ICAO updates
<table>
<thead>
<tr>
<th>Reference #</th>
<th>Title and date issued</th>
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<tbody>
<tr>
<td>2013/19</td>
<td>Adoption of Amendment 14 to Annex 13 28 March 2013</td>
</tr>
<tr>
<td>2013/21</td>
<td>Approval of Amendment 5 to Annex 14, Volume II 28 March 2013</td>
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<tr>
<td>2013/28</td>
<td>Adoption of Amendment 44 to Annex 2 15 April 2013</td>
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<td>2013/29</td>
<td>Adoption of Amendment 49 to Annex 11 15 April 2013</td>
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<td>2013/30</td>
<td>Adoption of Annex 19 08 April 2013</td>
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<tr>
<td>2013/37</td>
<td>Approval of Amendments 5 and 5 to PANS-OPS, Volumes I and II, respectively 19 April 2013</td>
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<tr>
<td>2013/39</td>
<td>Adoption of Amendment 76 to Annex 3 12 April 2013</td>
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<tr>
<td>2013/40</td>
<td>Approval of Amendments 5 to PANS-ATM 30 April 2013</td>
</tr>
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<td>2013/24</td>
<td>Proposal for the amendment of PANS-OPS, Volumes I and II regarding procedure design criteria and charting requirements to support performance-based navigation (PBN) as well as helicopter point-in-space (PinS) approach and departure operations with consequential amendments to Annexes 4; 6, Parts I, II and III; 14, Volume II; 15 and the PANS-ABC 14 June 2013</td>
</tr>
<tr>
<td>2013/32</td>
<td>Proposal for the amendment of the Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM, Doc 4444) relating to strategic lateral offset procedures 12 April 2013</td>
</tr>
<tr>
<td>2013/33</td>
<td>Proposal for the amendment of Annex 1, concerning the upper age limit for pilots engaged in international commercial air transport 28 March 2013</td>
</tr>
<tr>
<td>2013/34</td>
<td>Proposal for the amendment of Annex 10, Volume II, PANS-ATM and the PANS-OPS concerning ADS-B, CPDLC and in-trail procedure 10 May 2013</td>
</tr>
<tr>
<td>2013/46</td>
<td>Proposal for the amendment of Annex 6, Parts I, II and III relating to harmonization of provisions, electronic flight bags (EFBs), fatigue management, dangerous goods, head-up displays (HUDs) and visions systems, and fuel use provisions 15 July 2013</td>
</tr>
<tr>
<td>2013/55</td>
<td>Proposal for the amendment of Annex 13 relating to independence of accident and incident investigations, plus Corrigendum from 02 August 2013 19 July 2013</td>
</tr>
<tr>
<td>2013/56</td>
<td>Proposals for the amendment of Annex 1, Annex 6, Part I and the PANS-TRG relating to upset prevention and recovery training 10 July 2013</td>
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## ICAO State Letters and Proposed Amendments to ICAO Annexes

<table>
<thead>
<tr>
<th>Reference #</th>
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| 2013/58       | Proposal for the amendment of Annex 17  
02 July 2013                                                                                                                                                                                                               |
| 2013/59       | Proposals for the amendment of Annex 6, Parts I, II and III regarding carriage requirements of flight recorders, plus Corrigendum from 16 August 2013  
05 July 2013                                                                                                                                                                                                           |
| 2013/60       | Proposals for the amendment of Annex 16, Volume II concerning Standards and Recommended Practices relating to environmental protection - Aircraft engine emissions  
12 July 2013                                                                                                                                                                                                             |
| 2013/61       | Proposals for the amendment of Annex 16, Volume I concerning Standards and Recommended Practices relating to environmental protection – Aircraft noise  
12 July 2013                                                                                                                                                                                                               |
| 2013/57       | ICAO Position for the ITU WRC-15  
02 July 2013                                                                                                                                                                                                               |
| 2013/62       | Launch of an online Air Operator Certificate (AOC) register  
02 July 2013                                                                                                                                                                                                              |
| IND/13/3      | Establishment of the Air Traffic Management Operations Panel (ATMOPSP) and nomination of an expert  
07 August 2013                                                                                                                                                                                                              |
ICAO Annex 19

- The ICAO High-level Safety Conference 2010 recommendation 2/5 proposed the development of an Annex dedicated to Safety Management. The benefits identified of this approach included:
  - Address safety risks proactively;
  - Manage and support strategic regulatory and infrastructure developments;
  - Re-enforce the role played by the State in managing safety at the State level, in coordination with service providers;
  - Stress the concept of overall safety performance in all domains.
ICAO Amendment 5 to PANS ATM
New Approach Classifications

• Amendment 5 to the PANS-ATM (State Letter AN 13/2.1-13/40) stems from proposals developed by the Secretariat and supported by the Approach Classification Task Force (ACTF) in coordination with the Aerodromes Panel (AP), the Instrument Flight Procedure Panel (IFPP), the Navigation Systems Panel (NSP) and the Operations Panel (OPSP), regarding new approach classification provisions.

• The amendment to the PANS-ATM modifies the existing approach classification in a manner that will both simplify and more accurately describe the various types of approach and landing operations.

• The amendment ensures that all ICAO provisions are harmonized with respect to PBN and has the added benefit of optimizing runway requirements in relation to all approach operations (PBN and conventional).

• The implementation of this amendment is foreseen for 13 November 2014.
TEXT OF AMENDMENT 5 TO THE
PROCEDURES FOR AIR NAVIGATION SERVICES
AIR TRAFFIC MANAGEMENT

Chapter 1
DEFINITIONS

Decision altitude (DA) or decision height (DH). A specified altitude or height in the precision approach or approach with vertical guidance and a 3D instrument approach operation, at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Instrument approach operations. An approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:

a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and

b) a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.

Note: Lateral and vertical navigation guidance refers to the guidance provided either by:

a) a ground-based navigation aid; or

b) computer-generated navigation data from ground-based, space-based, self-contained navigation aids or a combination of those.

Instrument approach procedure (IAP). A series of predetermined manoeuvres by reference to flight instruments with specific protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows:

Non-precision approach (NPA) procedure. An instrument approach procedure which utilises lateral guidance but does not utilise vertical guidance.

Note: Non-precision approach procedures may be flown using a continuous descent final approach technique (CDFA). CDFA with auxiliary VNAV guidance calculated on board equipment (see PANS-OIS Doc 8168, Volume 1, Part 1, Section 4, Chapter 1, paragraph 1.8.1) are considered 3D instrument approach operations. CDFA with manual calculation of the required rate of descent are considered 2D instrument approach operations. For more information on CDFA refer to Section 1.7 and 1.8.

Approach procedure with vertical guidance (APV). An performance-based navigation (PBN) instrument approach procedure which utilises lateral and vertical guidance designed for 3D instrument approach operations. Type A does not meet the requirements established for precision approach and landing operations.

Precision approach (PA) procedure. An instrument approach procedure using precision lateral and vertical guidance with minimum as determined by the category of operation based on navigation systems (ILS, MLS, GLS and SBAS Cat I) designed for 3D instrument approach operations. Type A or B.

Note: Lateral and vertical guidance is provided by:

a) a ground-based navigation aid; or

b) computer-generated navigation data.

Note: Refer to Annex 6 for instrument approach operation types.

Obstacle clearance altitude (OCA) or obstacle clearance height (OCH). The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

Note 1: Obstacle clearance altitude is referenced to mean sea level and obstacle clearance height is referenced to the threshold elevation or in the case of non-precision approach approach procedures to the aerodrome elevation or the threshold elevation if that is more than 2 m (7 ft) below the aerodrome elevation. An obstacle clearance height for a circling approach procedure is referenced to the aerodrome elevation.

Note 2: For convenience when both expressions are used they may be written in the form “obstacle clearance altitude/height” and abbreviated “OCA/H”.

— END —
ICAO New Approach Classifications

- New definitions do not modify any ICAO Provision
- Coherence across all ICAO Documentation (approach operations and runway requirements in Annex 2, 10, 14 and PANS OPS), compatibility retained
- A systematic performance based approach
ICAO Annex 6
New Approach Classifications

Approach Operations

• Makes Approach Classification a Standard rather than a definition
• Adjusts definitions and provisions accordingly
• CAT I, II & III specifications remain intact
• Introduces Approach Classification Types (A & B)
• Disassociates the type of Navigation System from the Approach Category
• Performance Based Approach
  – Removes the terms Non Precision, APV & Precision from the operation
• The Approach Classification is not sensor specific, instead it is based on the point from which visual references are required
• Baseline for future operational enhancements
  – Head Up Displays (HUD), Enhanced Vision Systems (EVS), Synthetic Vision Systems (SVS)
ICAO Annex 6
New Approach Classifications

- 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

- Approach operations are classified according to the designed lowest operating minima of an approach procedure
  - Type A: Instrument approach operation 250’ or above
  - Type B: Instrument approach operation below 250’

- Flight method for executing an approach operation.

  - 2D lateral guidance only
  - 3D lateral guidance and vertical guidance

- The new ICAO classification focusses solely on the Operations side and is based on:
  - Minima
  - Flight Method
ICAO Annex 14
New Approach Classifications

• Facilitates all type of approaches operations

• Performance-based approach for RWY infrastructure, function of published minima
  – **Type A** Operations only require the Non-precision RWY infrastructure and related visual aids.
  – All **Type B** Operations will require a Precision RWY infrastructure and related visual aids.

• Allows for instrument approaches to non-instrument runways
  – Point-in-space instrument procedure principle

• Facilitates new implementation strategies
## ICAO New Approach Classifications

### ICAO Approach Classification

<table>
<thead>
<tr>
<th>Domain</th>
<th>Document</th>
<th>Approach Operations Classification (based minima)</th>
<th>Type A</th>
<th>Type B</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td></td>
<td>(250’ or higher)</td>
<td>CAT I (less than 250’ &amp; 200’ or higher)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CAT II (less than 200’ &amp; 100’ or higher)</td>
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<td></td>
<td>CAT III (less than 100’)</td>
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<td></td>
<td>Annex 6</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Method</td>
<td>2D</td>
<td>3D</td>
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<tr>
<td></td>
<td></td>
<td>Minima</td>
<td>MDA/H</td>
<td>DA/H*</td>
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### Approach Runways

<table>
<thead>
<tr>
<th>Approach Runways</th>
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<th>M(DA/H) &gt;= VMC</th>
<th>Non Instrument RWY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M(DA/H) &gt;= 250’</td>
<td>Non Precision Approach RWY</td>
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<tr>
<td></td>
<td></td>
<td>DA/H &gt;= 200’</td>
<td>Precision Approach RWY, Category I</td>
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<tr>
<td></td>
<td></td>
<td>DA/H &gt;= 100’</td>
<td>Precision Approach RWY, Category II</td>
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<td></td>
<td></td>
<td>DA/H &gt;= 0’</td>
<td>Precision Approach RWY, Category III (A, B &amp; C)</td>
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### System Performance Procedures

<table>
<thead>
<tr>
<th>System Performance Procedures</th>
<th>Annex 10 PANS-OPS Vol. II</th>
<th>NPA</th>
<th>NDB, Lctr, LOC, VOR, Azimuth, GNSS</th>
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<tr>
<td></td>
<td></td>
<td>APV</td>
<td>GNSS/Baro/SBAS</td>
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<tr>
<td></td>
<td></td>
<td>PA</td>
<td>ILS, MLS, SBAS Cat I, GBAS</td>
</tr>
</tbody>
</table>

* NPA procedures require a derived DA/H
Approach Classification

A tool for Aerodromes

Today’s Requirements

INVESTMENT

Minima

RUNWAY

Runway Lights

Runway Markings

Redundancies

NAV System
Approach Classification

A tool for Aerodromes

With Approach Classification

INVESTMENT

(trade off)

Minima

Runway Lights

Runway Markings

Minima

Redundancies

NAV System
Transition Considerations

• Four main concerns analyzed:
  – Pilot/ATCO communication
  – Chart/Ops Approval mismatch
  – Chart/Flight Plan mismatch
  – Chart/Avionics mismatch

• Avionics issue would continue for some aircraft until retired.
Phased in Transition for Charting

RNP Depiction
PBN Box implementation

8 year transition period

Additional time for Avionics

2014

- PLT/ATCO ✔
- OPS APPROVAL ✔
- AVIONICS ✗
- FLIGHT PLAN ✔

2022

- Transition Plan X1
- Implementation Costs X1
- Training Costs X1
- Mitigation Plan X1
- Document Changes X1

2028

- PLT/ATCO ✔
- OPS APPROVAL ✔
- AVIONICS ✔
- FLIGHT PLAN ✔

* Some Avionics will never be changed
ICAO Assembly 38th Session

• The ICAO Assembly is the Organization’s sovereign body. It meets at least once every three years and is convened by ICAO’s governing body, the Council

• ICAO's 191 Member States and a large number of international organizations are invited to the Assembly, which establishes the worldwide policy of the Organization for the upcoming triennium 2014-2016

• During Assembly Sessions, ICAO’s complete work programme in the technical, economic, legal and technical cooperation fields is reviewed in detail

• Key Items
  – Endorsement of the Global Aviation Safety Plan
  – Endorsement of the Global Air Navigation Plan (ASBUs)
  – Endorsement of ICAOs 5 Strategic Objectives
    • Safety
    • Air Navigation Capacity and Efficiency
    • Security and Facilitation
    • Economic Development of Air Transport
    • Environmental Protection
ICAO Conferences and Meetings

- Showcase of Electronic Tools (SET13), Montreal (Canada), 23 September 2013

- 38th Session of the ICAO Assembly, Montreal (Canada), 24 Sep - 04 Oct 2013

- ATM Advanced techniques symposium, today’s opportunities for saving fuel and reducing emissions, Montreal (Canada), 04 - 06 November 2013

- Regional Runway Safety Seminars
  - Istanbul (Turkey) from 06 to 08 November 2013
  - Kuala Lumpur (Malaysia) from 18 to 20 November 2013
THANK YOU

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