



International Civil Aviation Organization

WORKING PAPER

A39-WP/122
TE/43
4/8/16
(Information paper)
English and Russian only¹

ASSEMBLY — 39TH SESSION

TECHNICAL COMMISSION

Agenda Item 36: Aviation safety and air navigation implementation support

PRACTICE OF OVERALL (COMPREHENSIVE) APPROACH TO ENSURE THE COMPLIANCE WITH ICAO REQUIREMENTS AT THE CERTIFICATION OF AERODROMES IN MEMBER-STATES OF THE AGREEMENT

(Presented by the Interstate Aviation Committee)

EXECUTIVE SUMMARY

Overall (comprehensive) approach to ensure the compliance with SARPS and PANS at the certification of aerodromes is an important factor of implementation of ICAO requirements in the aeronautical field. More than 25 years practice application of such approach has been a significant contribution to flight safety in the region of Member-States of the Agreement on Civil Aviation and Airspace Use.

This document is presented with a purpose of informing the aviation community on the possibility of using this overall approach at the stage of certification of aerodromes in order to ensure high level of flight safety.

<i>Strategic Objectives:</i>	This working paper relates to the Safety Strategic Objective.
<i>Financial implications:</i>	No financial consequences.
<i>References:</i>	Annex 14 — <i>Aerodromes</i>

¹ Versions in English and Russian are presented by the Interstate Aviation Committee (IAC)

1. INTRODUCTION

1.1 Overall (comprehensive) approach to ensure the compliance with Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) at the certification of aerodromes is an important factor of implementation of ICAO requirements in the aeronautical field and improving the level of flight safety.

2. DISCUSSION

2.1 Flight safety at the aerodromes is provided by its infrastructure, such as: runways, taxiways and apron, visual aids, etc. along with its operational measures and services and other aspects specified in Annex— 14 *Aerodromes*.

2.2 To ensure independence from weather conditions and for maintaining of high level of traffic density at aerodrome, the following is required: local air traffic services and local communications/navigations/surveillance, whose safe operation should meet Annexes 11 and 10, as well as PANS-ATM requirements.

2.3 Meteorological equipment and services and local air navigation services (ANS) units as well as measures against unlawful interference, specified in Annex 3 — *Meteorological Service for International Air Navigation*, Annex 4 — *Aeronautical Charts*, Annex 15 — *Aeronautical Information Services* and Annex 17 — *Security — Safeguarding International Civil Aviation against Acts of Unlawful Interference* are also essential components of flight safety management system, along with the flight operations, in compliance with Annex 6 — *Operation of Aircraft* and PANS-OPS .

2.4 Annex 14 requires to certify aerodromes in accordance with specifications contained in this Annex as well as other relevant ICAO specifications (Vol. I, 1.4.1, 1.4.2) establishing certification criteria and procedures (Vol. I, 1.4.3).

2.5 As such, the certification of aerodromes represents a stage when validation of flight safety requirements is performed, such as applicable provisions of ICAO SARPS and PANS. This particular approach was used during the certification of aerodromes in the region of Member-States of the Agreement on Civil Aviation and Airspace Use.

2.6 The relevant requirements covering ICAO SARPS and PANS were included in the Aerodrome Certification Requirements (AR-139², Vol. II), available at IAC web-site: www.mak-iac.org.

2.7 By this way, the aerodrome is considered as a structure consisting of technical aids and operational measures, such as:

- a) aerodrome facilities including runways, taxiways, aprons, etc.;
- b) airspace over the aerodrome and surrounding area;
- c) aerodrome equipment and services encompassing visual and non-visual navigation aids, ATC and communication equipment, rescue and firefighting services, electrical and meteorological equipment, etc.;

² AR here and after – Aviation Regulations (AR-139 and AR-170), adopted by Council on Civil Aviation and Airspace Use for usage in the region of Member-States of the Agreement.

as well as other components stipulated in the relevant ICAO SARS and PANS. Such combination also provides the necessary coordination needed for high level of flight safety.

2.8 However, at the stage of certification of aerodrome, compliance with all necessary requirements of the equipment might be difficult and/or ineffective to demonstrate. The examples are the International Commission on Illumination (CIE) equations in Annex 14 as well as many Annex 10 — *Aeronautical Telecommunications* provisions. Therefore, testing of equipment units on-site may not in general guarantee equipment compliance with ICAO SARPS requirements.

2.9 Besides, the importance and complexity of maintaining the level of flight safety within the framework of ATM increases constantly. Largely it is connected with high degree of independence of service providers and aerodrome and en-route equipment manufacturers. As the experience shows, specific documental checks and/or on-site tests, performed under the supervision of aviation administration are required for that purpose. Their general goal is an assessment of compliance of types of equipment with all SARPS specifications, as well as the assessment of quality control presence for produced units in the field of equipment manufacturing. This is substantiated by the certificate, issued to the equipment manufacturer.

2.10 With the consideration of the above, a requirement was determined that only certified types of equipment are allowed for operation at the aerodromes. This requirement was included in the Procedures for Certification of Aerodromes (AR-139, Vol.I), which are available at IAC web-site.

2.11 As an extension of this regulation, procedures and technical requirements were established for certification of aerodromes and en-route equipment, respectively volumes I and II of Part 170 of Aviation Regulations, Certification of Aerodrome and Airways Equipment (available at IAC website, including English version).

2.12 Requirements for the equipment, within the aerodrome certification criteria of Part 139, Vol. II, cover its location at the aerodrome and specific aerodrome-related characteristics to be tested during commissioning and operation of equipment unit. Compliance with the flight safety requirements related to other aerodrome equipment parameters and characteristics are verified in the equipment type (type design) certification, according to Aviation Regulations, Part 170, mentioned above.

2.13 Technical requirements for aerodrome and en-route equipment (AR-170, Vol. II) are intended to demonstrate in full the compliance of the type design of aerodrome equipment with ICAO, regional and industry requirements. The Certification Requirements also consider local climatic and environmental conditions, effect of aircraft, etc. Also there are requirements, taking into account international quality standards, related to the production arrangement, types of control, product testing and inspections at the manufacturing facility.

2.14 It should be noted, that with the realization of the mentioned approach, significant contribution was made to flight safety, during certification of approximately 100 major aerodromes and more than 600 types of aerodrome and en-route equipment in the region of Member-States of the Agreement.