



Sixth Meeting of CNS/MET Sub-Group of APANPIRG

Bangkok, Thailand, 15 – 19 July 2002

Agenda Item 6:

Review:

- a) **Strategy for the provision of Precision Approach and Landing Guidance Systems**
- b) **GNSS strategy**
- c) **GNSS implementation**
- d) **GPS measurement campaign**

c) GNSS Implementation

RESULTS AND PLANS BY GNSS IMPLEMENTATION IN RUSSIA

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SUMMARY

This paper presents the results and plans by GNSS implementation in Russia

1. INTRODUCTION

1.1 Utilization of satellite navigation system is one of the main components of the ICAO CNS/ATM concept. At present GNSSP has completed its work on SARPs and guidance materials for global navigation satellite system (GNSS) and ICAO Council defined 16 of July 2001 as the effective date for this SARPs. Since 1998 Russian Federation have carried out works on experimental non-precision approach (NPA) operations of aircraft using satellite navigation system. The operations are conducted in Samara at Kurumoch international airport with participation of Lufthansa and Samara Airlines. Also there were started the experimental works and flight trials by CAT-1 precision approach (PA) using GBAS.

2. DISCUSSION

2.1. There were completed of the experimental operation for Non Precision Approach (NPA). The following tasks were completed:

- Approach and NPA schemes were developed for Kurumoch airport in accordance with ICAO 8168 PANS-OPS, vol. II, chapt.33, p. 33.1.4;
- Guidance on NPA at Kurumoch airport using GNSS was developed;
- An addition to radio exchange phraseology concerning GNSS NPA was developed for crews and controllers;
- TU-154M aircraft of Samara Airlines was upgraded for GNSS NPA.

For 2000 over 30 approaches was made by Lufthansa A-310 and A-320 having FMS on board, which proved the validity of the developed schemes, approach accuracy for the airport minimum requirements (200x2500) and the developed procedures of controllers and crews interaction. For 2001 23 approaches was made by Samara airlines with KLN-90B GPS receiver. Lufthansa has received the permanent permission for using of NPA in Samara airport.

The experimental operations resulted in the order by SCAA of Ministry of transport of Russian Federation of 17.07.2000 №225 on updating “The Guidance on Airport Schemes and Assigning of Safe Altitude” defining the methodology for approach schemes calculation using GNSS-based RNAV. This gives the opportunity to implement GNSS NPA into Russian civil aviation operations.

SCAA of the Ministry of Transport of the Russian Federation which has edited the special order which defines the all aspects of application of NPA, including Manual by using NPA, requirements for airlines, ATC service, requirements for airborne equipment and etc. For this year it is provided the preparation of a couple another airports where NPA will be used.

2.2. Russian manufacture Scientific research and industrial company “SPECTR” jointly with Moscow design bureau “MARS” has manufactured GBAS equipment, named LCCS-A-2000, for CAT-1 precision approach according to GBAS ICAO SARPs requirements. This GBAS corresponds to Class A of GAD SARPs. In 2001 LCCS-A-2000 successfully passed Factory Acceptance Test (FAT) and in the end of 2001 were completed Site Acceptance Test (SAT) in airport Zhukovski of Flight Test institute. In 2002 LCCS-A-2000 successfully certified in Interstate Aviation Committee. At present time it is taken a decision about installation of in one of the Russian airports for flights tests. The brief LCCS-A-2000 description is given in this IP.

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.