RS-16 UAS™ March Campaign & Multispectral Tactical Mapping Payload

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TFRSAC
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About AAAI

• At American Aerospace, we build complete, long endurance unmanned aircraft systems capable of performing safe and successful missions at low capital and operating cost

• We provide tactical mapping payloads for civil government and commercial customers using the latest COTS sensors and technologies

• AAAI also offers unmanned flight services, helping our customers cost-effectively accelerate their research, development, test, engineering and training programs
• Flight Services  
  – Utilizing RS-16 and RS-20 Unmanned Aircraft Systems

• Technical Services  
  – UAS technical services including COAs, Experimentals…  
  – Building mission systems around customer air vehicles

• Mission Systems  
  – RS-16 and RS-20 Mission Systems

• Multispectral Tactical Mapping Payloads

• Mobile Operations Centers  
  – Shelter-based and Trailer-based
The RS-16 UAS is a complete, medium altitude long endurance mission system, including:

- Aircraft & Avionics
- Payloads
- RF Systems
- Launcher/Charging System
- Ground Control Station
- Mobile Operations Center
- Support Equipment
- Spares & Consumables
- Logbooks, Manuals…
- FAA Approvals
- Training Program
- Field Support…
# RS-16 and RS-20 UAS Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>RS-16™ UA</th>
<th>RS-20™ UA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wingspan</strong></td>
<td>12' 11&quot;</td>
<td>17' 3&quot;</td>
</tr>
<tr>
<td><strong>MGTW</strong></td>
<td>85 lbs</td>
<td>165 lbs</td>
</tr>
<tr>
<td><strong>Endurance</strong></td>
<td>12-16 hrs</td>
<td>12-16 hr</td>
</tr>
<tr>
<td><strong>Ceiling</strong></td>
<td>15,000'</td>
<td>15,000'</td>
</tr>
<tr>
<td><strong>Max Speed</strong></td>
<td>65 kts</td>
<td>90 kts</td>
</tr>
<tr>
<td><strong>Internal Payload Envelope</strong></td>
<td>6 x 6 x 18.5&quot;</td>
<td>10.75 x 10.75 x 34&quot;</td>
</tr>
<tr>
<td><strong>Payload Capacity</strong></td>
<td>25 lbs</td>
<td>65 lbs</td>
</tr>
<tr>
<td><strong>Payload Power</strong></td>
<td>100 watts</td>
<td>400 watts</td>
</tr>
<tr>
<td><strong>Launch</strong></td>
<td>Pneumatic Catapult</td>
<td>Pneumatic Catapult</td>
</tr>
<tr>
<td><strong>Recovery</strong></td>
<td>Belly Land</td>
<td>Belly Land</td>
</tr>
<tr>
<td><strong>Wing Hard Points</strong></td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

RS-16 UA

RS-20 UA
AAAI systems are designed for modular integration of customer payloads. With ample size, weight and power, simple C2 and RF interfaces for real-time control, ample bandwidth, long endurance and range access across the country, we provide rapid integration, flight test, and support of customer payloads at a fraction of the price of competitor Tier II UA systems – creating a path for growth in all of your unmanned ventures.
iMOC™ - interoperable Mobile Operations Centers

• Complete, Mobile, Self-Contained, Climate-Controlled Work Environments Capable of:
  – Command and control of unmanned aircraft
  – Supporting flight operations with manned and unmanned aircraft
  – Data Product Generation and Dissemination
  – iMOCs can be networked to expand area of operation
  – Transport of complete mission system with 1 vehicle

• Set up and launch in ~1 hour

• Trailer and Skid-based iMOC configurations available
Trailer-Based iMOC

- Entire Mission System fits in one iMOC & sets up in ~1 hour
• Entire RS-16 Mission System fits in one iMOC
• Transportable by helicopter, ship or truck
• iMOCs can be networked
• AAAI can integrate with customer-supplied shelters and/or vehicles
Auto landing on unimproved surfaces

- Gravel
- Sand
- Mud Flats
- Roadways
- Tarmacs
- Runways
- Grass Fields
• Manned Aircraft
  – Cessna 172
  – Cessna 182
  – Cessna 206
  – Vulcanair P.68 Observer
  – Bell 206 Helicopter

• Unmanned Aircraft
  – RS-16 UAS™
  – RS-20 UAS™

• Same payload flies on both manned and unmanned aircraft
• Switch configurations in less than one hour
• Workflows are independent of air vehicle

Current Sensor Suite

<table>
<thead>
<tr>
<th>Camera</th>
<th>Type</th>
<th>Band (microns)</th>
<th>Pixels (MPx)</th>
<th>HFOV (Degrees)</th>
<th>Ground Sample Distance (Inches)</th>
<th>Swath Width (Ft)</th>
<th>1,000’ AGL</th>
<th>3,000’ AGL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visible</td>
<td>Progressive</td>
<td>.45 to .65</td>
<td>2,073</td>
<td>18.4</td>
<td>2.0</td>
<td>324</td>
<td>6.0</td>
<td>972</td>
</tr>
<tr>
<td>Infrared</td>
<td>Interlaced</td>
<td>8 to 12</td>
<td>0.307</td>
<td>18.4</td>
<td>6.0</td>
<td>324</td>
<td>18.2</td>
<td>972</td>
</tr>
<tr>
<td>Ultraviolet</td>
<td>Interlaced</td>
<td>0.3 to 0.4</td>
<td>0.307</td>
<td>18.4</td>
<td>6.0</td>
<td>324</td>
<td>18.2</td>
<td>972</td>
</tr>
</tbody>
</table>

*Visible camera has motorized zoom lens with 2.5 to 52 degree range
ATDS Configurations

- **Manned Aircraft**
  - Cessna 172
  - Cessna 182
  - Cessna 206
  - Vulcanaire P.68 Observer
  - Bell 206

- **Unmanned Aircraft**
  - RS-16 UAS™
  - RS-20 UAS™
COA Envelope

Baffin Bay

~6.5 miles wide

~30 miles south of Corpus Christi

Extends 3 ½ miles into the Gulf

Gulf of Mexico

~39 miles long

~17 miles wide

Laguna Madre
Aircraft on Launcher
RS-16 from Chase Aircraft
Real-Time Multispectral Master-Slave “GeoVideo” (patent pending)
HDEO Mosaic

iMOC2 (North)
Tactically taskable tool for Incident Commander
Day and night operations without putting pilots in harm’s way
   - Real-time visible and infrared streaming video on map
     - Fire perimeters
     - Active fire fronts
     - Hot spots outside lines of containment
     - Fire fuel information
   - Real-time dissemination of actionable data products
   - Real-time locating of fire crews and equipment for increased safety and effectiveness
   - Communications Relay
     - Efficiently extending ground communications through airborne relay
   - High resolution geo-corrected imagery for post-fire assessments
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