

ELEVENTH AIR NAVIGATION CONFERENCE

Montreal, 22 September to 3 October 2003

Agenda Item 1: Introduction and assessment of a global air traffic management (ATM) operational concept

1.4 The role of airborne collision avoidance systems (ACAS) technologies
:

CONTROLLER/PILOT INTERACTION IN SOLVING THE PROBLEM OF CONFLICT RESOLUTION

(Presented by the Russian Federation)

SUMMARY

It is proposed to undertake the necessary studies and to develop clear recommendations on controller/pilot interaction in conflict resolution.

Action by the conference is in paragraph 3.

1. INTRODUCTION

1.1 The use of communications, navigation, and surveillance/air traffic management (CNS/ATM) equipment and the use of airborne collision avoidance systems are to a considerable extent considered independently of one another. Therefore, both at the present time and to an even greater extent in the future, situations may arise when ground and airborne systems give contradictory advisories where there is a shortage of time needed to avoid the conflict. The occurrence in the skies of Germany and the incident in the skies of Japan involving airborne collision avoidance systems clearly showed the need to define more precisely the procedures for controller/pilot interaction in conflict resolution.

1.2 The solution to this problem is addressed in a general manner in the global ATM operational concept. This working paper addresses matters that should be taken into account in further work on the implementation of the global ATM concept.

2. **DISCUSSION**

2.1 The existing radar separation minima, particularly in terminal areas, are very close to the values of the distance between aircraft at which the TCAS system is actuated. In this case, in critical situations the possibility is not excluded of the crew receiving from the controller and from TCAS contradictory commands to resolve the conflict.

2.2 Account should also be taken of the probability of the spurious actuation of the TCAS system to which the aircraft crew will react by changing the flight path. This may cause a conflict in the air situation which appears safe to the controller before this situation arises.

2.3 Air traffic safety systems are constantly improving. Collision avoidance systems are being developed based on the ADS-B mode. Ground and airborne collision avoidance systems using artificial intelligence will be developed in the future. This will make it possible to perform the pre-emptive manoeuvre in the automatic mode.

2.4 In view of the above, the ICAO programme of studies in the air navigation field should address the determination of the place and role of each air traffic safety system, as well as the principles for their integrated interoperability and use in the future CNS/ATM systems.

3. **ACTION BY THE CONFERENCE**

3.1 The conference is invited to initiate work to be undertaken within the framework of ICAO on the validation of the principles for rational controller/pilot interaction in conflict resolution using the future CNS/ATM systems.

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