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Agenda Item 7: Surveillance: Automatic Dependent Surveillance (ADS) developments

AUTOMATIC DEPENDENT SURVEILLANCE

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SUMMARY

This paper presents the results and plans by ADS developments in Russia

1. INTRODUCTION

1.1 At present time ATC-ADS/CPDLC controller workstation works in new Magadan ACC facility, there suited both conventional controller workstations using radar signals (from SSR and PSR) and CNS/ATM controller workstations. An ATC controller using this workstation provides the ATS on crosspolar routes in Magadan Oceanic ACC sector.

1.2 Broadcast automatic dependent surveillance (ADS-B) is one of the most promising types of surveillance and complies with the ICAO concept of the future air navigation system. In line with this concept ADS-B is considered one of the main surveillance methods for the ATM system of Russia. It has been started the ADS-B project in Tumen region.

2. DISCUSSION

2.1. It was established the oceanic ATS center in 2000 on base of Magadan ACC center. This oceanic center should provide all flights by cross-polar routes 3 (G-491) and 4 (G-494) bridging North America and South-East Asia. These routes were opened for regular flights from 1 of February 2001. Magadan oceanic center is available to use both the conventional procedural technology and CNS/ATM technology for FANS-1 airplanes. However the usage of satcom communications is impossible higher than 80 degrees of North for ADC-C and CPDLC applications so the controllers for these latitudes use the conventional HF communications which is not always reliable. In the future SCAA of Russia has a plan to realize HFDL for ADS-C and CPDLC applications for very northern latitudes and like a back-up system for satcom below 80 degrees of North. For continental airspace it is used the conventional ATC procedures based on radar technology and air-ground voice communications. Also in the future it will be used data link communications to support the conventional ATC methods at the beginning like back-up system and later may be like major system with ADS and CPLLC applications.

2.2. A project to operate an ADS-B experimentally by means of Tumen region on ATC and air space use has been prepared and is to be implemented in the following two years aimed at establishing surveillance and air traffic control in the area control center (ACC), aerodrome control center the local control center. Specifications for the development and implementation of ADS-B system in the Tumen region were developed and adopted by SCAA of

Russia in 2000. Since 2000 Russian manufactures started working for this project. The purpose of the project is to assess advantages, which ADS-B gives to ATM system, airlines and respectively equipped aircraft. For realization of this project Russian company NITA has designed VDL-4 transponder both airborne and ground versions. At current moment NITA is going to provide factory acceptance test (FAT) after that this equipment will be installed in Tumen ACC for Site Acceptance Test (SAT) and flight trials. It will be completed very soon the design of ADS-B server to create the interfaces between VDL-4 transponder, GBAS station and existing conventional radar ATC system Alpha which has installed in Tumen ACC by NITA. In the end of this year SCAA of Russia has a plan to start SAT for whole complex of new technology equipment.

An important part of the project is assessing the application of ADS-B for the purpose of supporting helicopters operations in areas with no ATC radar coverage.

3. Conclusions and recommendations

3.1 CNS/MET/IC-6 is invited to take into consideration this information on the activities of Russian Federation in implementing new aeronautical fixed communication infrastructure.