PBN and the Cockpit Workshop

Flight OPS Forum

Approach Re-Classification
The Links

Capt. Miguel Marin
Flt OPS Technical Officer
OPSP Secretary,
Wednesday 17 October
State letter AN 11/1.1-12/40,
Final Review by the ANC after the recess.
What is broken?

- It is a question of perspective...
  - From a NSP and IFPP side, nothing!
  - From an OPSP and AP side many things...
- Precision & Non-Precision approach do not exist in a Performance Based World
- ILS and MLS are not APVs, yet they are Approaches with Vertical Guidance
- APV is defined in Annex 6 but not used
The Challenge

Conventional
• Non-Precision
• Precision

PBN
• Performance Based

Addressing the Future whilst retaining compatibility
Initial Approach

ICAO PROVISIONS

Instrument Approach
Runways

Instrument Approach
Procedures

Instrument Approach
System Performance

Instrument Approach
Operations

Huge Complicated Task
Accomplished for the most part with simple mapping in the definitions
Annex 2, 10, 14 & PANS OPS Compatibility Retained

• No modification to SARPs
• Other initiatives have tagged along
What is new? – Annex 6

• Clear distinction between
  – Procedures versus Operations

  – Procedure: the procedure is the instrument flight procedure allowing an aircraft to navigate on the final approach down to a given OCH, relying on a given type of Navigation infrastructure

  – Operation: is the manner in which an aircraft is conducted to operate on a procedure

The proposal focuses solely on the Operations side based on:

  • Minima and
  • Flight method
• Operations are to be classified in accordance to the achieved Minima at the end of an approach
  – **Type A**: Instrument approach operation 250’ or above
  – **Type B**: Instrument approach operation below 250’

• Flight method is in accordance whether there is vertical guidance or not.
  - 2D (lateral guidance only)
  - 3D (lateral and vertical guidance)
Addressing the Links
Navigation System / App Procedures

- Navigation Systems support for:
  - Conventional
    - 2D or 3D Type “A” or “B” (CAT I, II & III) Approach Operations
  - PBN
    - 2D or 3D Type “A” or “B” (CAT I, II & III) Approach Operations
Addressing the Links

App Procedures/ App Operations

• Approach Procedures designed for:
  • Conventional
    ▪ 2D or 3D Type “A” or “B” (CAT I, II & III) Approach Operations
  • PBN
    ▪ 2D or 3D Type “A” or “B” (CAT I, II & III) Approach Operations
Addressing the Links
App Operations / Instrument Runways

• Minimum Runway Visual Aids requirements based on approach minima:
  • Type “A” Operations – Non Precision APP RWY
  • Type “B” Operations – Precision APP RWY (CAT I, II & III)
Instrument Runways

- 70% Conventional
- 30% PBN
The next Operational Frontier

- Operational Credits for:
  - HUD - Head up Display
  - EVS - Enhanced Vision Systems
  - SVS - Synthetic Vision Systems
  - CVS - Combined Vision Systems

Point from which natural visual references are required
## New Approach Classification

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<th>Approach Operations</th>
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<th>Document</th>
<th>Classification</th>
<th>Type A (&gt;= 250')</th>
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<th>CAT II (&gt;= 100')</th>
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Primary Benefits

• Transitions to Performance Based Operations
  – Operations based on minima and flight methods
  – Runway Visual Aids derived by
    • Minima
    • Regardless of system or procedure

• Boost implementation of Assembly Resolution A-37/11
  – De-couples the airborne and ground requirements
  – Expands realm of possibilities at aerodromes
  – Enhances safety in a cost effective manner
Supplemental Benefits

• Clarifies Terms and Definitions
  – Simplifies Approach Operation Categorization
• Addresses all ICAO Provisions
• Accommodates for future development
• Retains Compatibility with Documentation
  – Least modifications for States who have began PBN implementation
THANK YOU

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