



International Civil Aviation Organization

**THE TENTH MEETING OF AUTOMATIC
DEPENDENT SURVEILLANCE –
BROADCAST (ADS-B) STUDY AND
IMPLEMENTATION TASK FORCE
(ADS-B SITF/10)**



Singapore, 26 -29 April 2011

**Agenda Item 6: Reviews States' activities and interregional issues on trial and
implementation of ADS-B and Multilateration.**

EVALUATION ON ADS-B TRACK ACCURACY

(Presented by Republic of Korea)

SUMMARY

This paper provides the results of evaluation on ADS-B track position accuracy at Incheon int'l airport.

1. INTRODUCTION

1.1 IIA (Incheon Int'l Airport) implemented a set of ADS-B ground system which is integrated into STREAMS in June 2008. The ASDE system at Incheon consists of X-band and Ku-band SMR (Surface Movement Radar) and ADS-B ground systems with a data fusion system that is called STREAMS manufactured by Thales Airsystems.

1.2 While ADS-B system is providing its tracks, sometimes inaccurate ADS-B tracks were observed. IIA tried to find the reason with a cooperation of avionic systems engineer and did some test for 50 days in Oct. 2010. Many arriving and departing real aircraft tracks were used in this evaluation.

2. EVALUATION

2.1 Most aircraft is equipped with a PA (Position Accuracy) 6 or higher MODE-S transponder, however inaccurate target position can be seen, comparing to SMR tracks that is considered very accurate. The range of deviation is from 50 meters to 2000 meters depending on the aircraft.

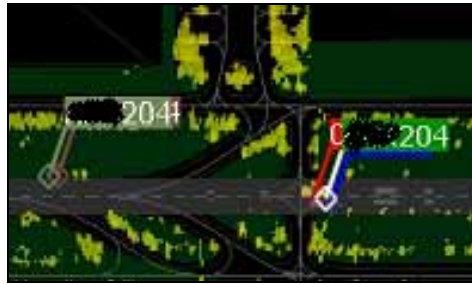


Figure1. A SMR target (right) with 500 meters separation from ADS-B target (left)

2.2 IIA consulted with avionic systems engineers and came to know the fact that some MODE-S transponders are incorporated with IRS (Inertial Reference System) when it determines the position of the aircraft. Not all the IRS incorporated aircraft contribute to the position inaccuracy. Depending on the performance of IRS, some of them turned out to be very accurate compared to SMR of which accuracy is 3 meters.

2.3 Only about 40 percent of commercial aircraft were equipped with ADS-B capable system worldwide at the time this evaluation was conducted.

3. CONCLUSION

3.1 It is strongly recommended that the performance of avionic systems be tested and authorised by the state or relevant authority in order for its tracks to be used in operation. The avionic systems that have position error should not send its position information to prevent any confusion that could cause an incident.

3.2 It is immature that ADS-B is independently used as a surface detection equipment due to the above reason and the low percentage of ADS-B equipped aircraft. IIA believes that the best combination is ADS-B and MLAT working together with SMRs.

4. ACTION REQUIRED BY THE MEETING

4.1 It is recommended that the meeting note the test results of IIA.
