

ELEVENTH AIR NAVIGATION CONFERENCE

Montreal, 22 September to 3 October 2003

Agenda Item 2: Safety and security in air traffic management (ATM)

2.2 Safety certification of ATM systems :

CERTIFICATION OF AERODROME AND AIRWAYS EQUIPMENT

(Presented by the Interstate Aviation Committee)

SUMMARY

The importance and complexity of ensuring and regulating flight safety within the framework of ATM is continually increasing, which is largely connected with a great extent of autonomy of aerodrome and airways equipment and service providers.

The present working paper sets forth the approach, adopted in the twelve CIS member States, which consists in the aerodrome and airways equipment certification as an effective means of providing compliance with ICAO SARPs related to ATM.

Action by the conference is in paragraph 4.

1. INTRODUCTION

1.1 One of the main ICAO objectives is improving flight safety level of international civil aviation all over the world. The 32nd ICAO Assembly adopted Resolution A32-15 “Global Aviation Safety Plan (GASP)”.

¹ English and Russian versions provided by the Interstate Aviation Committee.

1.2 The necessary requirement for reaching GASP aims in complying with the ICAO Standards and Recommended Practice (SARPs) as well as eliminating deficiencies and shortcomings in them.

1.3 Implementing certification within the framework of the air navigation system is an effective means of ensuring realization of ICAO SARPs.

1.4 At present the Certification Standard for ATM systems as well as aerodrome and airways equipment, which is a part of any ATM system's infrastructure, similar to the Aerodrome Certification Standard in Annex 14, is lacking.

2. DISCUSSION OF THE ISSUE

2.1 The importance and complicity of ensuring and regulating flight safety within the framework of ATM is continually increasing. This is largely connected with a great degree of autonomy of service and aerodrome and airways equipment providers.

2.2 Under such conditions introduction of strict measures on obligatory aerodrome and airways equipment certification was required. The Interstate Aviation Committee worked out the appropriate Aviation Rules — Certification of aerodrome and airways equipment, including regulations and equipment certification procedures (Volume I) and certification requirements (Volume II). Aviation Regulations had been coordinated with the twelve member States of the Commonwealth of Independent States — in the Azerbaijan Republic, Republic of Armenia, Republic of Belarus, Georgia, Republic of Kazakhstan, Kyrgyzstan Republic, Republic of Moldova, Russian Federation, Republic of Tadjikistan, Turkmenistan, Republic of Uzbekistan, Ukraine — and were adopted by them as national regulations or as a basis for the development of national regulations.

2.3 Next important step was development by the Interstate Aviation Committee in 1999-2000 of certification rules for aerodrome and airways equipment manufacturers and corresponding certification requirements.

2.4 Certification rules for the type of equipment and its manufacturer

2.4.1 According to Regulations under aerodrome and airways equipment is meant any equipment, providing for the aerodrome flights and flights in the terminal area and airways. The list of the types of such equipment, subject to obligatory certification includes radiotechnical navigation. ATC and communication equipment, air traffic control centers' equipment, visual aids, meteorological equipment, control equipment for aerodrome pavement, survival equipment. Equipment list is given in the Annex to the present document.

2.4.2 Equipment certification implies both confirming the compliance of the type construction to the certification requirements and correspondence of serial specimen, manufactured with appropriate quality, to the type construction.

2.4.3 Equipment Certification Rules (Volume I, Aviation Regulations, Certification of Aerodrome and Airways Equipment) determine the order of obligatory certification of the standard design of equipment, and Certification Rules for Aerodrome and Airways Equipment Manufacturers determine the order of obligatory certification of that type of equipment production. Certification of the type of equipment and its

production, as well as installation and operation of equipment in accordance with the operational documentation, approved by the certifying body, guarantees safe use of such equipment.

2.4.4 Thus, all serially produced specimen of that type of equipment are identical to the type design, meet flight safety requirements and are subject only to necessary acceptance check-ups on the site of equipment installation as it is put into operation.

2.5 Certification requirements to the equipment and its manufacturer

2.5.1 Basing on ICAO SARPs, Certification Requirements to Aerodrome and Airways Equipment additionally take into account a number of operating European standards. This provides for a rather high level of these requirements. Requirements include special standards and recommendations for taking into account local climatic conditions, electrical power conditions, noise and vibration, heat influence from aircraft, chemical reagent influence. When the requirements were established, they also took into account national peculiarities, such as ATC secondary radar regime, higher primary radar power, ensuring their use as airways' radar, etc.

2.5.2 Certification Requirements to Aerodrome and Airways Equipment Manufacturers include provisions on the organization of production, forms of produce control and testing, on the organization of inspection control at the enterprise, etc.

2.5.3 The Interstate Aviation Committee provides for the continuous development of Aviation Regulations. The second edition of the rules Aerodrome and Airways Equipment Certification 2003 includes a great number of new means and systems, which makes it possible to take into account the CNS/ATM development tendencies and introduction perspective (ground-based GNSS augmentation facilities, AFS and AMSS communication equipment, ATC centres' equipment, etc.).

3. CONCLUSIONS

3.1 Certification system of aerodrome and airways equipment, corresponding to the ICAO SARPs, which is an important condition of ensuring flight safety in ATM, has been existing and developing in the region, including twelve member States of the Interstate Agreement on Civil Aviation and Air Space Use, for over five years.

3.2 By this time the Interstate Aviation Committee has certified over 300 types of aerodrome and airways equipment.

4. ACTION BY THE CONFERENCE

4.1 The conference is invited to take into consideration and in case of necessity use the information on the certification practice of aerodrome and airways equipment in the CIS member States contained in this document.
