AUS Organizational Roles

• **Executive Support Office (AUS-10):**
Maintains strategic messaging regarding FAA UAS integration activities and provides support to the Director and Deputy Director.

• **Business and Planning Division (AUS-100):**
Provides business planning and reporting, fiscal and human resource management, training, quality and program management and other administrative activities.

• **International Division (AUS-200):**
Manages and coordinates international activities for UAS with foreign civil aviation organizations, and promotes international collaboration to improve global aviation safety.

• **Research Division (AUS-300):**
Provides strategic plans and direct support of continued UAS R&D, including the development of research required for advanced safety risk mitigations.

• **UAS Safety and Integration Division (AUS-400):**
  - Provides project and data management for all UAS programs and activities
  - Supports UAS standards and policy development and provides engineering support for UAS projects,
  - Coordinates operational aspects of safe and timely integration of UAS within the National Airspace System (NAS).
# International Outreach Activities

<table>
<thead>
<tr>
<th>Manages &amp; coordinates international activities with other civil aviation authorities</th>
<th>Promotes international collaboration to improve global aviation safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinating with all appropriate LOBs and SOs on FAA UAS international engagement strategy, international meetings, and responses to international information requests.</td>
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</tr>
<tr>
<td>Serves as the primary point of contact (POC) for FAA UAS international activities and technical agreements.</td>
<td>Serves as the AVS UAS POC for the Inter-Agency Group on International Aviation (IGIA) and coordinates U.S. positions and strategy.</td>
</tr>
<tr>
<td>Ensures UAS international standards, practices and procedures are consistent with FAA plans and criteria, and promotes international acceptance of U.S. UAS airman and aircraft certification standards.</td>
<td>Collects, organizes, analyzes, and provides data and information about international UAS activities to support cross-Agency decision-making</td>
</tr>
</tbody>
</table>

More CAA-related

More globally oriented
AUS International Highlights

• **Leadership and Collaboration**
  - FAA ATO is the vice-chair of the ICAO Remotely Piloted Aircraft Systems (RPAS) Panel – 6 advisors
  - FAA AUS is a member of the ICAO sUAS Advisory Group
  - FAA AUS is the vice-chair of the Joint Authorities for Rulemaking on Unmanned Systems (JARUS) – 6 advisors

• **Outreach**
  - Lead FAA-wide international outreach efforts and standing meetings with Bilateral Organizations and Other Groups (Regulatory Cooperation Council – RCC - Transport Canada, SESAR/NextGen, EASA, Arctic Council, UK, etc.)
Outreach – AUS-200 Events Calendar

- ~ 50 events to date
- AUS-200:
  - Investigates event
  - Judges support level
  - HQ Staff and/or
  - Regional Office Staff
  - Monitoring only
  - Provides support
  - E-book, briefing, other

<table>
<thead>
<tr>
<th>WHAT</th>
<th>WHERE</th>
<th>WHEN</th>
<th>WHO</th>
<th>WHY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUS WGP &amp; WG 7 Joint Meeting</td>
<td>Cologne</td>
<td>19 Nov – 2 Dec 2016</td>
<td>James Felix, Panukaran Thirumalai</td>
<td>Routine travel to progress development of multilateral technical material on UAS regulatory and risk-based decision making frameworks.</td>
</tr>
<tr>
<td>ECAC RPAS Symposium</td>
<td>Paris</td>
<td>9-9 Dec 2016</td>
<td>Earl Lawrence</td>
<td>Non-routine travel to participate in the ECAC RPAS Symposium. mountain A presentation on local practices, regulatory status, international activities, etc.</td>
</tr>
<tr>
<td>ARMS WGP Meeting</td>
<td>Cologne</td>
<td>5 - 9 Dec 2016</td>
<td>Paul Campbell, Brian Patterson (MTRE)</td>
<td>Routine travel to progress 30A safety and concept development, including common session with 30A to coordinate 30A in the SORA approach and ARMS RPAS 303.</td>
</tr>
<tr>
<td>1st Annual Americas Symposium</td>
<td>Cologne</td>
<td>9 December</td>
<td>James Byas</td>
<td>11/18/16 Annual industry conference supported by AR each year. This year’s event will be giving a short presentation on UAS certification.</td>
</tr>
<tr>
<td>Countering Drones Conference</td>
<td>London</td>
<td>7 Dec 2016</td>
<td>Earl Lawrence</td>
<td>Non-routine travel to give a presentation at the Countering Drones Conference.</td>
</tr>
<tr>
<td>Annual APS TCCA Meeting</td>
<td>Ottawa</td>
<td>6 – 7 Dec 2015</td>
<td>John Durante, Robert Ruse, Dominika Belyk, Bruce Dacke</td>
<td>Annual APS meeting with TCCA – limiting UAS discussion to APS-related (eg policy e.g., part 107, registry).</td>
</tr>
<tr>
<td>International Drone Expo</td>
<td>Los Angeles</td>
<td>9-10 Dec 2016</td>
<td>Mark Gibson</td>
<td>The 3rd annual International Drone Expo (IDE), the largest gathering of the global commercial drone community, will take place.</td>
</tr>
</tbody>
</table>
ICAO WORK ACTIVITIES
ICAO RPAS Panel

• RPASP has 7 work groups developing SARPs and guidance material for:
  – airworthiness
  – C2,
  – DAA,
  – licensing,
  – operations,
  – ATM, and
  – human factors

• RPASP has also developed a ConOps
  – Describes SARPs and guidance work planned for “international IFR operations in controlled airspace and aerodromes”
ICAO RPAS Panel

• Advisors to the U.S. member participate in all work groups except licensing and are co-rapporteurs for:
  – WG-1 - Airworthiness
  – WG-2 - C2

• Almost every Annex is affected by the RPASP work

• RPASP will also revise the RPAS Manual

• Other Panels have primary responsibility for specific Annexes and guidance documents
  – Coordination with other Panels is a major challenge in meeting the 2018 and 2020 timelines
ICAO RPAS Panel

• Key challenges for initial SARPs and guidance development:
  – Keeping a manageable scope for the work
  – Incorporating relevant material from international groups such as standards bodies or JARUS
  – Gaining agreement on SARPS relating to RPAS safety provisions
ICAO sUAS Advisory Group

• Year-long development of guidance for States considering commercial UAS ops
  – Six subareas: Regulations, Fly Safe, UAS Toolkit, Narrative, News, and FAQ
  – 14-page narrative provides explanation of the toolkit
  – Toolkit should now be hosted at: www.icao.int/RPAS
    • Includes ~ one dozen example regulations that are already in use globally
  – Update interval and process for Toolkit - TBD
    • sUAS Advisory Group future activity is also TBD
JARUS Work Groups

• **WG 7** – Concepts for Regulator Approval
• **WG 6** – Safety and Risk Management
• **WG 5** – Command and Control
• **WG 4** – Detect and Avoid
• **WG 3** – Airworthiness
• **WG 2** – Operations
• **WG 1** – Flight Crew Licensing
JARUS Regulatory Concept

OPEN:
Low risk
Low involvement of Aviation Authority
Limitations: Visual line of sight, Maximum Altitude, distance from airport and sensitive zones

SPECIFIC
Increased risk
Operations Authorisation with operations manual
Specific qualification of drone, personnel, equipment based on safety assessment

CERTIFIED
Regulatory regime similar to manned aviation
Traditional Authority Certificates

Like Our 107 Rule
Waivers/Exemptions/Future & Part 21 Changes
Like Our 21.17(b) Rule
FAA Perspective on JARUS

- Increased participation and resources
- Structural reform - transparency & efficiency
- Complement ICAO
- Valuable deliverables for national rulemaking purposes
- Consistent communication with stakeholders
Efficient Use of Resources

- State and industry are moving at the speed of business and JARUS must keep pace
- Higher level consensus speeds progress and avoids arguing over small details
- Make JARUS member participation easy and less expensive
Opportunities for Consensus

• JARUS members can tailor consensus products – no need to dictate details

• States may implement regulatory initiatives ahead of JARUS if they choose, but:
  • JARUS does not need to change its harmonized standards and specifications to adopt individual State initiatives
Collaborative Efforts

ICAO  JARUS
JARUS & ICAO Members

- Australia
- Austria
- Belgium
- Brazil
- Canada
- China - (WG 2)
- Colombia
- Croatia
- Czech Republic
- Denmark
- EASA – (Chairman, Secretariat)
- Eurocontrol – (Secretary Gen, WG 5, Secretariat)
- Estonia
- Finland
- France
- Georgia
- Germany
- Greece
- India
- Ireland
- Israel – (WG 1)
- Italy
- Jamaica
- Japan
- Kenya

- Latvia
- Luxembourg
- Malaysia
- Malta
- Netherlands (The) - (WG 2)
- Norway
- Poland
- Qatar
- Republic of Korea
- Republic of Macedonia
- Republic of Serbia
- Romania
- Russia
- Singapore
- Slovakia
- South Africa
- Spain
- Sweden – (WG 4)
- Switzerland – (WG 3 & WG 6)
- Thailand
- Trinidad & Tobago
- Turkey
- United Arab Emirates
- United Kingdom
- USA – (Vice Chairman, WG 7, Secretariat)
JARUS & ICAO Work Areas

JARUS

- Harmonized Flight Operations
- Certification Specifications
  - Light Unmanned Rotorcraft System
  - Light Unmanned Aeroplane System
- Operational Provisions
  - Flight Crew Licensing
  - Organizational Approval
  - DAA Target Level of Safety
  - Safety Oversight of C2 Communications
  - C2 Link Required Communications Performance
  - JARUS Position on CPDLC
  - AMC 1309
  - Specific Operation Risk Assessment
  - RPAS Classification Criteria Methodologies
  - Categorization & Control Station Certification

ICAO RPAS

- International IFR Flight Operations
- SARPs for ICAO Annexes
  - Personnel Licensing - 1
  - Rules of the Air - 2
  - Meteorological Service… - 3
  - Operation of Aircraft - 6
  - Aircraft Nationality & Registration – 7
  - Airworthiness of Aircraft - 8
  - Aeronautical Telecommunications – 10
  - Air Traffic Services - 11
  - Safety Management - 14
  - Security - 17
  - Safety Management - 19
- Global Air Navigation Plan
- PANS-ATM & PANS-OPS
- RPAS Manual Update
JARUS & ICAO

• Good Interaction/Coordination in JARUS and ICAO Working Groups
  – Risk-Based Concepts Seem to be Catching On

• Need to Continue Coordination for Operational Integration for UAS Between NextGen and SESAR
  – Ensure global air traffic management (ATM) modernization programs are compatible with NextGen. This effort directly aligns with the FAA Global Leadership Initiative
Questions?
Backup Slides
What is JARUS?

- **Joint Authorities for Rulemaking of Unmanned Systems**
- Open to ALL aviation authorities
  - 46 nations, EASA, EUROCONTROL
- Industry input from Stakeholder Consultative Body
- Consensus regulatory products to address common interests
- Available to national and other regulatory authorities for their consideration and use
Why do we need JARUS?

- Opportunity to influence 45 other nations
- Good place to vet products
- Deals with sUAS issues, while ICAO currently does not
- There isn’t room for all States to participate at ICAO...a place to interact with other States
Why do we need JARUS? (con’t)

• Implement risk-based decision making for UAS on a global scale
• Global acceptance of our safety cases for UAS operations
  – DAA in Class E airspace
  – Extended operations in Class G/E
• Global acceptance of industry standards we intend to use for U.S. operations
• Input (feeder) to ICAO work – as applicable
Brief JARUS History

- Initial Meeting of 3 European States - 2007
- 1st Certification Specification - LURS - Oct 2013
- C2 Link Performance Concept - Oct 2014
- EASA & FAA Increase Participation - Sep 2014
- Flight Crew Licensing Recommendations - Sep 2015
- 1st Plenary Meeting with Industry - Apr 2015
- AMC RPAS 1309 Airworthiness Requirements - Nov 2015
- Creation of Industry Stakeholder Board - Dec 2015
- 1st Plenary Meeting with Stakeholder Board - Apr 2016
- CPDLC Recommendations - Jun 2016
- Plenary Meeting Hosted by FAA in DC - Sep 2016
### Today’s Stakeholder Consultation Board

<table>
<thead>
<tr>
<th>JARUS SCB Communities of Interest</th>
<th>Representative Bodies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) RPAS Enterprises</td>
<td>*<em>AUVSI</em>, <strong>UVSI</strong>, Drone Alliance Europe, Small UAV Coalition, Amazon, DJI, Lufthansa Technik, Intel, etc.</td>
</tr>
<tr>
<td>2) SME RPAS Enterprises</td>
<td><strong>AUVSI</strong>, <strong>UVSI</strong>, Drone Alliance Europe, Small UAV Coalition, Unify*, SenseFly, Swedish Sea Rescue Society, etc.</td>
</tr>
<tr>
<td>3) ANSP &amp; Controllers</td>
<td><strong>CANSO</strong>, <strong>COCESNA</strong>, <strong>IFATCA</strong>, etc.</td>
</tr>
<tr>
<td>4) General Aviation</td>
<td><strong>IAOPA</strong>, <strong>IBAC</strong>, AOPA, Europe Air Sports*, Federation Aeronautique Internationale*, European Helicopter Association, etc.</td>
</tr>
<tr>
<td>5 and 6) Aerospace Industry</td>
<td>AIA*, ASD*, Associação Brasileira das Indústrias de Materiais de Defesa e Segurança, Elbit SYS Ltd, IAI, etc.</td>
</tr>
<tr>
<td>7) Commercial Aviation</td>
<td><strong>IFALPA</strong>, <strong>IATA</strong>*, Vereinigung Cockpit, ALPA, A4A, Airports Council Int'l Europe, AEA, ECA, etc.</td>
</tr>
<tr>
<td>8) Standards Bodies</td>
<td><strong>RTCA Inc.</strong>, <strong>EUROCAE</strong>, <strong>ISO</strong>, <strong>SAE International</strong>, ASTM International*, AMA, Padina Group, Euro USC, etc.</td>
</tr>
<tr>
<td>9 and 10) At-Large Members</td>
<td>Members (communities) to be determined by SCB (includes DJI Europe BV* &amp; Lufthansa Technik AG*)</td>
</tr>
</tbody>
</table>