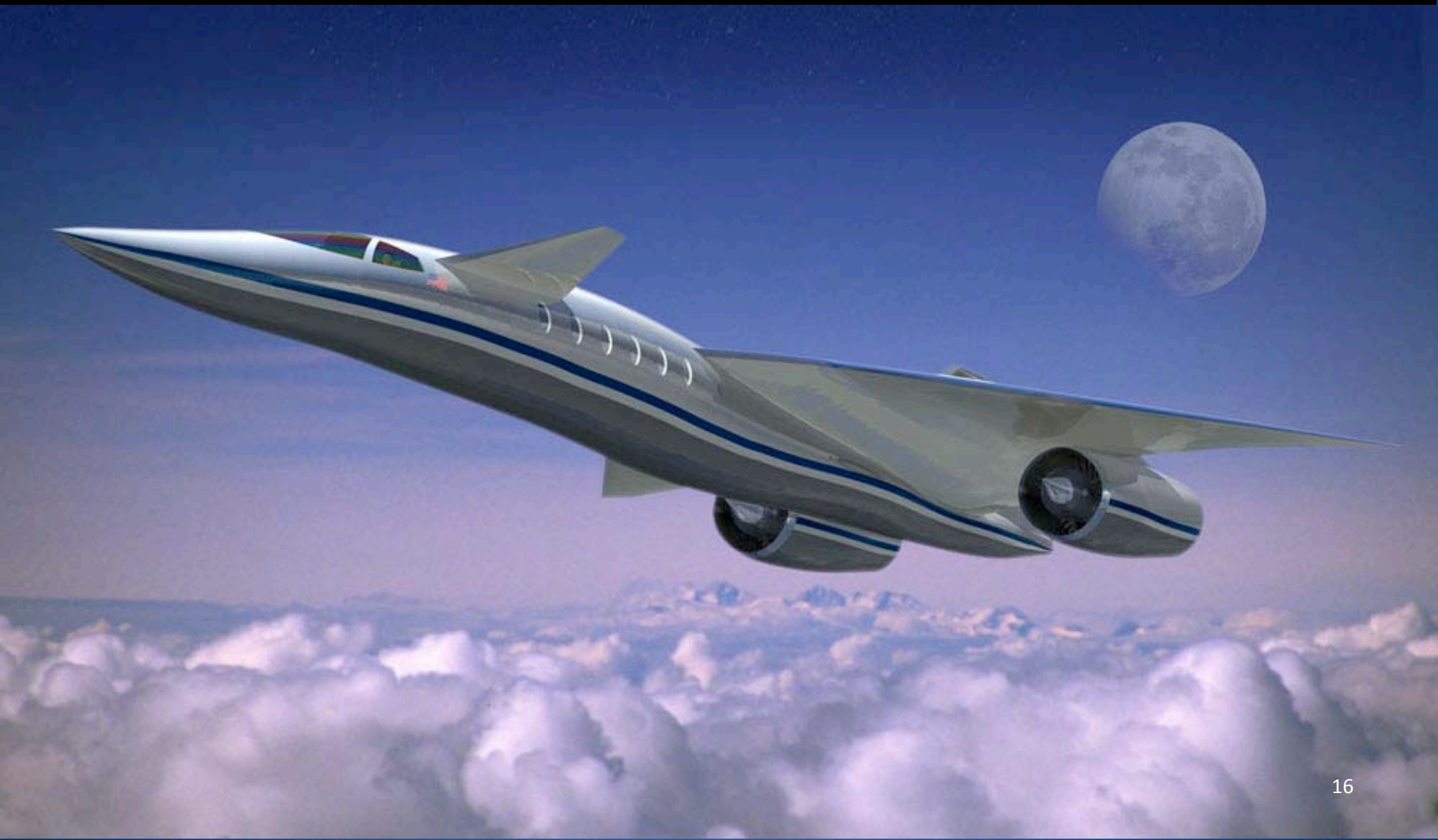
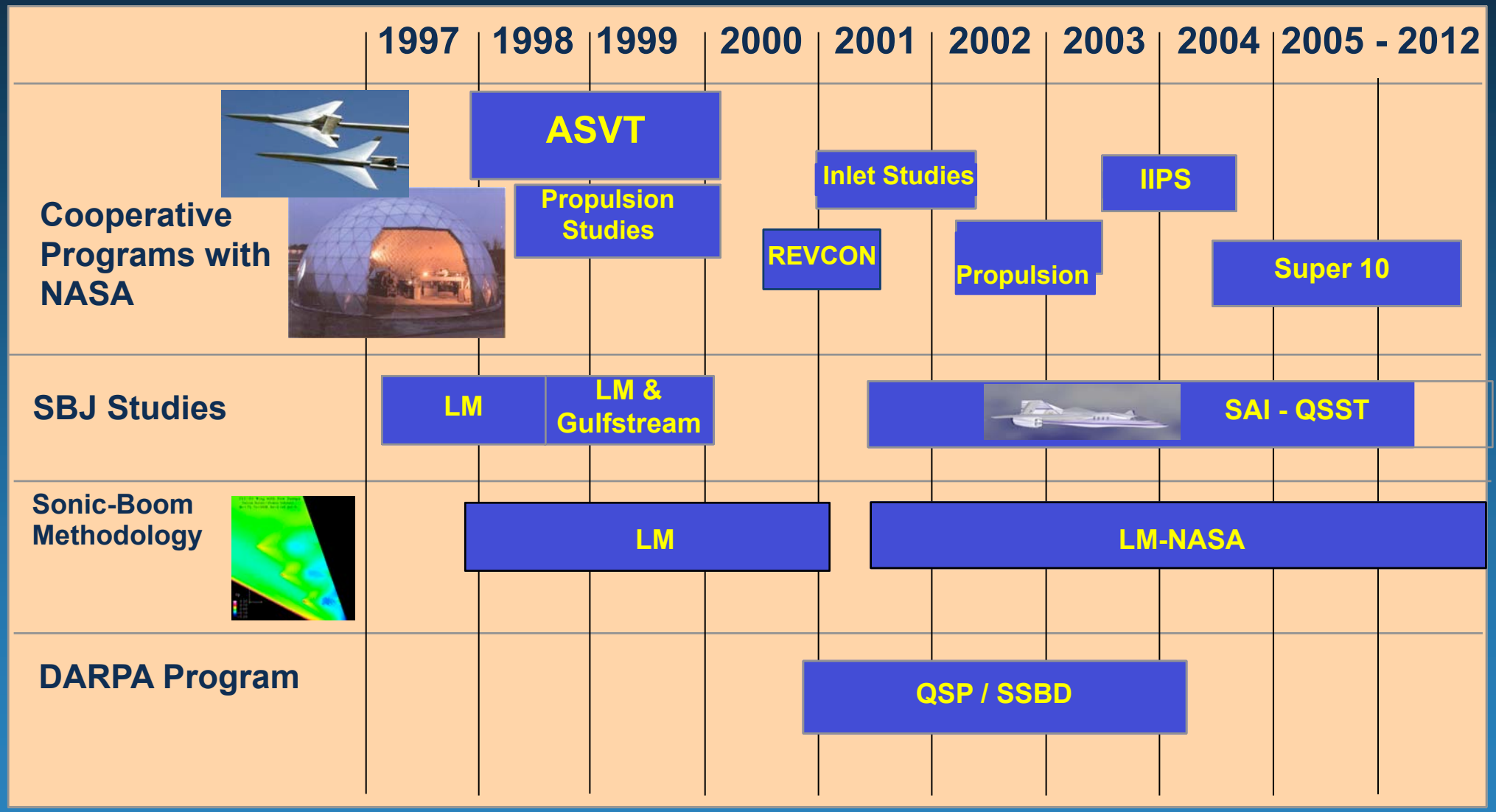
Technical Accomplishments



Sources of QSST Technology

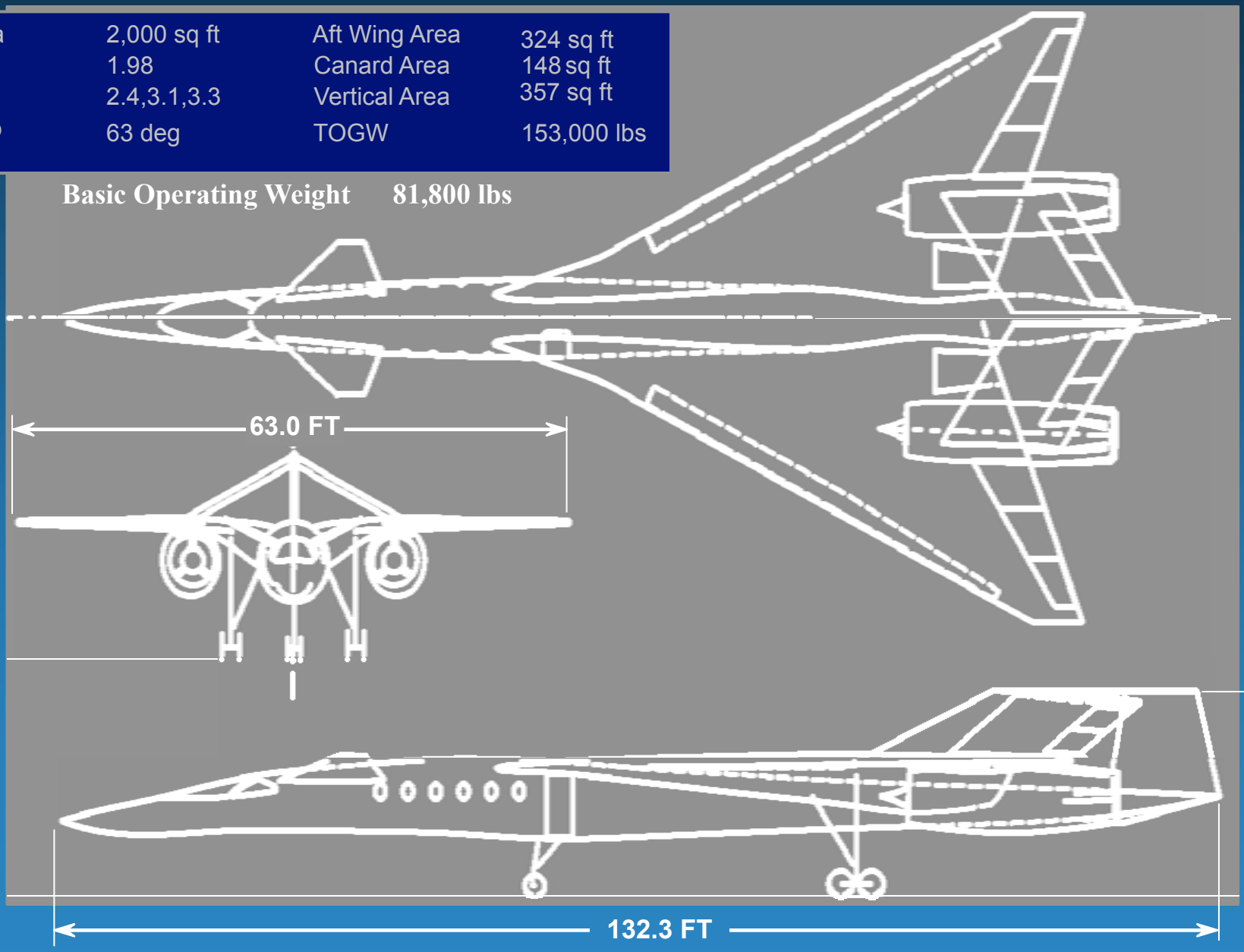


SAI and LM investment over $70M to date

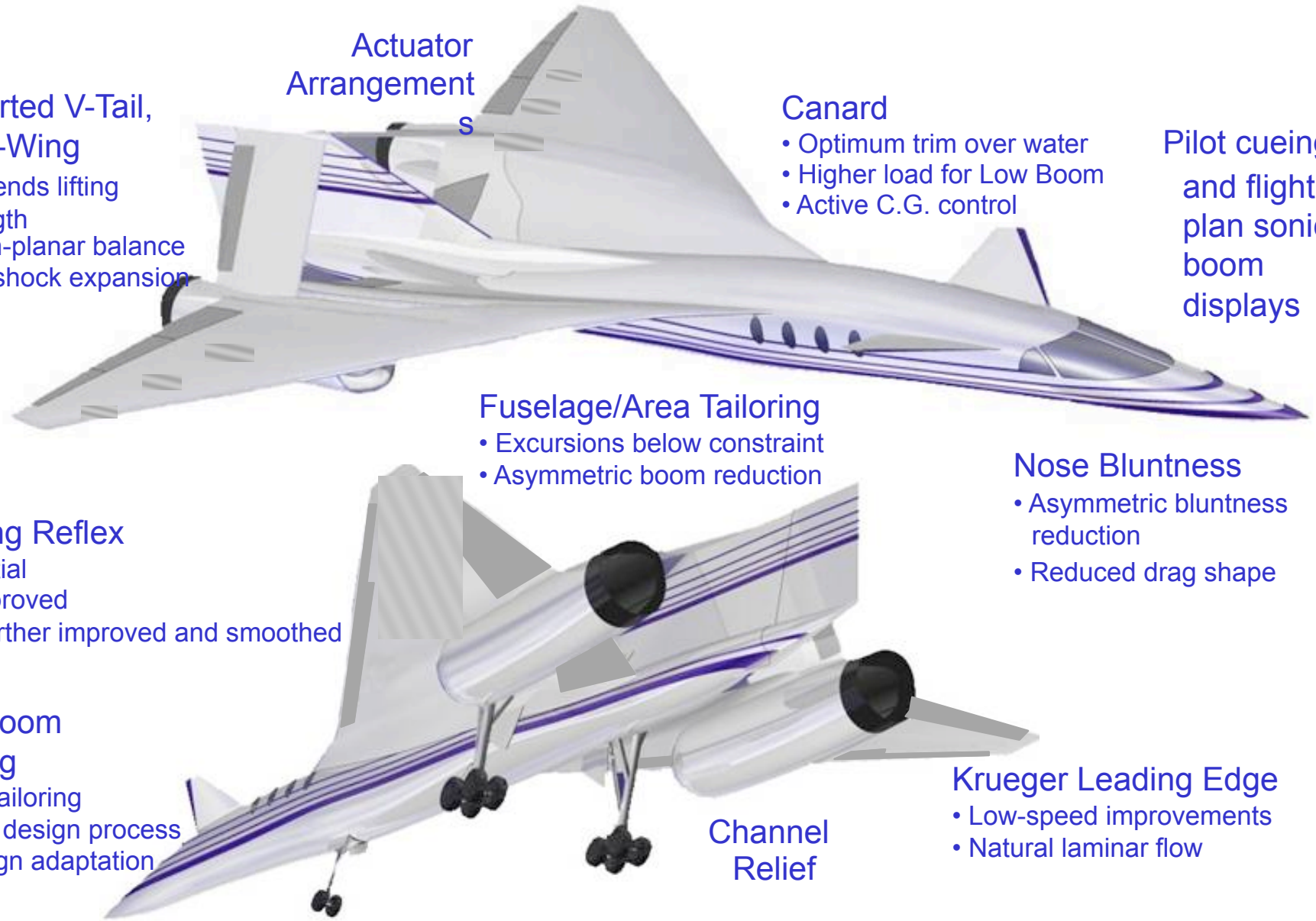
QSST – 3 View

Wing Area	2,000 sq ft	Aft Wing Area	324 sq ft
AR	1.98	Canard Area	148 sq ft
t/c	2.4,3.1,3.3	Vertical Area	357 sq ft
LE Sweep	63 deg	TOGW	153,000 lbs

Basic Operating Weight 81,800 lbs



QSST Technologies Protected by about 20 U.S. and Global Patents



Actuator Arrangements

Inverted V-Tail, Gull-Wing
- Extends lifting length
- Non-planar balance
- Aft shock expansion

Canard
- Optimum trim over water
- Higher load for Low Boom
- Active C.G. control

Pilot cueing and flight plan sonic boom displays

Fuselage/Area Tailoring
- Excursions below constraint
- Asymmetric boom reduction

Nose Bluntness
- Asymmetric bluntness reduction
- Reduced drag shape

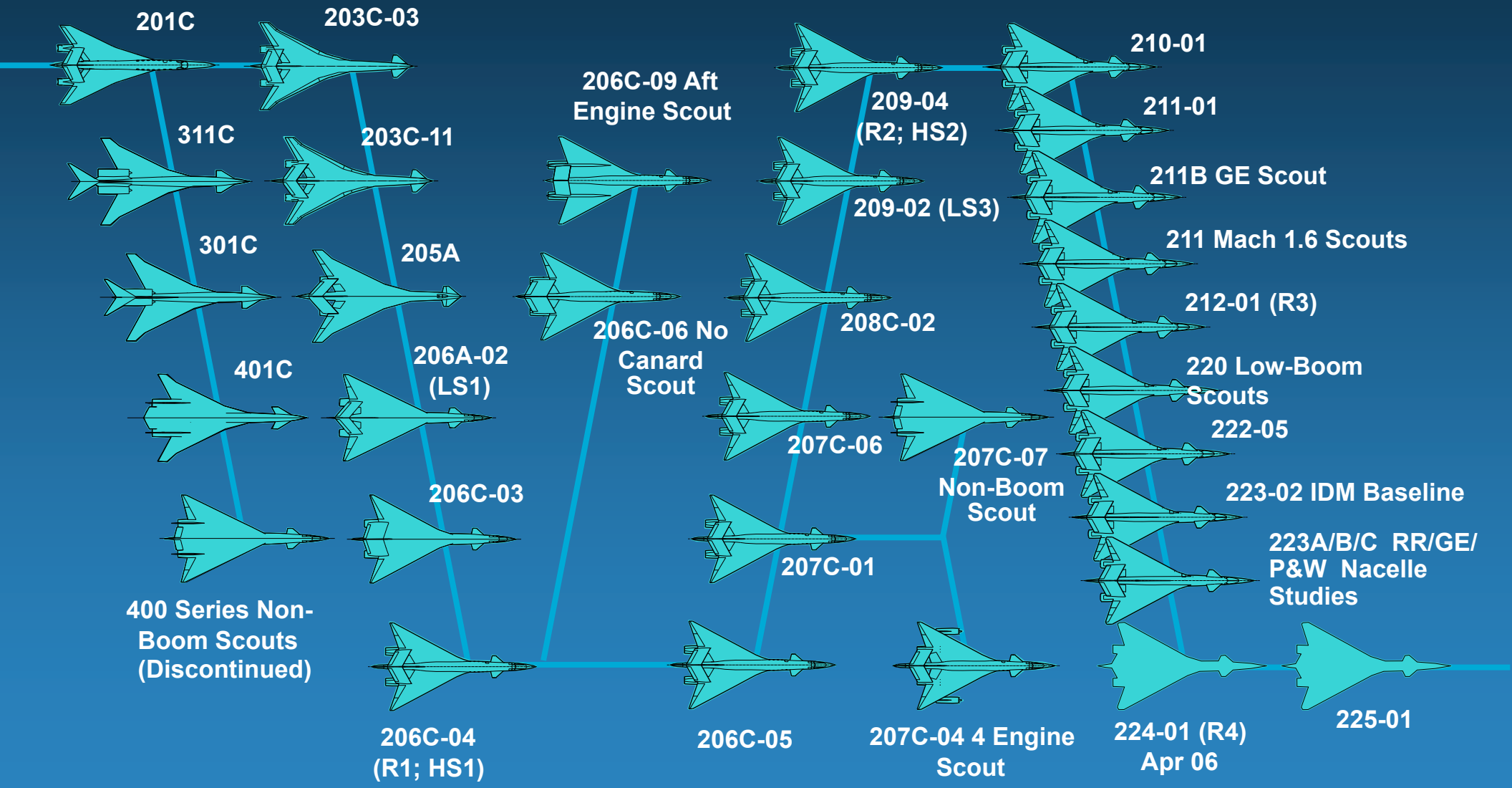
Wing Reflex
- Initial
- Improved
- Further improved and smoothed

Lift Boom Ruling
- Lift Tailoring
- CFD design process
- Design adaptation

Channel Relief

Krueger Leading Edge
- Low-speed improvements
- Natural laminar flow

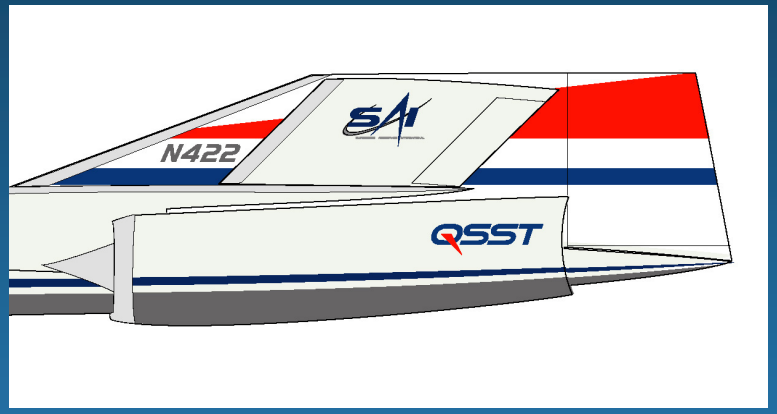
QSST Configuration Development

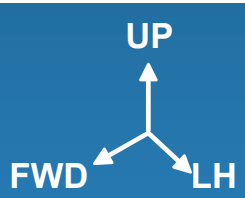


Unique Inverted "V" Tail

- Permits Aft-Mounting Engine on Wing
  - *Aft c.g. Crucial for Low-Boom Trim*
  - *Favorable Wing/Inlet Interference*
  - *Bending Relief Due to Engine Mass*
- Provides Lift "High and Aft" for Tailoring Low-Boom Lift Distribution
- Solves Structural Dynamics Issues
  - *Wing and Empennage Flutter*
  - *Flex-to-Rigid Ratios*
  - *Permits Aft Body Area "Pinch" - Drag*
- Reduces Weight
  - *Externally Braced Wing*
  - *Simply Supported Empennage*
  - *Reduced Stiffness Requirements*
- Increases Flight Control Redundancy

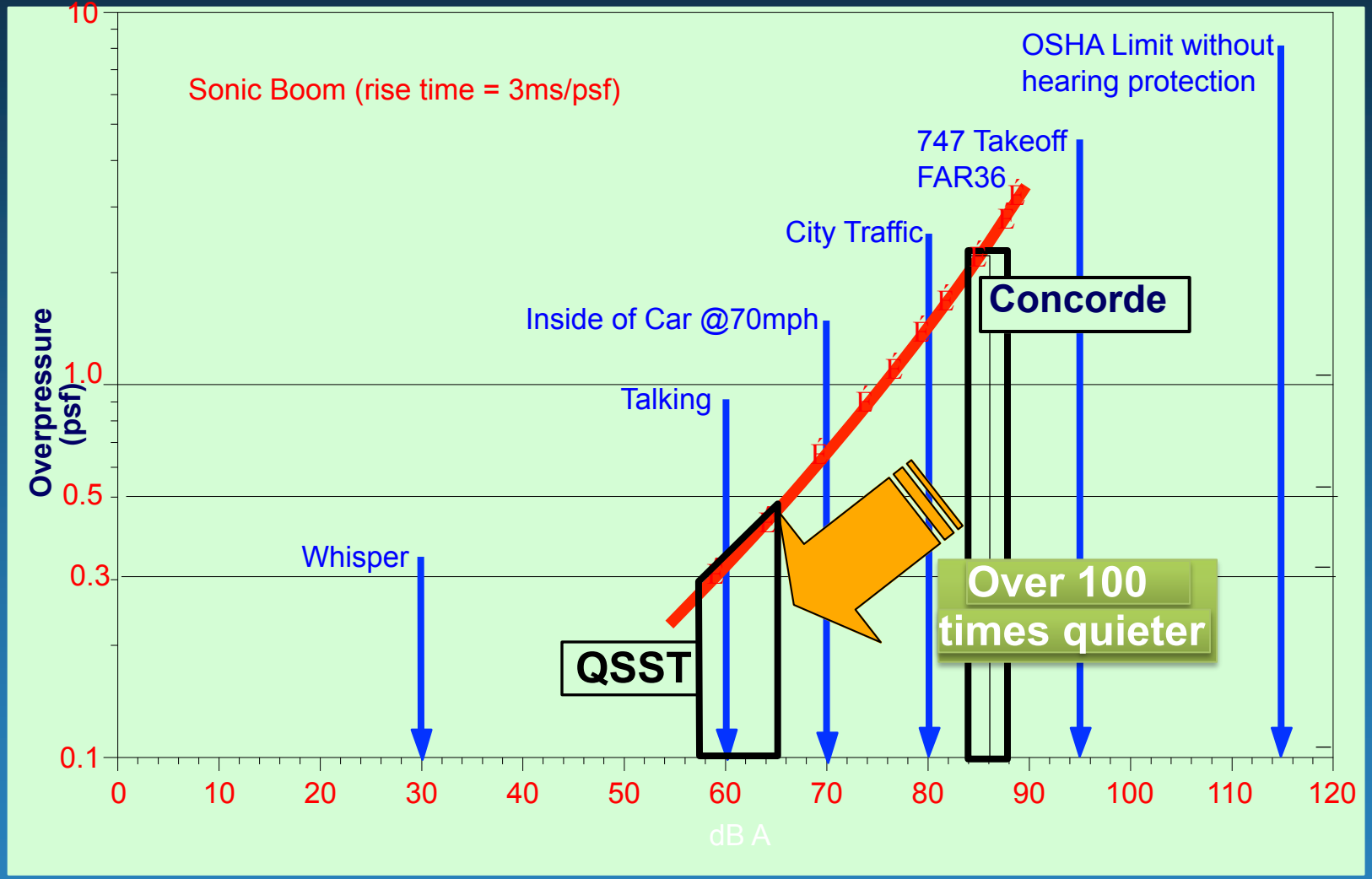
e.g., SAI Patent No. 6,824,092B1





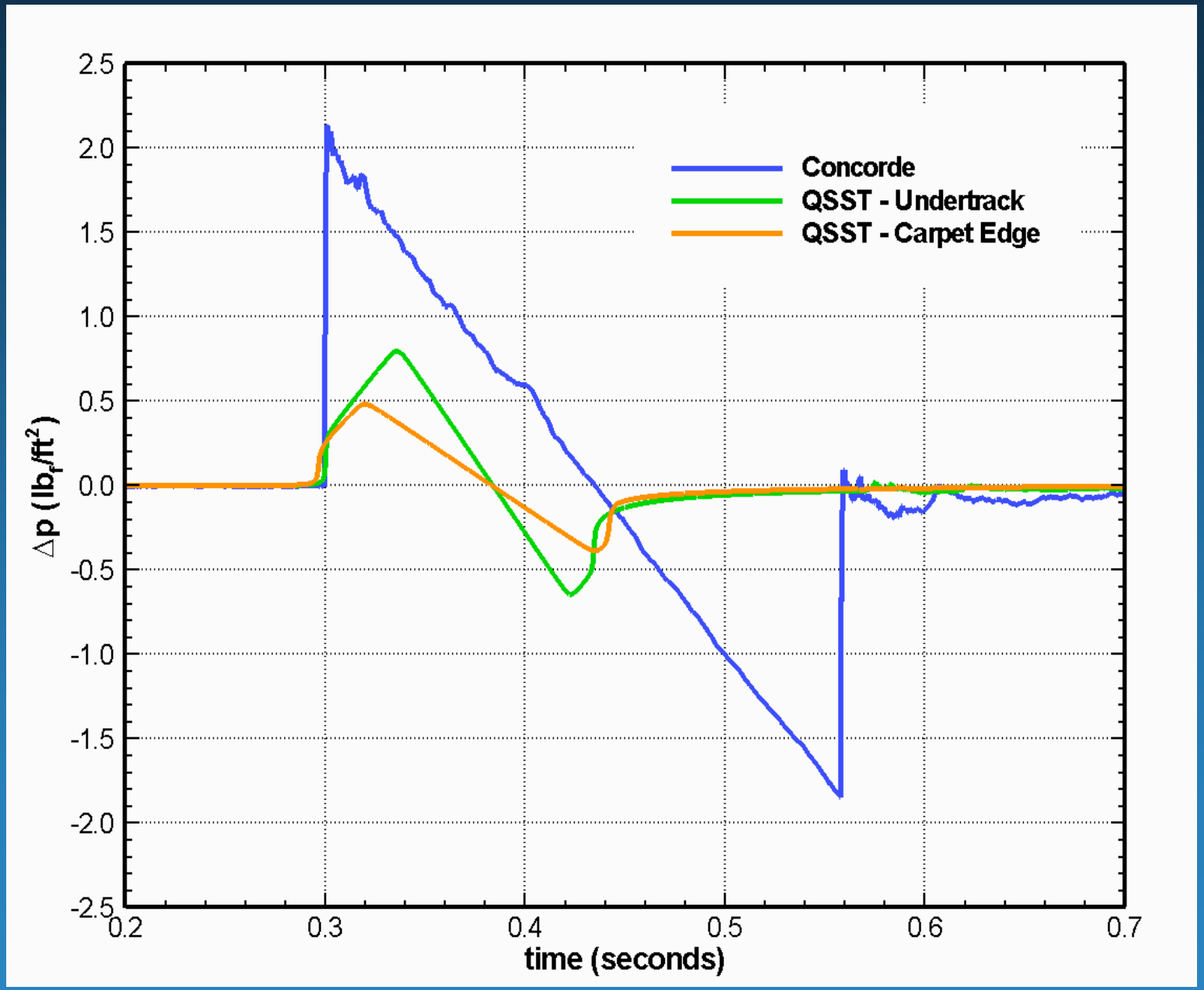
Inverted-V configuration provides a unique solution to low-boom, low supersonic drag, and structure design imperatives

Expected QSST Sonic Signature

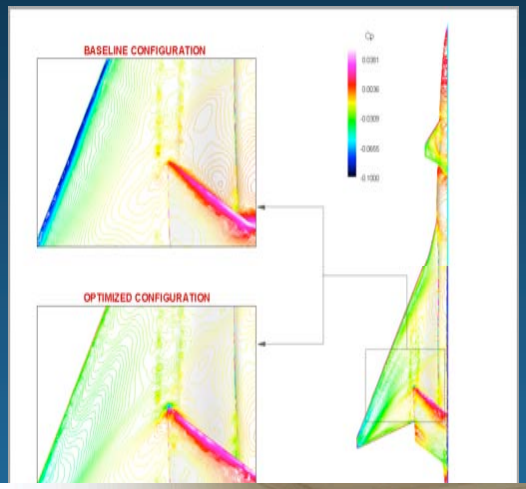


QSST is expected to produce a sonic signature that is "virtually boomless" - barely audible to those on the ground below

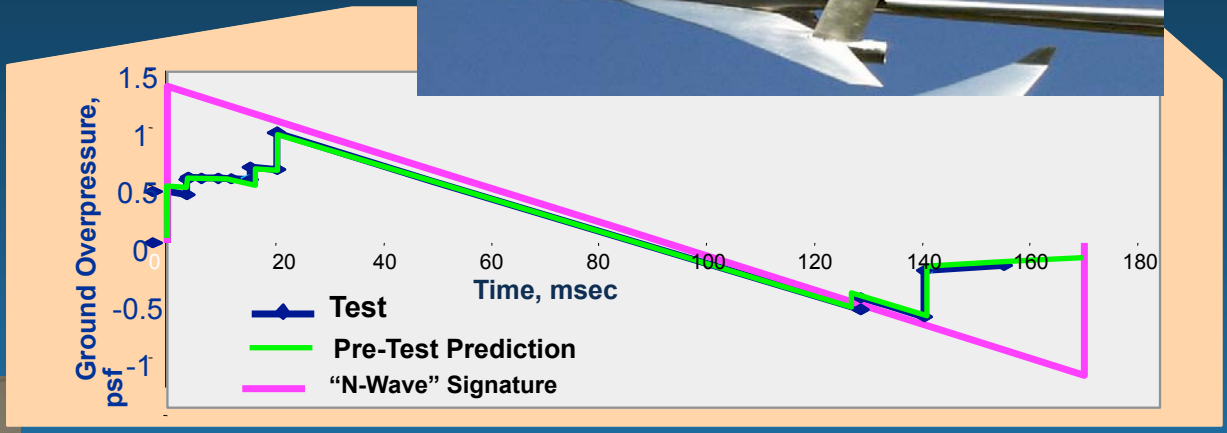
Sonic-Boom Comparison



Sonic Boom Mitigation Technology Validated with Analysis and Test



Advanced Design and Development Methods



Wind Tunnel Validation of Design Methodology

Ground Demonstration Facility

In-Flight Validation of Sonic Boom Shaping

Sonic Boom Pilot Awareness System

- Green = Within Limits
- Yellow = Close to Limits
- Red = Over Limits

- Predictive Command Guidance to avoid over limit conditions
  - Climb
  - Reduce Speed
  - Change Heading
  - Other