Operational assessment with SPA-LVO 110
GM8 SPA.LVO.110

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Agenda Operational assessment with SPA-LVO 110
GM8 SPA.LVO.110

- When to use OPERATIONAL ASSESSMENT?
- General principle of OPERATIONAL ASSESSMENT
- "Scale the effort" principle of OPERATIONAL ASSESSMENT
- Runway complexity determination based on GM8 SPA.LVO.110
- Example of application Runway complexity assessment
- Criteria for successful operational assessment
When to use OPERATIONAL ASSESSMENT?

When not other options available

Reminder of other options availables

(A) **Previous Operational Data** (GM4 SPA.LVO.110 / GM5 SPA.LVO.110)
   - No recorded operations on Airport/Runway (example, diversion airport)
   - Aircraft type does not operate on Airport and Aircraft Type extension not allowed.
   - Different Aircraft System used for LVO

(B) **Desktop assessment** (GM6 SPA.LVO.110 / GM7 SPA.LVO.110)
   - Data available, but not within declared assessed performance
   - Lack of data from Aircraft manufacturer

(C) **Equivalence Approved** AMC 1.LVO.110 (o)
   - simulations made by the aircraft manufacturer or approved design organisation
   - a verification using an FSTD, if the FSTD is suitable for the operational assessment
General principle of OPERATIONAL ASSESSMENT

As per AMC1 SPL.VO. 110 (1)

(1) Identify risks

- Effort scaled based on identified risks
- GM8 SPA.LVO.110 Provide guidance based on known risks / known systems
  - Other risks may exist for other systems.

(2) Agree methodology with the competent authority

- Way to identify Risks
- Way to perform the assessment.

GM8 SPA.LVO.110 Provides some Guidelines to define a Methodology
“Scale the effort” principle of OPERATIONAL ASSESSMENT

GM8 SPA.LVO.110 Suggest 4 level of complexity:

<table>
<thead>
<tr>
<th>Complexity</th>
<th>Suggested number of Flights</th>
<th>Condition to perform Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIMPLE</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td>MODERATE</td>
<td>At least one</td>
<td>Commercial flight allowed</td>
</tr>
<tr>
<td>COMPLEX</td>
<td>Minimum 3, including at least one close to max Landing Weight</td>
<td>Designated pilot and defined procedures</td>
</tr>
<tr>
<td>VERY COMPLEX</td>
<td>Initial 4 to 6</td>
<td>Designated pilot and defined procedures</td>
</tr>
<tr>
<td></td>
<td>If successful progressive extension of weight / wind / landing configuration domain up to 15 successful.</td>
<td>No passengers for the initials flight</td>
</tr>
</tbody>
</table>
Runway complexity determination based on GM8 SPA.LVO.110

Criteria to determine complexity based on known systems (Automatic landing systems)
- Other criteria may be relevant for other/new systems.

Identified criteria to assess Runway complexity (Simple / Moderate / Complex / Very Complex)

1) Pre-threshold terrain profile

2) Landing System Assessment Area (LSAA) slope
   - Mean LSAA slope
   - Deviation from mean LSAA slope.

Some criteria could be relaxed if it can be justified
- Example: Small aircrafts with flare height of less than 20ft may not be concerned by Pre-threshold terrain profile
Example of application Runway complexity assessment

Stockholm Arlanda Airport

Example of ESSA 01L (Aerodrome Obstacle Chart) https://aro.lfv.se/Editorial/View/11699/ES_AD_2_ESSA_3-1_en

- **LSAA Area of interest 600m After Threshold**

- **Mean Slope = 0.1%**
  - Deviation from mean LSAA = negligible

- **Simple**: $|\text{Mean Slope}| < 0.4\%$
  - Simple
Example of application Runway complexity assessment - Case 1

Stockholm Arlanda Airport

Example of ESSA 01L (Precision Approach Chart) [https://aro.lfv.se/Editorial/View/7565/ES_AD_2_ESSA_3-7_en](https://aro.lfv.se/Editorial/View/7565/ES_AD_2_ESSA_3-7_en)

**Area of interest 300m prior Threshold**

*unless otherwise specified:*
- AFM or TC/STC holder
- State of aerodrome
- AIP data
- Competent authority issuing LVO approval

7% rising slope

Simple : < 1m
Moderate
Example of application Runway complexity assessment - Case 1

Pre-threshold terrain profile: **Moderate**
Landing System Assessment Area (LSAA) slope: **Simple**

Other Factor identified: **None**

4.  Low visibility procedures (LVP)
4.1  Criteria for activation of LVP
LVP will be in operation when RVR falls below 550 m or when ceiling or vertical visibility falls below 200 ft. The application of LVP will be announced in ATIS.
4.2  CAT II/III RWY
RWY 01L and 01R/19L are approved for CATII/III.
4.2.1  Approach spacing
In order to maintain protection on ILS, no vehicle or aircraft shall penetrate sensitive areas. In order to fulfill requirement more than 5 NM spacing between arrivals will be used.

**Worst Factor**
**Moderate**

**Suggested Plan:**
- One flight
- Commercial operation

**Assumption:** Methodology agreed with authorities
Example of application Runway complexity assessment - Case 2

Stockholm Arlanda Airport

Example of ESSA 01L (Precision Approach Chart) [https://aro.lfv.se/Editorial/View/7565/ES_AD_2_ESSA_3-7_en](https://aro.lfv.se/Editorial/View/7565/ES_AD_2_ESSA_3-7_en)

Area of interest 300m prior Threshold

unless otherwise specified:
- AFM or TC/STC holder
- State of aerodrome
- AIP data
- Competent authority issuing LVO approval

Previous experience profile
Same Aircraft type

Simple
Example of application Runway complexity assessment - Case 2

Pre-threshold terrain profile: Simple
Landing System Assessment Area (LSAA) slope: Simple

Other Factor identified: None

4. Low visibility procedures (LVP)
4.1 Criteria for activation of LVP

LVP will be in operation when RVR falls below 550 m or when ceiling or vertical visibility falls below 200 ft. The application of LVP will be announced in ATIS.

4.2 CAT II/III RWY

RWY 01L and 01R/19L are approved for CAT II/III.

4.2.1 Approach spacing

In order to maintain protection on ILS, no vehicle or aircraft shall penetrate sensitive areas. In order to fulfill requirement more than 5 NM spacing between arrivals will be used.

Assumption: Methodology agreed with authorities

Worst Factor

Simple

Suggested Plan:
- No flight
Criteria for successful operational assessment

Data to be recorded
- Wind conditions & touch down point
  Can be observation
- Pertinent landing system parameters
  Typically: flight data recorder, quick-access recorder or equivalent
  Or
  Photo or video recording of pertinent instrument or instrument and outside view

Data to be reviewed with Authorities
- The final approach, flare and touch down profile to ensure suitability
  Guidance are provided in GM8 SPA.LVO.110

Agree methodology with authorities
Thank you

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