

Pacific Theater Operational Science and Technology Conference

Future Solutions - ISR

April, 2007



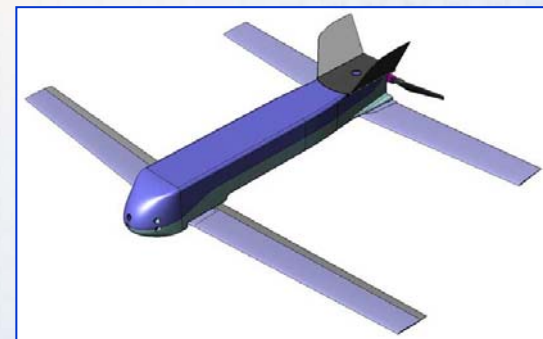
John Grabowsky
Executive VP, GM UAS
AeroVironment, Inc.

Charging
43.6V 399

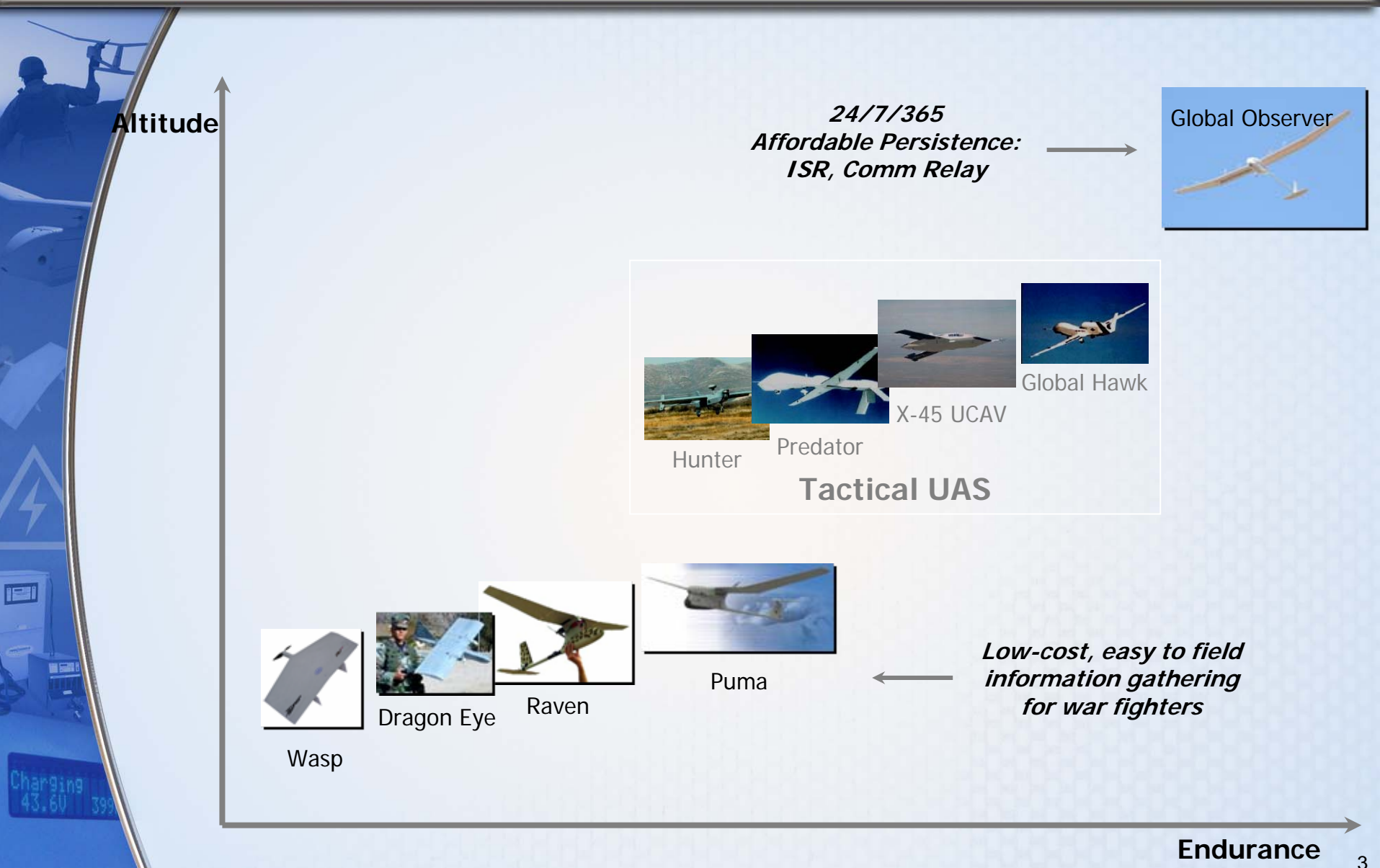
- Stratospheric ISR
 - Global Observer

- Squad-Level ISR
 - Wasp

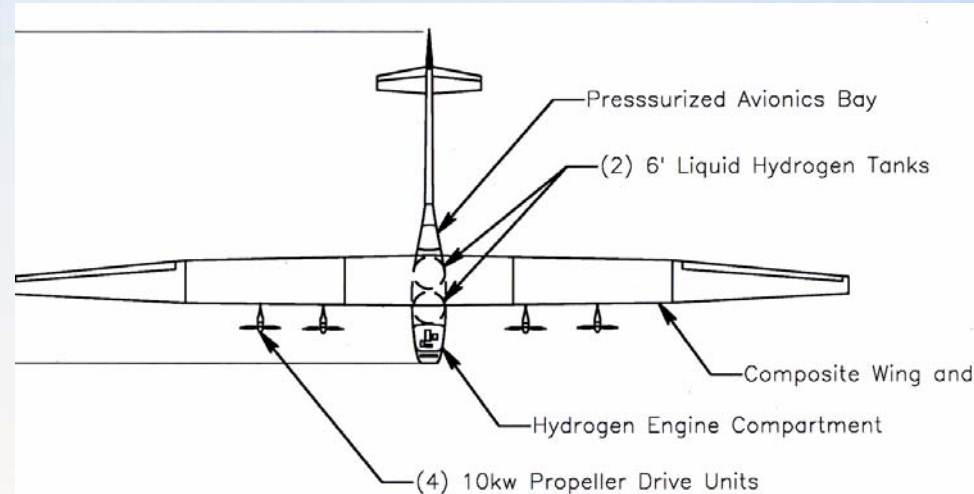
- ISR, with teeth
 - Switchblade



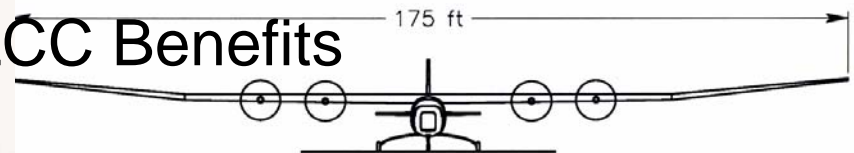
AV's Operating Space



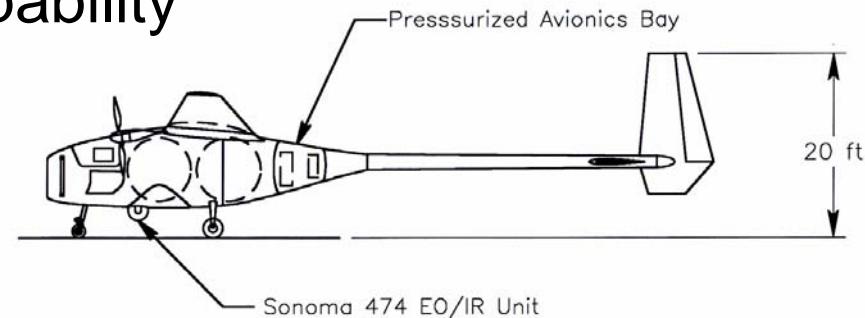
- Quick Reaction
 - In/out theater Bandwidth
 - Comm Relay
 - ISR
 - Psy Ops
 - Disaster Recovery



- Compelling O&M and LCC Benefits



- Ability to “Reconstitute Capability”





Pathfinder-Plus



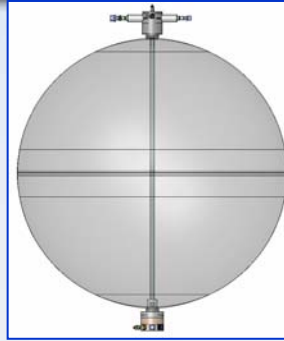
Centurion



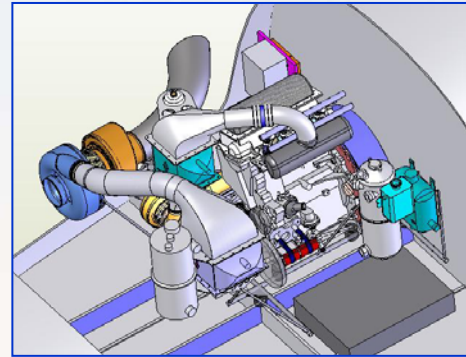
Helios



- LH₂ Tank



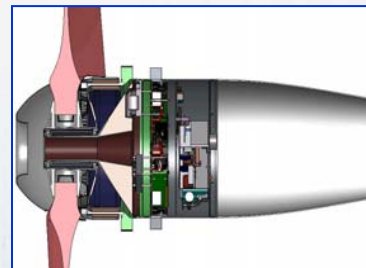
- LH₂ Powerplant



- Efficient Electric Generator

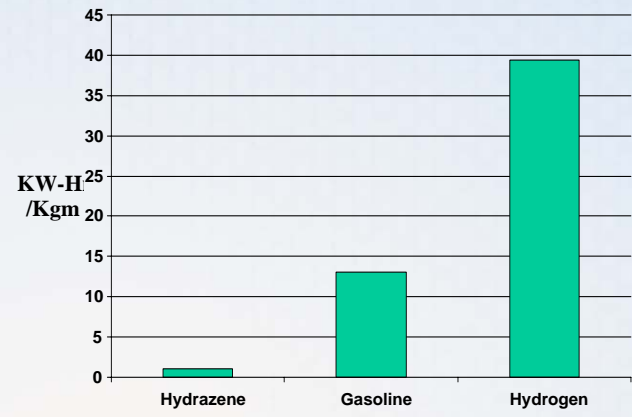


- Efficient Propulsion

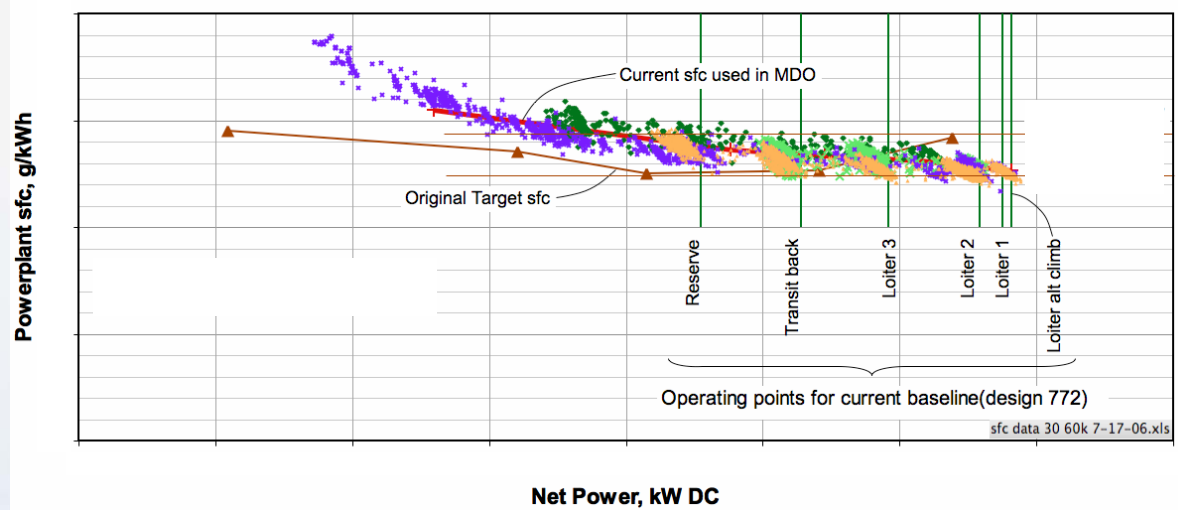


- Why Hydrogen?
- Specific Fuel Consumption

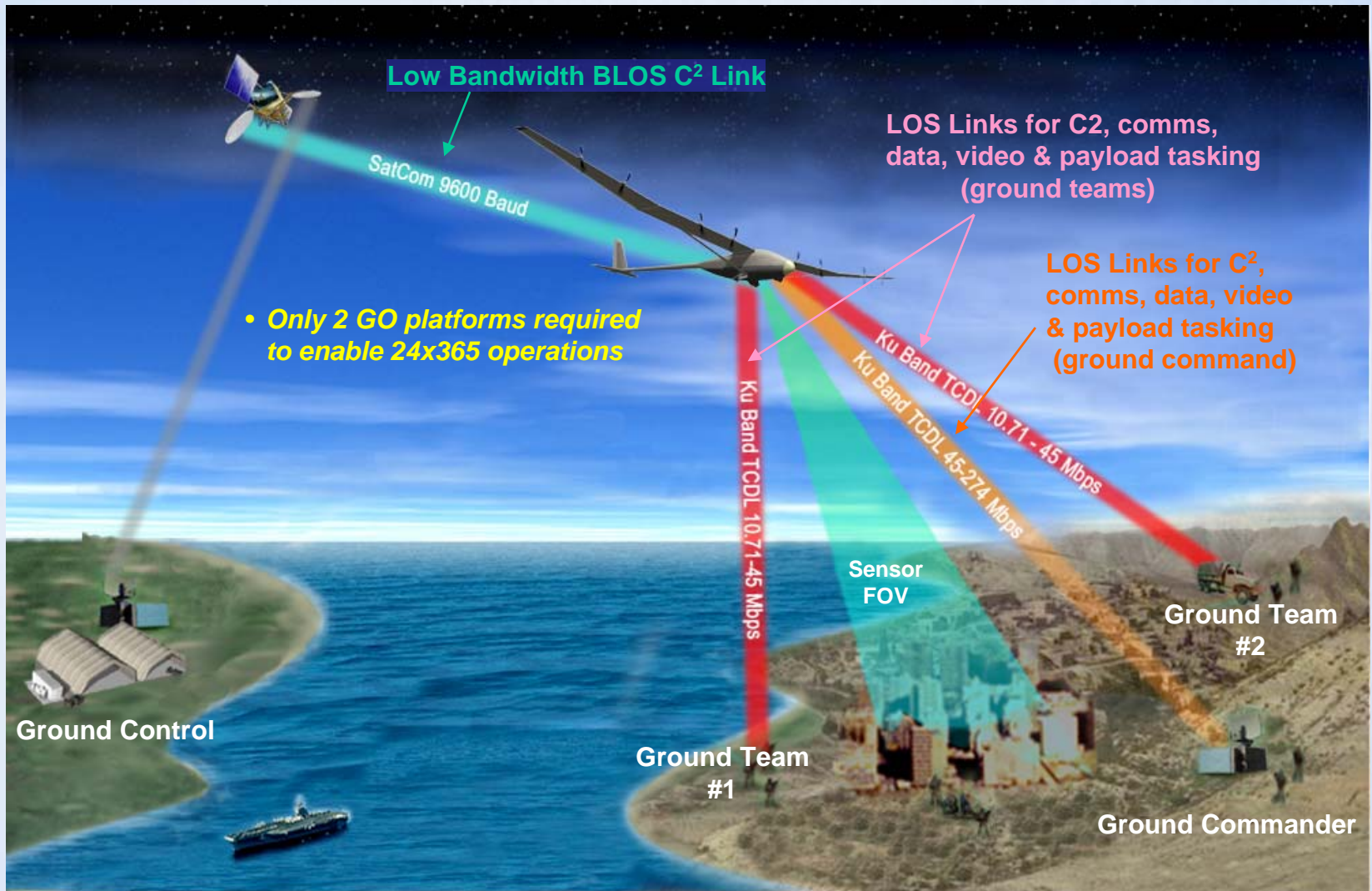
Specific Energy of Potential



Efficiency at 65k ft based on net dc output power (after ancillaries)



Military ISR and Relay Mission





Continuous (24/7/365) persistence over any point in footprint with 2 aircraft



Squad-level ISR: Wasp



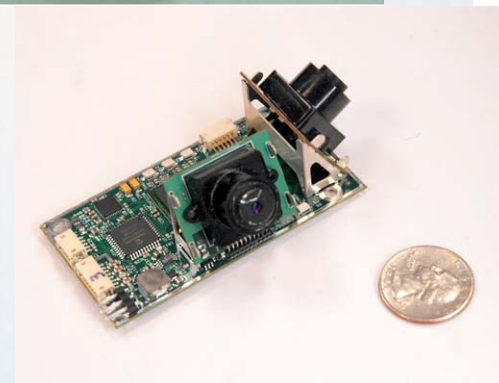
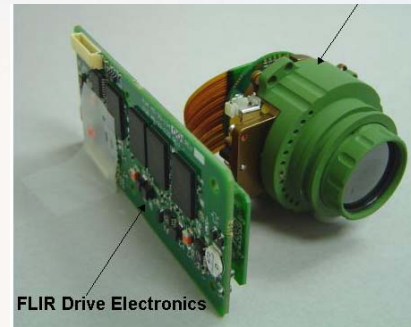
Requirements for Squad ISR

- Small, Lightweight, *System* Rucksack-portable
- Day and Night sensors
- 30+-minute endurance
- Rugged, Reliable
- Low cost
- Low-Observables

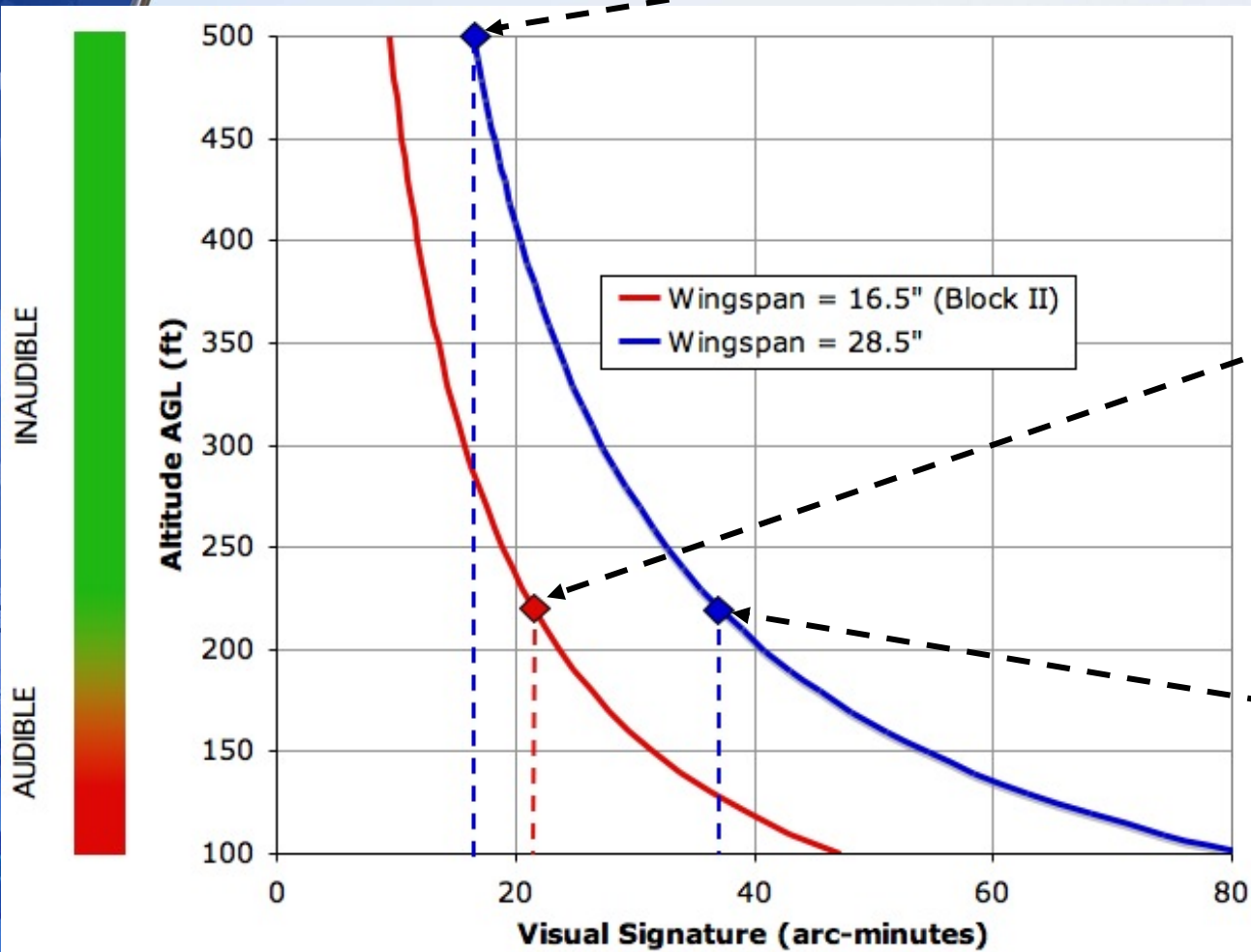
QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.



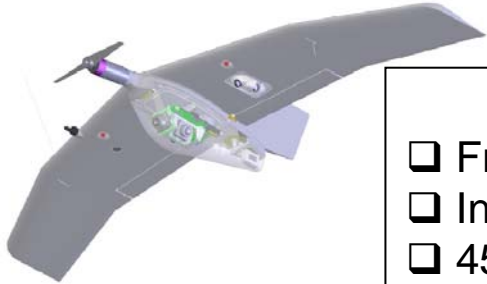
- Electric Propulsion
 - Rugged
 - Quiet
 - Efficient
 - Inexpensive
- IR Payload
 - LWIR
- EO Payload
 - Digitally stabilized
 - Steerable



Visual/Acoustic Signatures and Resolution



Wasp Block III Configurations

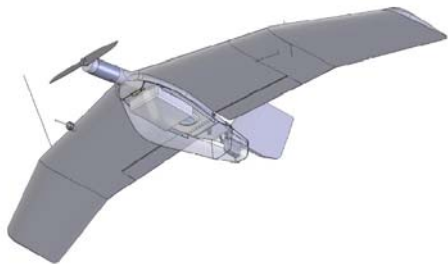
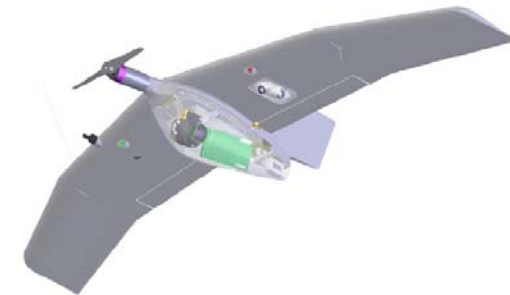


Daytime Wasp

- Front/side imager, digital image stabilization and pan-tilt-zoom
- Integrated dual EO payload
- 45-minute endurance

Nighttime Wasp

- Thermal imager
- Integrated dual EO payload
- 40-minute endurance



Long Endurance Wasp

- Extended endurance battery pack (double the capacity)
- Integrated dual EO payload
- 100+ minute endurance calculated

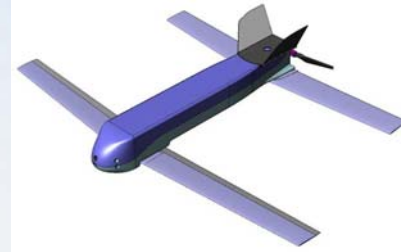


Man-portable ISR, with teeth: Switchblade

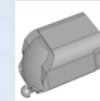


Charging
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- Man-Portable SYSTEM
 - Air Vehicle
 - Launcher
 - GCU
- Low Optical/Acoustic Signatures
- High Speed
- Autonomous Terminal Guidance
 - Small CEP
- Warhead
 - Lightweight
 - Lethal
 - Minimal Co-lateral
- Low Cost per round



Air Vehicle



Warhead



Launcher

**Raven/Wasp
GCU**



- **Lightweight Launcher**
 - Simple, reliable launch mechanism
 - Low acoustic signature
- **Miniaturized Avionics**
 - G-hardened
 - GPS, RF Data Link, IMU, Air Data
- **Lightweight Propulsion**
 - Quiet efficient motor, propeller, Batteries
- **Lightweight Lethal Payload**
- **Autonomous Terminal Guidance**
 - Operator Initiated
 - Low CEP Video Tracker

QuickTime™ and a
Cinepak decompressor
are needed to see this picture.



The End

