EASA AWO WEBINAR 3
EFVS operations

Olivier BAUDSON

24 OCT 2022
AGENDA

1. **What** are the privileges and benefits

2. **How** to get credit of theses privileges
EFVS BENEFITS 1/3

- **EFVS operation:**
  - Based on a **camera** that provides visual advantage over natural vision in HUD
  - Based on a straight in Instrument **Approach Procedure & 3D operations**:
    - extension of visual segment

- **EASA Regulation** grants a credit of RVR to operators capable of EFVS operations: typically 1/3

- **RVR credit** applicable to landing operating minima and can be used:
  - for **Flight Planning** – selection of DEST & ALT
  - In **Approach** – descent below approach ban – *not less than 1000 ft - “privilege of going to see at the DH”*

- **EASA AWO regulation** offers 3 types of EFVS **with Ops credit operations** with different level of privileges

<table>
<thead>
<tr>
<th>Types of EFVS operations</th>
<th>EFVS 200</th>
<th>EFVS-A</th>
<th>EFVS-L</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part</strong></td>
<td>CAT / NCC / SPO</td>
<td>SPA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>312 235 235</td>
<td>100 105</td>
<td>110 115 120</td>
</tr>
<tr>
<td><strong>Min RVR with EFVS</strong></td>
<td>RVR 550 m 200 ft</td>
<td>RVR 300 m¹</td>
<td>RVR 300 m¹</td>
</tr>
<tr>
<td><strong>Min height for natural vis.</strong></td>
<td></td>
<td>100 ft</td>
<td>0 ft</td>
</tr>
<tr>
<td><strong>RVR credit</strong></td>
<td>1/3</td>
<td>1/3¹</td>
<td>1/3¹</td>
</tr>
<tr>
<td><strong>OPS Specific Approval</strong></td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

Note 1: or more is stated in AFM (1/3 reflects the systems/technology in service in 2022).
Note 2: Maximum whatever the visual advantage stated in AFM.
Note 3: including NPA flown as CDFA.
EFVS BENEFITS 2/3 : EXEMPLES OF EFVS OPERATIONS

- **EFVS 200**: Antwerp RNP APCH 11
  - Published minima
  - Reduced Approach lighting
  - EFVS 200: Antwerp RNP APCH 11
  - Published minima
  - Reduced Approach lighting

- **EFVS-A**: Le Bourget LPV 27
  - Published minima
  - Reduced Approach lighting
  - EFVS-A: Le Bourget LPV 27
  - Published minima
  - Reduced Approach lighting

With EFVS

- **EFVS 200**: Antwerp RNP APCH 11
  - Published minima
  - Reduced Approach lighting

- **EFVS-A**: Le Bourget LPV 27
  - Published minima
  - Reduced Approach lighting

Note 1: RVR 550m in case of EFVS 200
EFVS BENEFITS 3/3

1. **EFFICIENCY** in degraded weather conditions
   - Increase accessibility: Local economy, Medevac…
   - Reduce indirect cost associated to rerouting of passengers in LVO
   - Extend all existing 3D IAP and supplement the PBN IR implementation
   - Open the door for LVO operation at other than CATII/III aerodromes (EFVS-A and –L)
   - Unlock the capacity of the dense European network of secondary aerodrome
   - Relieve pressure on HUB during peak of Low vis

2. **SAFETY**
   - Boost situational awareness = safety margins for all phases of flight

3. **ENVIRONMENT** impact
   - Closer DEST/ ALT, fuel intake
   - Less Go Around, shorter holding time and less diversions

Concerns all the aviation community: AIR operators, Aerodrome operators, ANSP, states
Current fleet of A/C equipped with EVS is estimated to 3 200 A/C, most being bizjets
EFVS BENEFITS 3/3

1. **EFFICIENCY** in degraded weather conditions
   - Increase accessibility: Local economy, Medevac…
   - Reduce indirect cost associated to rerouting of passengers in LVO
   - Extend all existing 3D IAP and supplement the PBN IR implementation
   - Open the door for LVO operation at other than CATII/III aerodromes (EFVS-A and –L)
   - Unlock the capacity of the dense European network of secondary aerodrome
   - Relieve pressure on HUB during peak of Low vis

2. **SAFETY**
   - Boost situational awareness = safety margins for all phases of flight

3. **ENVIRONMENT** impact
   - Closer DEST/ ALT, fuel intake
   - Less Go Around, shorter holding time and less diversions

Concerns all the aviation community: AIR operators, Aerodrome operators, ANSP, states
Current fleet of A/C equipped with EVS is estimated to 3 200 A/C, most being bizjets
EFVS BENEFITS 3/3

1. **EFFICIENCY** in degraded weather conditions
   - Increase accessibility: Local economy, Medevac…
   - Reduce indirect cost associated to rerouting of passengers in LVO
   - Extend all existing 3D IAP and supplement the PBN IR implementation
   - Open the door for LVO operation at other than CATII/III aerodromes (EFVS-A and –L)
   - Unlock the capacity of the dense European network of secondary aerodrome
   - Relieve pressure on HUB during peak of Low vis

2. **SAFETY**
   - Boost situational awareness = safety margins for all phases of flight

3. **ENVIRONMENT** impact
   - Closer DEST/ ALT, fuel intake
   - Less Go Around, shorter holding time and less diversions

Concerns all the aviation community: AIR operators, Aerodrome operators, ANSP, states
Current fleet of A/C equipped with EVS is estimated to 3 200 A/C, most being bizjets
EFVS BENEFITS 3/3

1. **Efficiency in degraded weather conditions**
   - Increase accessibility: Local economy, Medevac…
   - Reduce indirect cost associated to rerouting of passengers in LVO
   - Extend all existing 3D IAP and supplement the PBN IR implementation
   - Open the door for LVO operation at other than CATII/III aerodromes (EFVS-A and –L)
   - Unlock the capacity of the dense European network of secondary aerodrome
   - Relieve pressure on HUB during peak of Low vis

2. **Safety**
   - Boost situational awareness = safety margins for all phases of flight

3. **Environment impact**
   - Closer DEST/ ALT, less fuel intake
   - Less Go Around, shorter holding time and less diversions

Concerns all the aviation community: Air operators, Aerodrome operators, ANSP, States
Current fleet of A/C equipped with EVS is estimated to more than 3 200 A/C, most being business jets
HOW TO GET EFVS PRIVILEGES

- EFVS webpage on **EASA Community Network**:
  - EASA implementation manual
  - Application checklist
  - Required actions checklist
    - Air operators
      - including dispatcher, aero info service providers
    - Aerodromes operators
    - ANSP/ATC
    - NAA/CAA's
    - State
  - User Feedback
# HOW TO GET EFVS PRIVILEGES: “ZOOM IN” ON AIR OPERATORS

<table>
<thead>
<tr>
<th></th>
<th>EFVS 200</th>
<th>EFVS-A</th>
<th>EFVS-L</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 <strong>Aircraft</strong> certified for</td>
<td>EFVS-A or –L “Legacy” EVS¹</td>
<td>EFVS-A or –L “Legacy” EVS²</td>
<td>EFVS-L</td>
</tr>
</tbody>
</table>
| 2 **Crew** competence | Initial training & checking - OSD  
Recurrent & checking - OSD  
Recent experience –OSD  
Difference – OSD | Initial training & checking - OSD  
Recurrent & checking - OSD  
Recent experience –OSD  
Difference – OSD | Initial training & checking - OSD  
Recurrent & checking - OSD  
Recent experience –OSD  
Difference – OSD |
| 3 **Operator** | CAT: AOC³  
NCC & SPO: Declaration³  
Operating procedure  
MEL  
Maintenance  
Monitoring of the operation  
Operating minima | Specific approval | Specific approval |
| 4 **Aerodrome** & IAP | Suitable runway | Suitable runway | Suitable runway |

**Note 1:** For CAT & NCC & SPO: Use of legacy EVS (certified before 1st of January 2022) are acceptable for EFVS 200 but their use requires approval from competent authority (CAT.OP.MPA 312, NCC.OP.235, SPO.OP.235)

**Note 2:** For SPA: Legacy systems may be certified as ‘EVS with an operational credit’. Such a system may be considered an EFVS used for approach (EFVS-A)

**Note 3:** For CAT: EFVS 200 operation shall be described in the AOC (ORO.AOC.100). For NCC & SPO: EFVS 200 operation shall be notified in the Declaration (ORO.DEC.100)
SUITABILITY OF RUNWAYS: POINTS TO BE CHECKED FOR EFVS OPERATIONS

<table>
<thead>
<tr>
<th>Requirements to be satisfied</th>
<th>Where to get the information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EFVS 200</strong></td>
<td><strong>EFVS A</strong></td>
</tr>
<tr>
<td>✓ ✓ ✓ Impact of LED lighting (ALS) on visual advantage according to AFM</td>
<td>AIP AD2.14</td>
</tr>
<tr>
<td>✓ ✓ ✓ IAP straight in designed in accordance with PANS OPS vol, II (ICAO 8168) or TERPS</td>
<td>AIP AD2.24 (charts)</td>
</tr>
<tr>
<td>✓ ✓ ✓ IAP vertical path in accordance with AFM limitations and vertical guidance available (AFM)</td>
<td>AIP AD2.24</td>
</tr>
<tr>
<td>✓ ✓ ✓ IAP final segment lateral Offset &lt;3° for EFVS 200 or more EFVS-A &amp; -L (AFM)</td>
<td>AIP AD2.24</td>
</tr>
</tbody>
</table>

**Obstacles:**
- Presence of OFZ, or VSS of intended published minima not penetrated
- No obstacles requiring visual identification
- Balked landing: Presence of OFZ or climb gradient consistent with Instrument departure procedure

<table>
<thead>
<tr>
<th><strong>EFVS A</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ✓ ✓ TDZ RVR sensor available</td>
<td>AIP/ aerodrome chart</td>
</tr>
<tr>
<td>✓ ✓ appropriate LVP for landing and associated min RVR (including switch over time 1sec for runway lights)</td>
<td>AIP AD2.22 (AIP AD2.15)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>EFVS L</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ terrain profile prior to threshold, consistent with Flare domain (AFM)</td>
<td>AIP PATC</td>
</tr>
<tr>
<td>✓ runway profiles consistent with Flare domain (AFM)</td>
<td>AIP ICAO obstacle type A</td>
</tr>
</tbody>
</table>

If a runway has been promulgated as suitable for EFVS by the state of the aerodrome (e.g. AIP), then red items here above do not need to be verified by the air operator.

A CATII/III runway is considered as suitable for EFVS 200, EFVS-A and EFVS-L operations.
KEY TAKE AWAY/ GOOD PRACTICES/ INSIGHT

- **Aerodrome operator:** to update AIP with EFVS information *(LED on ALS, VSS, OFZ, LVP for app, switch over time...)*:
  - ... and to upgrade their certificates with EFVS operations in accordance with 2022/208 regulation\(^1\)
  - ... and to account for EFVS in NOTAM when appropriate
  - ... and to verify the validity of the description of the lighting system (length and number of crossbar)

- **Service Provider** *(e.g Jeppesen, LIDO, NAV blue...)*: to establish aerodrome operating minima reflecting EFVS privileges of each operator *(EFVS-200 or EFVS-A or EFVS-L depending on your authorizations)*
  - ... and to propose a service verifying the suitability of the aerodrome according to EFVS regulation\(^2\)

- **Air Operator/ Dispatcher**
  - to declare the EFVS-RVR capacity in the Flight plan (field 18) “EFVS RVR 350m”
  - to take RVR credit into account when selecting aerodromes
  - to use EFVS Procedures as much as possible in day to day 3D operations

- **All users:** To share your feedback about EFVS operations on EASA website (when available).

---

*Note 1: EFVS 200: GM2 ADR.AR.C.035(e), EFVS-A & -L: AMC1 ADR.OPS.B.045(a)(3).*  
*Note 2: see slide 10*
KEY TAKE AWAY/ GOOD PRACTICES/ INSIGHT

- **Aerodromes:** to update AIP with EFVS information (LED on ALS, VSS, OFZ, LVP for app, switch over time...)
  - ... and to upgrade their certificates with EFVS operations in accordance with 2022/208 regulation
  - ... and to account for EFVS in NOTAM when appropriate
  - ... and to verify the validity of the description of the lighting system (length and number of crossbar)

- **Aero Info Service Provider (e.g. Jeppesen, LIDO, NAV blue...):** to establish aerodrome operating minima reflecting EFVS privileges of each operator (EFVS-200 or EFVS-A or EFVS-L depending on your authorizations)
  - ... and to propose a service verifying the suitability of the aerodrome according to EFVS regulation

- **Air Operator/ Dispatcher**
  - to declare the EFVS-RVR capacity in the Flight plan (field 18) “EFVS RVR 350m”
  - to take RVR credit into account when selecting aerodromes
  - to use EFVS Procedures as much as possible in day to day 3D operations

- **All users:** To share your feedback about EFVS operations on EASA website (when available).

---

Note 2: see slide 10
KEY TAKE AWAY/ GOOD PRACTICES/ INSIGHT

- **Aerodromes:** to update AIP with EFVS information (LED on ALS, VSS, OFZ, LVP for app, switch over time...)\(^1\):
  - ... and to upgrade their certificates with EFVS operations in accordance with 2022/208 regulation\(^1\)
  - ... and to account for EFVS in NOTAM when appropriate
  - ... and to verify the validity of the description of the lighting system (length and number of crossbar)

- **Service Provider** (e.g. Jeppesen, LIDO, NAV blue...): to establish aerodrome operating minima reflecting EFVS privileges of each operator (EFVS-200 or EFVS-A or EFVS-L depending on your authorizations)
  - ... and to propose a service verifying the suitability of the aerodrome according to EFVS regulation\(^2\)

- **Air Operator/ Dispatcher**
  - to declare the EFVS-RVR capacity in the Flight plan (field 18) “EFVS RVR 350m”
  - to take RVR credit into account when selecting aerodromes
  - to use EFVS Procedures as much as possible in day to day 3D operations

- **All users:** To share your feedback about EFVS operations on EASA website (when available).

---

QUESTIONS

EBAA EFVS SURVEY
(…COMING IN 2 WEEKS… )