AERODROME CERTIFICATION

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TOPICS

♦ THE AVIATION SYSTEM
♦ AERODROME CERTIFICATION – WHY NEEDED
♦ INTERNATIONAL OBLIGATIONS
♦ AERODROME CERTIFICATION – THE TOOLS
♦ ICAO Doc 9774 – AN/969
♦ QUESTIONS

“Safety is the raison d’être of ICAO”
Aviation is a system that needs a systematic approach to its regulation, as well as operation.
THE AERODROME WITHIN A TOTAL SYSTEM CONCEPT…
A “LICENSED” person *(Annex 1)*

following

“THE RULES OF THE AIR” *(Annex 2)*

utilizing

“THE METEOROLOGICAL SERVICES” *(Annex 3)*

and

“AERONAUTICAL CHARTS” *(Annex 4)*
and the proper

“UNITS OF MEASUREMENT” (Annex 5)

“OPERATING” according to (Annex 6) with

a “REGISTERED” (Annex 7) and

“AIRWORTHY” (Annex 8) aircraft;

crossing borders and availing himself/herself of the

“FACILITATION” (Annex 9).
Cont’d..

He/She is using

“AERONAUTICAL COMMUNICATIONS” (Annex 10)

to contact

the “AIR TRAFFIC SERVICES” (Annex 11)

for separation and will hopefully not need

“SEARCH AND RESCUE” (Annex 12).
Drawing wisdom from the work of the “ACCIDENT AND INCIDENT INVESTIGATION” (Annex 13) team.

Before take-off from an “AERODROME” (Annex 14), he/she will have used the “AERONAUTICAL INFORMATION SERVICES” (Annex 15).
He/She will depart in an “ENVIRONMENTALLY” (Annex 16) acceptable aircraft after the passengers have been “SECURITY” checked (Annex 17) and any “DANGEROUS GOOD” (Annex 18) have been properly documented.
THE AVIATION SYSTEM

AERODROME
AIRFIELD SAFETY:

OPERATIONS, SERVICES, RFF, ENGNG, MAINT, OBSTACLES ETC. (Annex 14)

Local ATM
Annex 11
PANS-ATM

Local CNS
Annex 10

Local AIS/MAP
Annex 3
Annex 15

Local MET
Annex 3

FLT OPS
Annex 6
PANS-OPS

ENVIRON
Annex 18

SECURITY
Annex 17

MID ADCI TF/1 Cairo 15 – 17 October 2012
THE AVIATION SYSTEM
THE AVIATION SYSTEM
# NEW LARGE AIRCRAFT

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<th>Airbus A380-100</th>
<th>Boeing 747-8/8F</th>
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<tr>
<td><strong>Passengers</strong></td>
<td>416</td>
<td>555</td>
<td>467</td>
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<td><strong>Wingspan</strong></td>
<td>64.40 m</td>
<td>79.75 m</td>
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<tr>
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<td>72.60 m</td>
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<td><strong>Height</strong></td>
<td>19.40 m</td>
<td>24.00 m</td>
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<tr>
<td><strong>MTOW</strong></td>
<td>400 tons</td>
<td>560 tons</td>
<td>440 tons</td>
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TODAY’S AVIATION ENVIRONMENT ....

- Large, global & complex industry
- Highly sophisticated technologies
- Reduced capacity of regulators to be THE expert across a whole range of disciplines/specialties
- Highly complex, automated & integrated systems
TODAY’S AVIATION ENVIRONMENT ....

- Increased failures: technology/human interface
- Greater commercial pressure - costs & time
- Greater public expectations on safety issues
Certification of Aerodromes

Why Needed?
Certification of Aerodromes
Why Needed?
Certification of Aerodromes
Why Needed?
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Why Needed?
Certification of Aerodromes
Why Needed?
“A number of items of the airport did not meet the level of internationally accepted standards and recommended practices”

“There was a lack of specified safety regulation monitoring organization and mechanism within the CAA that resulted in the absence of a mechanism to highlight conditions at the airport for twys and rwys lighting, marking & signage that did not meet internationally accepted safety standards & practices”
“There was a lack of safety oversight mechanism within CAA that could have provided an independent audit/assessment of the airport to ensure that its facilities met internationally accepted safety standards and practices”

Aviation Safety Council, xxx
CRASH FINDINGS

- Aerodrome Safety
- Prevention of Accidents
- Reduction/Elimination of deficiencies
- Aerodrome Safety Management System
- CAA Aerodrome Safety Oversight and Certification
- ICAO USOAP Aerodrome Audits

http://www.icao.int/cgi/safety.pl
INTERNATIONAL OBLIGATIONS

SOVEREIGN STATE

United Nations

Treaties
Conventions

GATT

Other Agencies
eg. IMF, WHO, WMO

Domestic Law
THE CHICAGO CONVENTION

- Signed on 7 December 1944
- Currently 190 States ratified – one of world’s most widely accepted international treaties
- Only global set of principles/rules governing international civil aviation
- Contains 96 Articles in 22 Chapters
THE CHICAGO CONVENTION (cont’d)

- Provides for the establishment of the International Civil Aviation Organization (ICAO)

- Gives Contracting States certain “RIGHTS” in exchange for meeting certain “OBLIGATIONS”
THE CHICAGO CONVENTION

STATES “RIGHTS”

- Uphold fundamental principles of Sovereignty of Contracting States (Article 1)
- Grants transit & landing rights for non-scheduled traffic (Article 5)
- Grants each State the right to reserve the traffic within its borders to its own airlines (Article 7)
Grants each “User” State the right to equitable treatment from a “Provider” State in terms of rules of entry to, transition, through and departure from that State’s airspace and airports (Articles 11 & 15)

Provides for mutual recognition of certificates of airworthiness, personnel licences etc (Article 33)
STATES “OBLIGATIONS”

- Each State agrees to give uniform treatment to aircraft from other States when in their airspace or using their airports (Articles 11 & 15)
- Each State agrees to provide airports and air traffic services in conformance with standards and practices established under the Convention (Article 28)
Each State agrees to implement in their national regulations the International Standards and Recommended Practices (SARPs) and Procedures adopted by ICAO in order to ensure the highest practicable degree of uniformity (Article 37)
Each State is required to notify ICAO immediately if it finds it impracticable to comply in all respects with any International Standard or Procedure (Article 38) – “filing of differences”
WHAT IF NON-COMPLIANT?

- Article 37 – Adoption of Int’l SARPs
- Article 38 – Departure from Int’l SARPs
- Article 33 – Mutual Recognition of Certificates
- Article 54 – Reporting of Infractions to ICAO Council and Assembly
Article 54 (j) – Report to Contracting States any infraction of this Convention as well as any failure to carry out recommendations or determination of the Council

Article 54 (k) – Report to the Assembly any infraction of this Convention where a Contracting State has failed to take appropriate action within a reasonable time after notice of infraction
HIERARCHY OF ICAO vs STATE DOCUMENTATION

PROCEDURES FOR AIR NAVIGATION SERVICES

CHICAGO CONVENTION

ANNEXES 1 TO 18

STATE LEGISLATION/OPERATING REGULATIONS

MANUALS/CIRCULARS

STATE GUIDANCE MATERIAL

MID ADCT TF/1 Cairo 15 – 17 October 2012
The basis for regulation

- ICAO SARPs (PANS, manuals, circulars)
- INT’L STDS & REQUIREMENTS
- NATIONAL LAWS
- NATIONAL REGULATIONS LOCAL BY-LAWS
- HIERARCHY OF ICAO vs STATE DOCUMENTATION
ICAO ANNEXES DIRECTED TO THE STATE

CONTENTS OF ICAO ANNEXES MUST BE TRANSPOSED INTO NATIONAL REGULATIONS

LICENSE PERSONNEL, CERTIFY AERODROMES & ORGANIZATIONS

MONITOR LICENSED SUBJECTS FOR CONTINUED COMPLIANCE
TWO COMPLEMENTARY ROLES

ICAO

- Develops principles and techniques to be adopted in Annexes
- Approves regional air navigation plans

STATES

- Apply Annex Standards
- Carry out oversight responsibilities
- Implement infrastructure according to regional plans

APEC Airport Safety Oversight and Advanced Technologies Workshop

21 – 23 September 2010, Bali, Indonesia
Certification of Aerodromes

The Tools
Certification of Aerodromes

Annex 14
To the Convention on International Civil Aviation

Aerodromes

Volume 1
Aerodrome Design and Operations

International Standard and Recommended Practices

Fifth Edition
July 2019

International Civil Aviation Organization

This edition incorporates all amendments, dated to the Council on 6 March 2008 and examined, on 19 November 2009, all previous editions of Annex 14, Volume 1.

For information regarding the applicability of standards and recommended practices, see Chapter 1, 1.3 and Foreword.

MID ADCI TF/1 Cairo 15 – 17 October 2012
“Any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of int’l air navigation and to which Contracting State will conform in accordance with the Convention; in the event of impossibility of compliance, notification to the Council is compulsory under Article 38.”
“Any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognised as desirable in the interest of safety, regularity or efficiency of int’l air navigation and to which Contracting State will endeavour to conform in accordance with the Convention.”
✓ Aircraft are certificated
✓ Airlines are certified
✓ Pilots are licensed

✗ Nothing comparable for aerodromes in most States. Why not? How can you be sure of aerodrome operator competency and aerodrome operations safety?
Purpose – a mechanism by which the regulatory authority (and ICAO) can be satisfied about aircraft SAFETY, with respect to an aerodrome and its local airspace

- certification facilitates and formalises the CAA’s obligation under the Convention for safety oversight and provision of adequate facilities and services
Compliance with Annex 14 – obligation of States under the Convention

(Australia, Canada, UK, US and some other States implemented aerodrome certification/licensing long before ICAO Annex 14 Vol. 1 Amendment 4)

Necessary ? – a significant portion of air navigation deficiencies are in the aerodromes field
Amendment 4 to Annex 14, Vol I

- Adopted by Council in Mar 2001
- Applicable from 01 Nov 2001
- Cover other relevant Annexes for certifying airports
- Coordination with other service providers & agencies for a seamless safe operating environment
Amendment 4 to Annex 14, Vol I

§ 1.3 - Certification of Aerodromes

RP - Aerodromes open to public use to be certified as per Annex 14 Vol I and other relevant ICAO specifications

Std - Aerodromes used for int’l operations to be certified as from 27 Nov 2003
Certification of Aerodromes – The Tools

Std  -  States’ regulatory framework to establish the criteria for certification

RP   -  Submission of an aerodrome manual as part of the application including an SMS in operation

Std  -  SMS shall be in operation from 24 Nov 2005
Amendment 7 to Annex 14, Vol I

- Adopted by Council in Mar 2005
- Applicable from 01 Nov 2005

Std - Submission of an aerodrome manual as part of the application including an SMS in operation
Amendment 10 to Annex 14, Vol I

- Adopted by Council in Mar 2009
- Applicable from 01 Nov 2009

Amendment in three key areas:
1) Expansion of Note to section 1.4 clarifying intent of aerodrome certification:

“...When an aerodrome is granted a certificate, it signifies to aircraft operators and other organizations operating on the aerodrome that, at the time of certification, the aerodrome meets the specifications regarding the facility and its operation, and that it has, according to the certifying authority, the capability to maintain these specifications for the period of validity of the certificate. The certification process also establishes the baseline for continued monitoring of compliance with the specifications...”
2) Inclusion of procedures in the regulatory framework for the certification of aerodromes, in para 1.4.3

(Procedures for Air Navigation Services – Aerodromes [PANS-Aerodromes])

3) promulgation of the status of aerodrome certification (in the AIP), in para 2.13.1
(consequential) Amendment 35 to Annex 15

- Adopted by Council in Mar 2009
- Applicable from 19 Nov 2009

Appendix 1. Contents of AIP
Part 3 – AERODROMES (AD)
AD 1. AERODROMES/HELIPORTS
   AD1.5 Status of certification of aerodromes
AD1.5 Status of certification of aerodromes

A list of aerodromes in the State, indicating the status of certification, including:

1) aerodrome name and ICAO location indicator;
2) date and if applicable, validity of certification;
3) remarks, if any.
## Certification of Aerodromes – The Tools

### AIP

**State XXX**

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<thead>
<tr>
<th>Aerodrome/Location Indicator</th>
<th>Date/Validity of Certification</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>RKSI (abc INTL)</td>
<td>19 NOV 2009 – 18 NOV 2010</td>
<td>Certified by CASA</td>
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<tr>
<td>RKSS (def INTL)</td>
<td>19 NOV 2009, 1 year</td>
<td>Certified by CAA</td>
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<tr>
<td>RKPC (ghi)</td>
<td>19 NOV 2009, 2 years</td>
<td>Certified by DCA</td>
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<tr>
<td>RKPK (klm INTL)</td>
<td>19 NOV 2009, 3 years</td>
<td>Certified by CASA</td>
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<tr>
<td>RKTU (mpq INTL)</td>
<td>19 NOV 2009, 5 years</td>
<td>Certified by CASA</td>
</tr>
<tr>
<td>RKNY (wxy INTL)</td>
<td>19 NOV 2009, perpetual</td>
<td>Joint Military/Civilian</td>
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**Remarks:**

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**Sample Template**

**AD 1.5 -1**

19 NOV 2009

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**MID ADCI TF/1 Cairo 15 – 17 October 2012**
ICAO provisions related to aerodromes

Annex 14
Vol I : Aerodrome Design and Operations
Vol II : Heliports

Related ICAO specifications

Specifications are continuously updated to reflect the changing needs of the aviation industry
ICAO provisions related to aerodromes

Manual on Certification of Aerodromes
ICAO Doc 9774

- ICAO developed Manual for adoption or adaptation by States

- To assist States to effectively implement the critical elements of safety oversight system in accordance with Annex 14 Vol I and other relevant ICAO specifications
ICAO provisions related to aerodromes

Airport Planning Manual
ICAO Doc 9184

- Part 1  Master Planning
- Part 2  Land Use and Environmental Control
- Part 3  Guidelines for Consultant-/Construction Services
ICAO provisions related to aerodromes

Aerodrome Design Manual
ICAO Doc 9157

- Part 1 Runways
- Part 2 Taxiways, Aprons and Holding Bays
- Part 3 Pavements
- Part 4 Visual Aids
- Part 5 Electrical Systems
- Part 6 Frangibility of Aids
ICAO provisions related to aerodromes

Airport Services Manual
ICAO Doc 9137

- Part 1  Rescue and Fire Fighting
- Part 2  Pavement Surface Conditions
- Part 3  Bird Control and Reduction
- Part 5  Removal of Disabled Aircraft
- Part 6  Control of Obstacles
- Part 7  Airport Emergency Planning
- Part 8  Airport Operational Services
- Part 9  Airport Maintenance Services
ICAO provisions related to aerodromes

- STOLPORT Manual – ICAO Doc 9150
- HELIPORT Manual – ICAO Doc 9261
- Manual of Surface Movement Guidance and Control System (SMGCS) – ICAO Doc 9476
MANUAL ON
CERTIFICATION OF AERODROMES
Contents

- Introduction
- Aerodrome Certification Regulatory System
- Model Regulations
- Certification Procedure
- Regulatory Authority
- Aerodromes Manual
- Safety Management System
- Sample Forms
FOREWOOD

- **Purpose** - provide guidance to States (not providers) in establishing their regulatory system for land aerodromes
- **Status** is Guidance
- **Scope** is confined to safety, regularity and efficiency aspects of aerodrome facilities, services, equipment and operational procedures. It *excludes* security, navigation services, finance and administration and pax/cargo services
FOREWORD (cont’d)

- Recognises resource problems in some States, but indicates that this should not be a reason for not having stringent certification regulations
- Offers advice and invites comment/revision ideas
INTRODUCTION

- 1st Edition 2001
- A compilation of good accepted practices by a number of States
- Feedbacks req’d from States for 2nd Edition
- Flexible application by States
INTRODUCTION (cont’d)

- Spells out in para 1.1.2 quite clearly the most effective and transparent means of achieving the objectives of Annex 14 SARPs
- Transfer of responsibility for safety to aerodrome operators, demonstrated by a robust SMS - para 1.2.3
- A robust SMS does not mean that SARPs need not be met
CERTIFICATION REGULATORY SYSTEM

- Basic aviation law, the enabler - para 2.2;
  - 2.2(d) includes local airspace in the scope of the areas of satisfaction for the CAA to certify and aerodrome;
  - 2.2(f) spells out that the basic law should provide for enforcement and sanctions for non-compliance.
Basic certification regulation principles

- para 2.3(a) is an example where there is quite a lot of flexibility given to a State, even to exclude categories of aerodromes from certification requirements

- para 2.3(f) the principles should include the provision to use military aerodromes for civil use
MODEL REGULATIONS

- General explanation of intent of certification
- Submission of application & aerodrome manual
- Assessing applicant’s capability & adequacy of airport infrastructure
- Validity of a certificate
- Aerodrome operator’s obligations
MODEL REGULATIONS (cont’d)

- Endorsement of conditions of operation
- Surrender/transfer/revocation of certificate
- Exemptions, if any
RESPONSIBILITIES OF THE AERODROME LICENCE HOLDER

“An aerodrome licence holder shall take all reasonable steps to secure that the aerodrome and the airspace within which its visual traffic pattern is normally contained are safe at all times for use by aircraft”

UK CAA Article 103(6) Air Navigation Order
CERTIFICATION PROCEDURE

- Certification procedure to ensure full compliance with State regulations
- The Process - assessment of applicant’s capability, the adequacy of the facilities and services by on-site inspection and verification by qualified inspectors, acceptance/approval of the Aerodrome Manual submitted by applicant
CERTIFICATION PROCEDURE (cont’d)

- Issue/transfer/revoke the certificate as appropriate
- Notification of the aerodrome’s certified status in the AIP
AERODROME MANUAL

“As part of the certification process, States should ensure that an Aerodrome Manual which will include all pertinent info on aerodrome site, facilities, services, equipment, operating procedures, organisation and management including a SMS, is submitted by the applicant for approval/acceptance prior to granting aerodrome certificate”
AERODROME MANUAL - CONTENTS

- General section explaining purpose and scope
- Administrative detail of operator
- Information on aerodrome facilities
- Information on aerodrome services
- Aerodrome operating plans, procedures and safety measures
- Safety Management Systems
SAFETY MANAGEMENT SYSTEMS (SMS)

- **What?** - A system for managing safety as part of the overall management objective & policy

- **Why?** - To regulate airport operations and improve safety levels, esp. in areas not covered by applicable ICAO/national stds & regulations

- **How?** - Existence of comprehensive technical stds/specs, those for SMS, their implementation and maintenance at all times
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36th Session of ICAO Assembly (2007)
http://www.icao.int/cgi/a36.pl?wp

WP/14 Report on the implementation of aerodrome certification requirements in Annex 14, Vol. 1

37th Session of ICAO Assembly (28 Sept – 8 Oct 2010)
http://www.icao.int/cgi/a37.pl?wp;TE
Regulator’s roles & responsibilities

- ensure conformance with ICAO and national requirements such as aerodrome certification & other safety specifications & procedures
- assess certification applications
- issue certificate
- carry out audits to ensure continuing compliance
- carry out enforcements/sanctions
CONCLUSIONS

Operator’s roles & responsibilities

- Operate & maintain the aerodrome in accordance with the Aerodrome Manual
- Keep Aerodrome Manual up to date
- Ensure aerodrome facilities comply with safety specifications
- Notify changes to aerodrome
- Ensure business viability