



International Civil Aviation Organization

**FIFTEENH MEETING OF THE ADS-B STUDY AND IMPLEMENTATION
TASK FORCE (ADS-B SITF/15)**

Bangkok, Thailand, 18 - 20 April 2016

**Agenda Item 4: Review States activities and interregional issues of ADS-B and
Multilateration**

**THE OPERATION PLAN OF ADS-B AND UAT IN
THE REPUBLIC OF KOREA**

(Presented by Republic of Korea)

SUMMARY

This Information Paper introduces the operation plan of ADS-B and UAT which shares the simulation results for safety assessment prior to deployment of the systems.

1. INTRODUCTION

1.1 The Republic of Korea will provide ADS-B based service to be prepared for failures of accurate displaying of flight tracking and RADAR systems failures even if there is no issue of air traffic services using the current RADAR systems for traffic on airways in the FIR.

1.2 And, The Republic of Korea is now on implementation of UAT with the long-term plan to make a foundation of a flight-support system that helps pilots be aware air-situation information such as conflict alerts, adherence alerts, obstacle alerts and weather situation on cockpit displays because air-traffic accidents of light aircraft, such as helicopters have occurred constantly and there is a possibility of air-traffic accidents of VFR flights due to the increasing number of light aircraft for recreation and training purpose,

1.3 The RADARs are the main surveillance systems for ATS in Korea, but they are considerably influenced by topography of the region. Accordingly, it is insufficient for air traffic safety to operate RADARs for low-altitude surveillance to flights in much mountainous terrains like the Republic of Korea.

1.4 Therefore, in order to enforce the surveillance of the aircraft and especially, improve for the low altitude, a simulation result of ADS-B and UAT implementation in the FIR was drew by a pre-implementation study and the Republic of Korea would like to share the information with any states which have mountainous terrains like it.

2. DISCUSSION

2.1 Light aircraft and helicopters flying below 1,000ft on the airways and in approach areas can be detected by RADARs, whereas RADARs hardly detect flights in the most mountainous areas as Figure1 below. It shows the surveillance limit of RADARs except for the blue color.

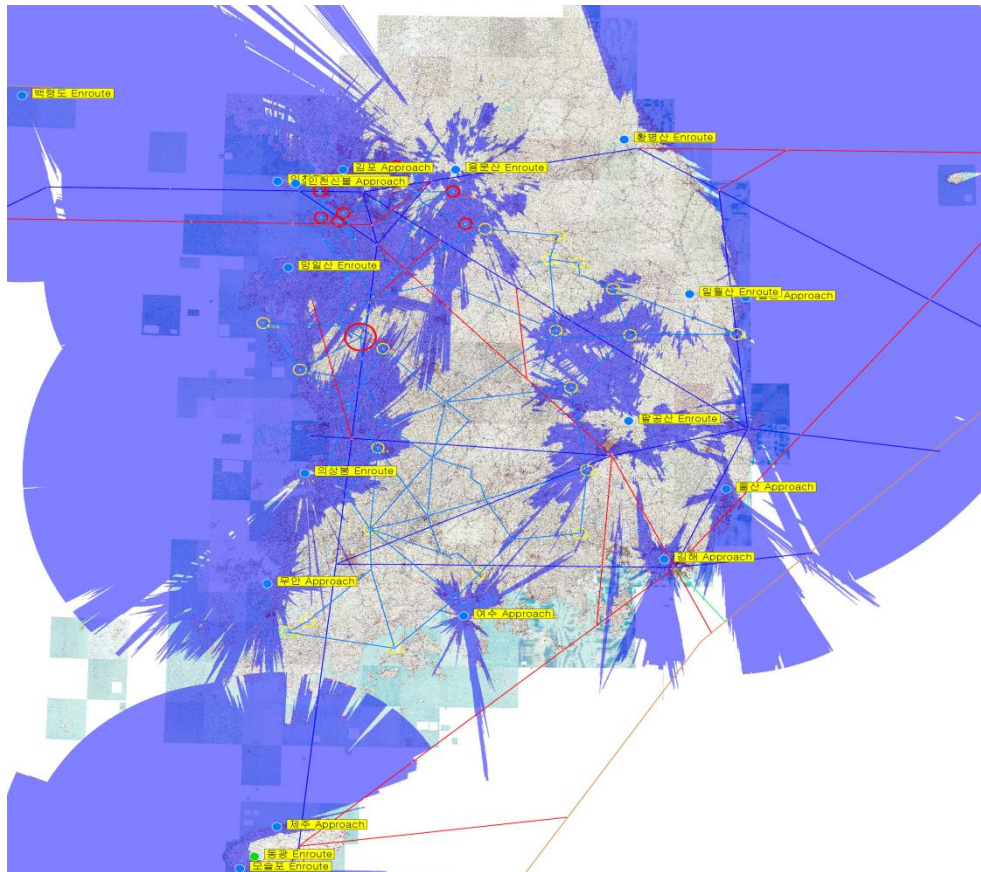


Figure 1. RADAR coverage for airways and TMAs (below 1,000ft)

2.2 According to the result, analysis of appropriate implementation of ADS-B and UAT systems was delivered. 34 ground stations can cover the whole nation if Minimum En-route Altitude(MEA) is set to 4,000ft which is that of the transport aircrafts in the case of ADS-B, and 51 ground stations is required to detect the light aircraft for low-altitude with UAT at 1,000ft MEA as Figure2 and Figure3 below.

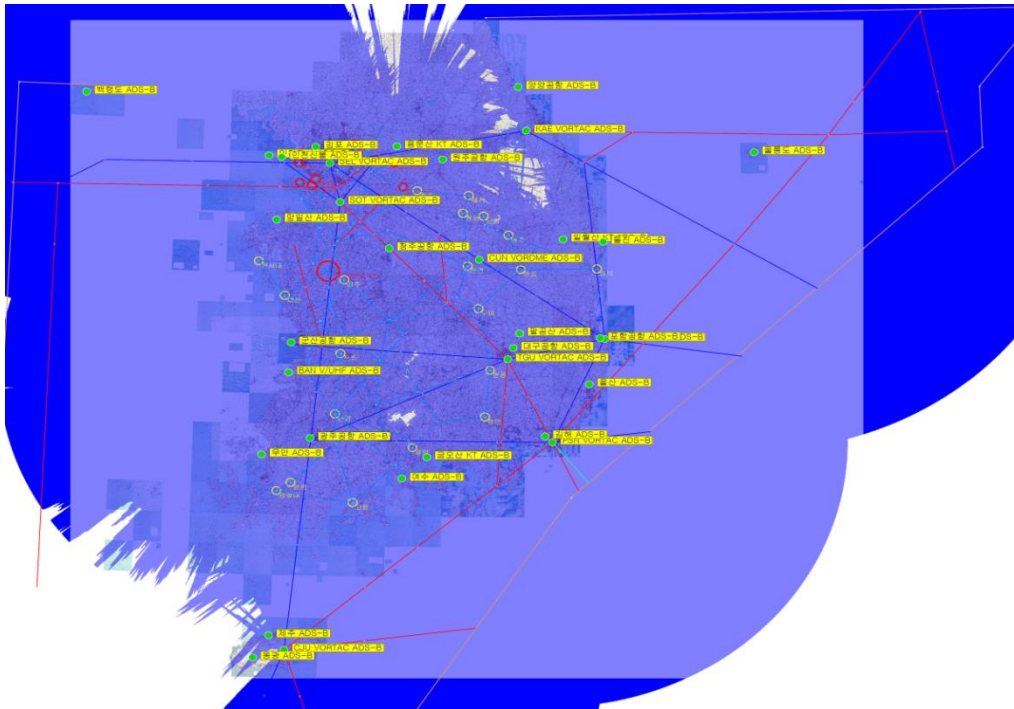


Figure2. Simulation result of ADS-B ground stations with 4,000ft MEA

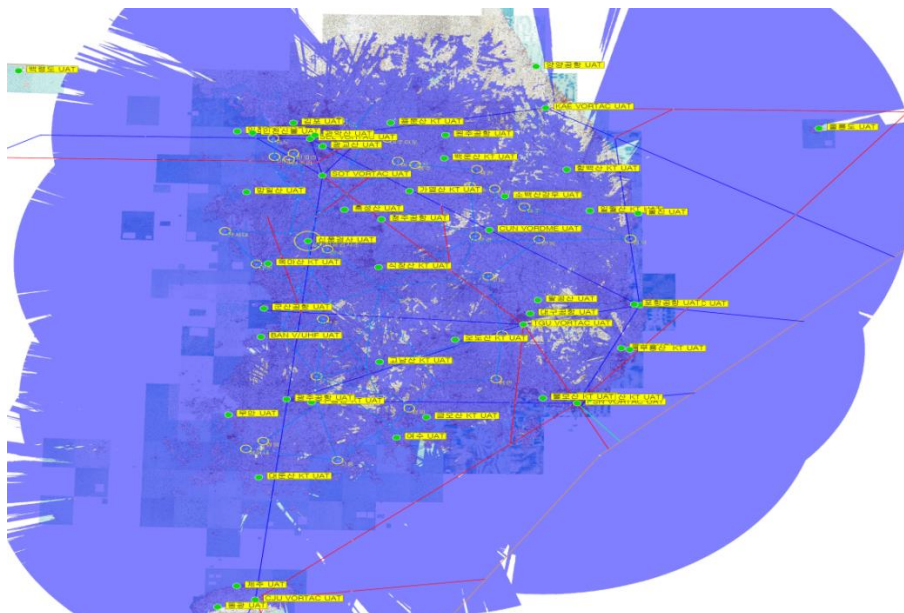


Figure3. Simulation result of UAT ground stations with 1,000ft MEA

2.3 For precise ATC surveillance and continuous ATC service to the transport aircraft in Incheon FIR even in the case of RADAR failures, the Republic of Korea is going to deploy the ADS-B system by 2018 and provide the commissioning service by 2020 after the test operation. Also, the deployment of UAT system for the light aircraft of low-altitude will be fully reviewed by 2020 through the test process.

3. ACTION REQUIRED BY THE MEETING

The meeting is invited to :

- a) note the information contained in this paper; and
- b) share the information with any states, comprised of mountainous terrains like Korea and planning to deploy ADS-B or UAT systems in the Asia Pacific region.
