Test Case 2a: Wing/Body Deformation (cruise)

- **CFD/FEM start from unloaded (wind-off) geometry/grid**
- **CRM Wing/Body**
  - Reynolds number: 5M (LoQ)
  - Dynamic Pressure: Q_∞ =1384 psf
  - Mach number: 0.85(M_{cruise})
  - CL = 0.5000 +/- 0.0001 (Angle of Attack ~ 2.75 deg)
  - Temperature: 120.0 F (579.67 R / 322.04 K)
  - Reference Information: https://aiaa-dpw.larc.nasa.gov/Workshop7/DPW7-geom.html

Grid: Level 1-6

Comparison Data
NTF197: r44,r51,r53
NTF197: r92,r97,r99 *(WBT0)*
NTF215: r43,r103
NTF229: r296,r300,r302
ETW ESWIRP: r164,r182,r153
Ames216: r35,r126,r130,r133

- **Committee-supplied**
  - NASA CRM geometry in jig/unloaded condition
    - Trip location – Wing: 10% chord upper/lower surface
  - Grid Family: *https://dpw.larc.nasa.gov/DPW8/Static_Deformation/Test_Case_2*
    - L1:**T**iny/L2:**C**oarse/L3:**M**edium/L4:**F**ine/L5:e**X**tra-fine/L6:**U**ltra-fine
  - NASA CRM finite-element model: *https://dpw.larc.nasa.gov/DPW8/Static_Deformation/Test_Case_2/FEM_Models*

Measured Span Stations
η = (0.00,0.4286, 0.5546, 0.6773, 0.7954, 0.9150)

- **Comparison metrics**
  - Forces / Moments
  - Sectional Twist / Deformation
  - Sectional C_P distribution
  - Residuals (Flow & Structural Solver)