SOUTH AFRICAN CIVIL AVIATION AUTHORITY (SACAA)

ICAO RPAS SYMPOSIUM

Mr SAM TWALA: Certification Engineer/UAS Specialist

23 – 25 March 2015
Montreal, Canada
Overview

- SACAA Obligations
- Regulatory Approach
- RPAS Regulations
- Applications of RPAS in South Africa
- Current and Anticipated Challenges
- Conclusion
SACAA Obligations

- SACAA is a public entity reporting to Department of Transport

- In terms of section 72 of the Civil Aviation Act, 2009 (Act No 13 of 2009) the SACAA is required, amongst others, to:
  - Control and regulate civil aviation safety and security
  - Oversee the implementation and compliance with the National Aviation Security Programme
  - Oversee the functioning and development of the civil aviation industry
  - Develop any regulations that are required in terms of the above mentioned Act
  - Monitor and ensure compliance with the Act and the Chicago Convention
SACAA Obligations

What is the overall responsibility of the SACAA?

- Amongst other requirements, to manage:
  - Safety of people and property on the ground
  - Safety of other airspace users
  - Aviation security
Regulatory Approach

- Buy new “thinking caps”

- Asked the following questions:
  
  - What is the overall responsibility of the SACAA?
  
  - What are the safety hazards introduced/inherent to the RPAS?
  
  - What are the resulting risks?
  
  - What are the possible mitigating factors/mechanisms?
Regulatory Approach

- **Operation-centric**
  operational specifications should be the main driver of regulatory requirements

- **Objective**
  not open for interpretation and non-subjective

- **Systematic**
  two similar operations with similar safety risks should have similar requirements

- **Practical**
  should not be prescriptive (rather be soft-law)

- **Cost-conscious**
  over-regulation will inflate operational costs
Regulatory Approach

- Involve local stakeholders
  State organs, military, ANSP, Airports Operators, Universities, Research Institutions, RPAS Manufacturers, UAS association, and Prospective Operators in general

- Categorised risks into three levels
  - Low risk
  - High risk
  - Medium risk
    (Anything between low and high risk)
Regulatory Approach (RPAS classification)

Classification is achieved through 5 parameters:

- Mass of an RPA
- Impact energy of an RPA
- Operational height above the ground
- Rules of flight
- Area of operation

Resulted in 4 different “groups” or “classes”
Regulatory Approach

Low-risk operations

- Class 2 or lower
- Outside of controlled airspace
- Within visual line-of-sight
- Day operations
- Full compliance with applicable ATM rules
- Away from people, property and public roads
- At least 10 km away from an aerodrome

Medium-risk operations

- Doesn’t comply with at least one limitation of low-risk operations

High-risk operations

- Complex in nature
# Regulatory Approach (RPAS classification)

<table>
<thead>
<tr>
<th>Class</th>
<th>Line-of-sight</th>
<th>Energy (kJ)</th>
<th>Height (ft)</th>
<th>MTOM (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1A</td>
<td>R-VLOS/VLOS</td>
<td>E &lt; 15</td>
<td>h &lt; 400</td>
<td>m &lt; 1.5</td>
</tr>
<tr>
<td>Class 1B</td>
<td>R-VLOS/VLOS</td>
<td>E &lt; 15</td>
<td>h &lt; 400</td>
<td>m &lt; 7</td>
</tr>
<tr>
<td>Class 1C</td>
<td>VLOS/E-VLOS</td>
<td>E &lt; 34</td>
<td>h &lt; 400</td>
<td>m &lt; 20</td>
</tr>
<tr>
<td>Class 2A</td>
<td>VLOS/EVLOS</td>
<td>E &gt; 34</td>
<td>h &lt; 400</td>
<td>m &lt; 20</td>
</tr>
<tr>
<td>Class 2B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 3A</td>
<td>BVLOS</td>
<td>E &gt; 34</td>
<td>h &lt; 400</td>
<td>m &lt; 150</td>
</tr>
<tr>
<td>Class 3B</td>
<td>VLOS/EVLOS</td>
<td>Any</td>
<td>h &gt; 400</td>
<td>m &lt; 150</td>
</tr>
<tr>
<td>Class 4A</td>
<td>BVLOS</td>
<td>Any</td>
<td>h &gt; 400</td>
<td>m &lt; 150</td>
</tr>
<tr>
<td>Class 4B</td>
<td>Any</td>
<td>Any</td>
<td>Any</td>
<td>m &gt; 150</td>
</tr>
</tbody>
</table>
Consists of six sub-parts:

- Sub-part 1: General
- Sub-part 2: RPAS approval and registration
- Sub-part 3: Personnel licensing
- Sub-part 4: RPAS operators certificate
- Sub-part 5: RPAS operations
- Sub-part 6: RPAS maintenance

RPAS regulations are anticipated to be implemented in April 2015
Applications of RPAS in South Africa

- Agriculture (crop dusting, pest & disease control)
- Game reserve (monitoring, control & anti-poaching)
- Law enforcement and security (rail network, cable theft, criminal activities)
- Mining (stock pile calculations, survey, terrain mapping)
- Power line inspections
- Film industry
- Transportation of medical samples
Challenges

- Introduction and implementation of RPAS regulations
- Enforcement against illegal operators
- Use of RPAS for criminal activities
- Use of non-aviation spectrum
- Introducing aviation to non-aviators
- Security risks and threats
Conclusion

- Proposed RPAS regulations are just a start

Where to from here:

- Expand RPAS regulations to include other types of operations
- Align SACAA RPAS integration plans with national strategies
- Currently, in a process to develop integrated national enforcement strategy
- Develop a comprehensive RPAS integration roadmap
  - Taking into consideration ICAO and international developments
Thank you!
Part 101 snapshots

Summary of subpart 1:

- Four types of operations:
  - Commercial
  - Corporate
  - Non-profit
  - Private

- Limited to Class 1 and 2:
  - Less than 20kg
  - Line-of-sight
  - Below 400ft AGL
  - Low speed

Summary of subpart 2:

- RPAS will be issued an RLA
- RPAS will be issued a C of R
Summary of subpart 3:

- Pilots will be issued with an RPL
  - Aeroplane
  - Helicopter
  - Multi-rotor
- With the following ratings
  - VLOS
  - EVLOS
  - BVLOS
- Following successful theoretical examination and skill test

Summary of subpart 4:

- Operators need to apply for an ROC
  - Commercial
  - Corporate
  - Non-profit
- Some of the requirements
  - Ops manual
  - OpSpec
  - SMS
  - Security