Noise Certification Workshop

Session 1: HISTORIC PERSPECTIVE

ICAO work on aircraft noise

Jane Hupe
Secretary, ICAO/CAEP

Bangkok, 6 to 7 November 2006
Background

- ICAO has been working with environmental issues since 1960s
  - Aircraft noise
  - Aircraft engine emissions

- Environmental activities are largely carried out through its Committee on Aviation Environmental Protection (CAEP), a Technical Committee of the ICAO Council
ICAO’s Work on the Environment

- **1970**
  - CAN – Committee on Aircraft Noise

- **1971**
  - First SARPs for aircraft noise, designated as Annex 16 to the Convention on International Civil Aviation (Chicago, 1944)

- **1977**
  - CAEE – Committee on Aircraft Engine Emissions
ICAO’s Work on the Environment

1981
- Annex 16 expanded to encompass SARPs dealing with the control of aircraft engine emissions

Annex 16:
- Volume I, Aircraft Noise
- Volume II, Aircraft Engine Emissions

1983
- CAEP (Committee on Aviation Environmental Protection)
  ➜ Superseded CAN and CAEE
Structure for the Consideration Of Environmental Proposals
CAEP Structure leading up to CAEP/7

FESG
Forecasting and Economic Analysis Support Group

CAEP
Up to CAEP/7

WG1
Noise Technical Issues

WG2
Airports and Operations

WG3
Emissions Technical Issues
WG1 - Noise Technical Issues

- Future of the Scheme
- Re-Certification
- Rotorcraft
- Technology
- Technical Issues
- Environmental Technical Manual
- SST
- Noise Database
Who Participates in CAEP?

- Airlines
- Airports Environmental Ngo’s
- Manufacturers
- States from Different Regions
- Pilots
- Other UN bodies
<table>
<thead>
<tr>
<th>Argentina</th>
<th>India</th>
<th>South Africa</th>
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# Observers (12)

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</table>
CAEP Terms of Reference

To undertake specific studies, as approved by the Council, related to control of aircraft noise and gaseous emissions from aircraft engines.

Taking into account the:
CAEP Terms of Reference

a) Effectiveness and reliability of certification schemes from viewpoint of technical feasibility, economic reasonableness and environmental benefit to be achieved
CAEP Terms of Reference

b) Developments in other associated fields, e.g. Land-use planning, noise abatement, operating procedures, emission control through operational practices, etc.
c) International and national programmes of research into control of aircraft noise and control of gaseous emissions from aircraft engines; and
CAEP Terms of Reference

d) The potential interdependence of measures taken to control noise and to control engine emissions
ICAO’s policies on Environmental Protection are revised by each ICAO Assembly and are published as ICAO Assembly Resolutions.
ICAO POLICIES

A35-5: Consolidated statement of continuing ICAO policies and practices related to environmental protection
Noise – Balanced Approach

- Concept started in CAEP/2
- Developed by CAEP/5 – response to Council request
- Comprises four elements:
  - Noise at source
  - Land-use planning management
  - Operational measures
  - Operating restrictions
Current SARPs for jet aircraft are included in Annex 16 as:
CHAPTER 2. SUBSONIC JET AEROPLANES — APPLICATION FOR CERTIFICATE OF AIRWORTHINESS FOR THE PROTOTYPE ACCEPTED BEFORE 6 OCTOBER 1977

Chapter 2 (before Oct 1977, eg B727, early B737 and DC9)

b) powered by engines with a by-pass ratio of 2 or more and for which a certificate of airworthiness for the individual aeroplane was first issued before 1 March 1972; or

c) approach noise measurement point: the point on the ground, on the extended centre line of the runway, 120 m (395 ft) vertically below the 3rd descent path originating from a point 300 m beyond the threshold. On level ground this corresponds to a position 2 000 m from the threshold.

2.4 Maximum noise levels
CHAPTER 3.  

1.— SUBSONIC JET AEROPLANES — 
Application for Certificate of Airworthiness 
for the Prototype accepted on or after 
6 October 1977 and before 1 January 2006

2.— PROPELLER-DRIVEN AEROPLANES OVER 5 700 kg — 
Application for Certificate of Airworthiness 
for the Prototype accepted on or after 
1 January 1985 and before 17 November 1988

3.— PROPELLER-DRIVEN AEROPLANES OVER 8 618 kg — 
Application for Certificate of Airworthiness 
for the Prototype accepted on or after 
17 November 1988 and before 1 January 2006

Chapter 3 (Oct 1977)

Note 1.— See also Chapter 1, 1.7.

Bangkok, 6 to 7 November 2006
CHAPTER 4.

1.— SUBSONIC JET AEROPLANES —
Application for Certificate of Airworthiness
for the Prototype accepted on or after 1 January 2006

2.— PROPELLER-DRIVEN AEROPLANES OVER 8 618 kg —
Application for Certificate of Airworthiness for the
Prototype accepted on or after 1 January 2006

Chapter 4 (Jan 2006 /
re-certification of Chap 3)

“Chapter 4” = Chap. 3 less a 10 EPNdB
 cumulative margin

Re-Certification Procedures
Making an ICAO Standard

Origin of Proposal

Development Phase

Review Phase

Adoption/ Publication Phase
Origin of Proposal

CONTRACTING STATES
ASSEMBLY
COUNCIL
SECRETARIAT  ANC

Proposal for Action

Other UN Bodies

International Organizations

Meetings  Panels & Committees

Bangkok, 6 to 7 November 2006
Development Phase

Proposal for Action

Council

CAEP

SECRETARIAT

Special Meeting

Technical Proposal

Council usually refers to ANC for Preliminary Review
Review Phase

ANC Preliminary Review

Contracting States

International Organizations

SECRETARIAT

Secretariat Analysis

ANC Final Review

Bangkok, 6 to 7 November 2006
Adoption/Publication Phase

ANC Final Review

ANC Approves

Subject to Approval by President of Council on behalf of Council

Green Edition

States

SECRETARIAT

Blue Edition

Applicability Date
ANC Final Review

ANC Recommends

Council Adopts

Green Edition

States

SECRETARIAT

Blue Edition

Annex Amendment

Adoption Date
(Usually March)

4 Months

Effective Date
(Amendment becomes Effective if not disapproved By majority of States)

4 Months

Applicability Date
(Usually November)

Disapprove

Notification of Differences

Supplement

Applicability Date
The most significant aspects of the amendments were:

- new provisions relating to documents attesting noise certification,
- provisions for re-certification, and
- references to the balanced approach to noise management.
Proposals sent to States and international organizations for comments and considered in light of these comments for adoption mid 2005.


The Council also agreed with a new work programme for CAEP leading to CAEP/7.
Noise Certification Workshop

Noise Certification

Annex 16, Vol I

Environmental Technical Manual on the Use of Procedures in the Noise Certification of Aircraft

Bangkok, 6 to 7 November 2006
Noise Certification Requirements

Annex 16 - All Regions

Number of non-compliances by Region

- Requirement for an operator to carry on board a document attesting noise certification in accordance with Annex 16, Volume I
- Requirement for all aeroplanes to comply with noise certification standards in Annex 16, Volume 1, and to carry on board an aircraft a document (or a suitable statement) attesting to noise certification
- Procedures for the granting or validation of a noise certificate on the basis of satisfactory evidence that the aircraft complies with requirements at least equivalent to those included in Annex 16

<table>
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<th>Number of Non-Compliances</th>
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Bangkok, 6 to 7 November 2006
SAFETY OVERSIGHT AUDITS

1st cycle: 1999 to 2004

181 States and 5 territories audited

Shortcut in October 2004

By December 2005 situation improved e.g.

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<tr>
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2nd cycle: started March 2005

6 years
Thank you