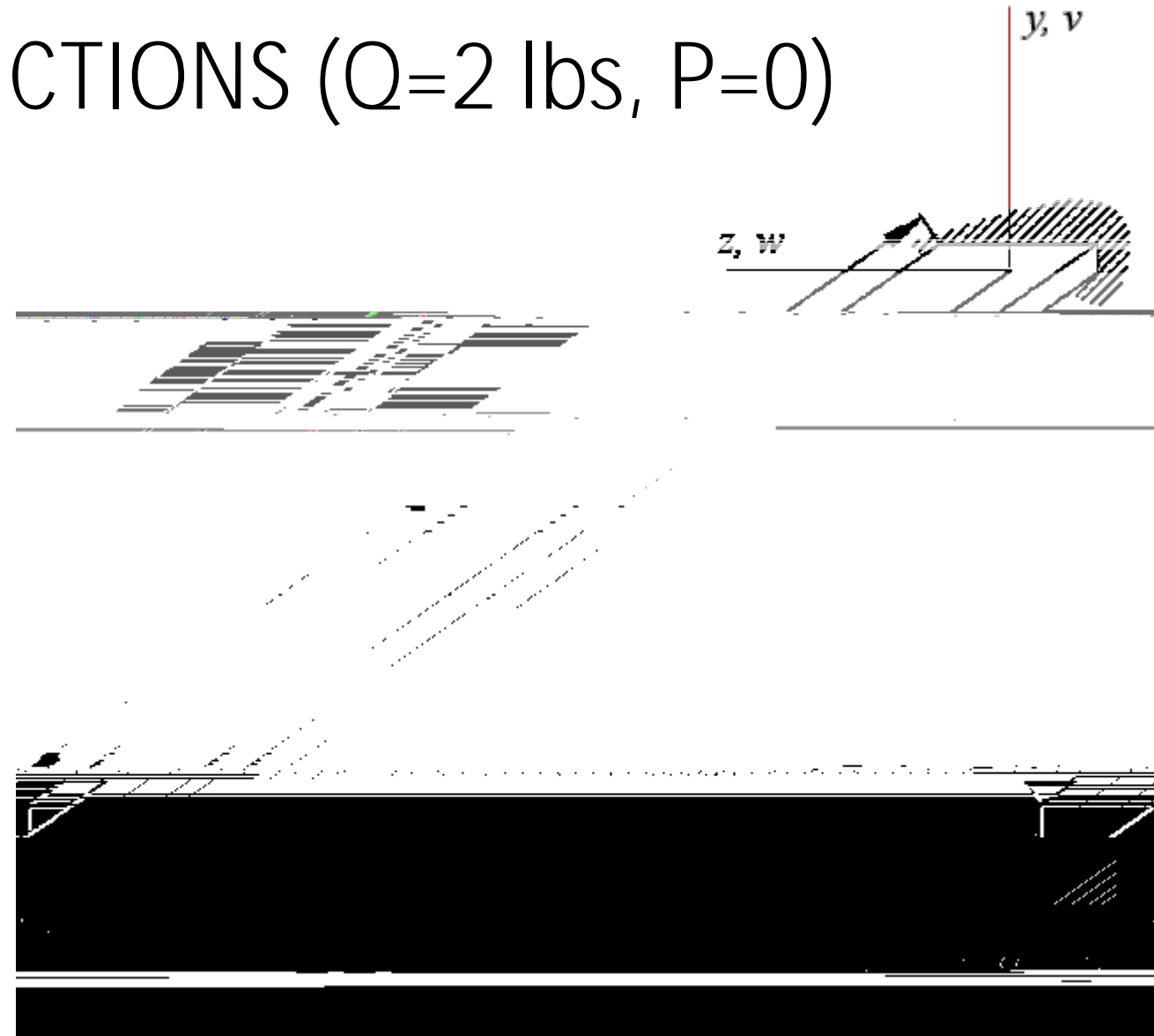
Cross-section geometries..



BREAKDOWN OF SCORES



MEASUREMENTS & PREDICTIONS (Q=2 lbs, P=0)



MEASUREMENTS & PREDICTIONS (Q=2 lbs, P=15 lbs)

