



International Civil Aviation Organization

THE SECOND MEETING OF AERONAUTICAL COMMUNICATION SERVICE (ACS) IMPLEMENTATION CO-ORDINATION GROUP OF APANPIRG (ACSICG/2)

Bangkok, Thailand, 20 - 22 May 2015

Agenda Item 10: Any Other Business

VHF DATA LINK SYSTEM IMPLEMENTATION IN REPUBLIC OF KOREA

(Presented by Republic of Korea)

SUMMARY

This paper presents Implementation status of VHF DATA LINK System in the Republic of Korea.

1. Introduction

1.1 DFIS(Data Link Flight Information Service) such as D-ATIS, PDC, CPDLC using Data Link has already provided in some countries. In Korea, own-developed D-ATIS and PDC system has been implemented and operated with DSP(Data Link Service Provider) Mode1 Network since 1999. The benefit of the DFIS is as follows.

- Prevention of the human error
- Reduction of work load for pilot and controller
- Elimination of departure delay by relief of voice communication congestion

1.2 From Oct. 2014 through Dec. 2015, Korea is planning to move to VDL Mode2 operation, expecting the future traffic growth and meeting ICAO standards and recommended practices (SARPs).VHF Digital Link Mode 2(VDLM2) is implemented with a bit-oriented, air/ground and ground/ground data link technology that delivers information at 31.5 kbps—over 10 times the rate used by ACARS. VDLM2 is currently the only technology that is compliant with ICAO Aeronautical Telecommunication Network (ATN) requirements. VDLM2's expanded bandwidth has allowed to offer a whole new range of flight information, aeronautical operational control, and air traffic control applications and services.

2. Discussion

2.1 Implementation Status

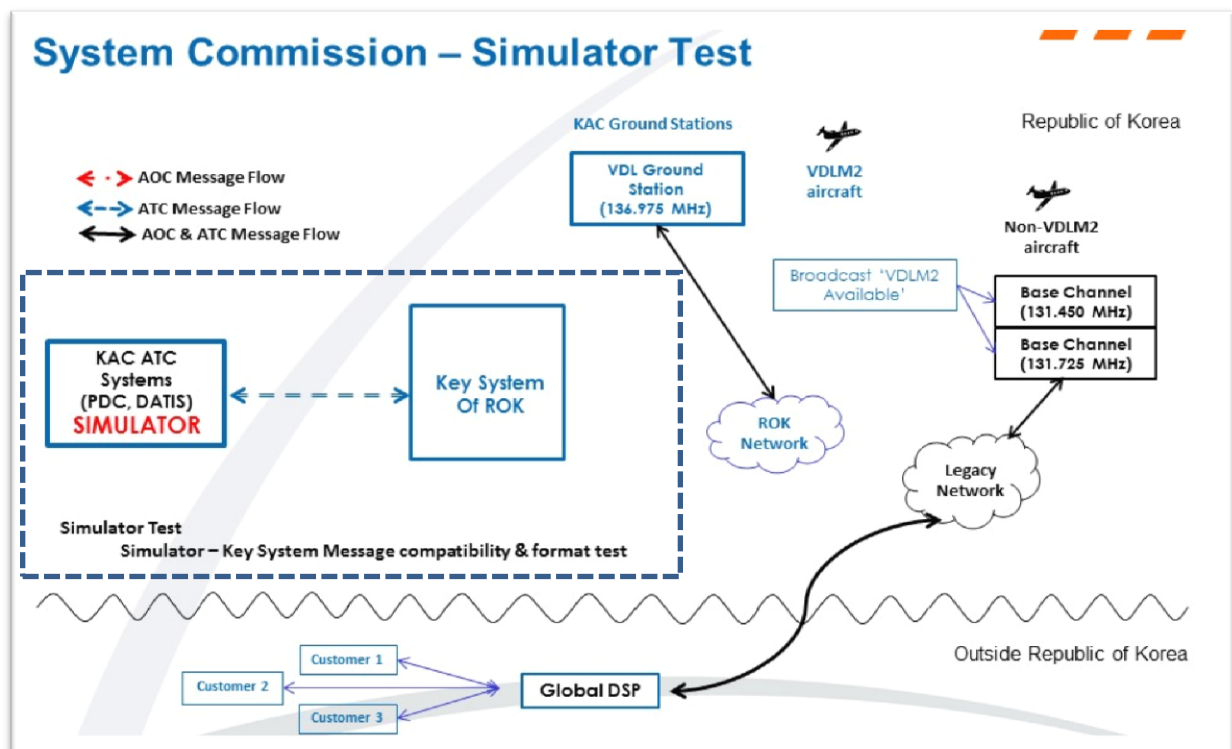
2.1.1 Republic of Korea made Global DSP Partnership agreement with Global DSP for successful implementation and reliable operation of VDL M2 before the start of project and has installed and tested VDL Ground stations for 8 airports by the end of 2014. In 2015, Key system and Network Management System will be designed and optimized with best performance.

2.1.2 VDLM2 Network uses a centralized processing architecture to support air/ground message exchange. Multiple Ground Stations are homed off a central processor at equipment room in Gimpo International Airport. The central process is responsible for message processing and routing inputs, outputs, uplinks and downlinks. The central processor site also hosts the message exchange support functions such as data storage, command and control, performance monitoring.

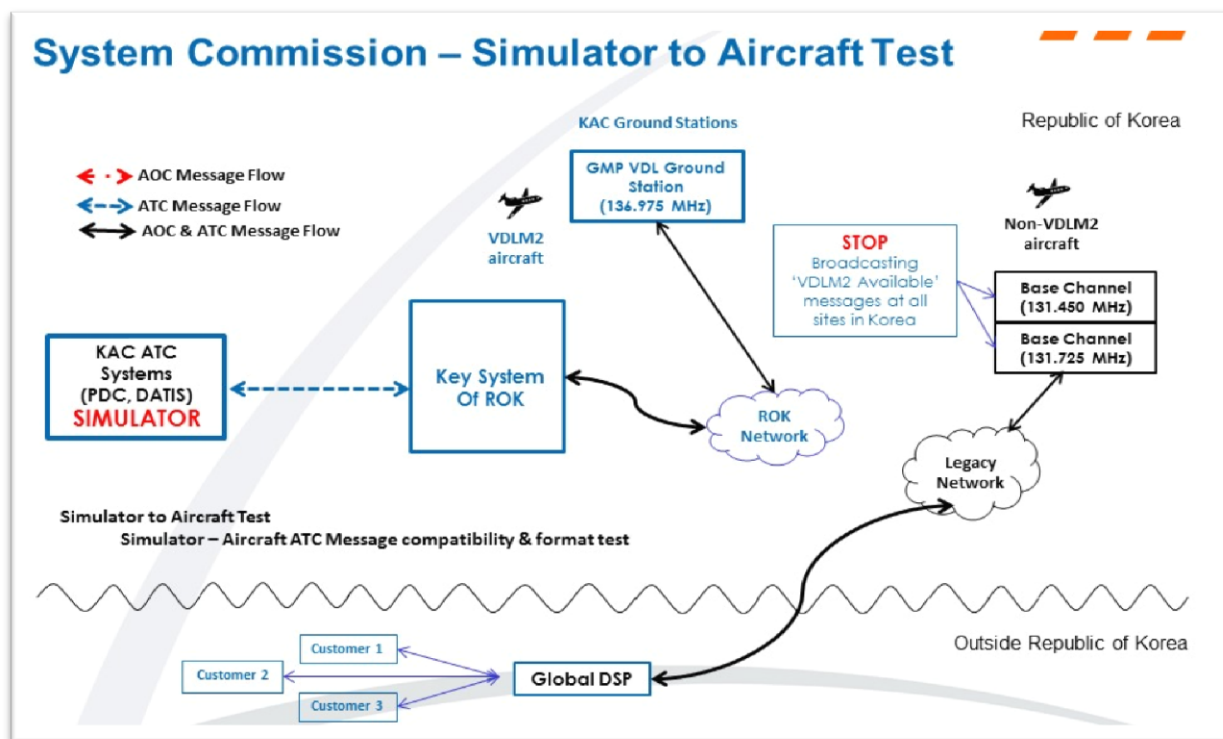
2.1.3 Existing ACARS application can be used with VDLM2 service. While these applications are in use, operators can develop new message types for air traffic services and airline operational control to take advantage of high speed VDLM2

2.2 Trial Operation plan

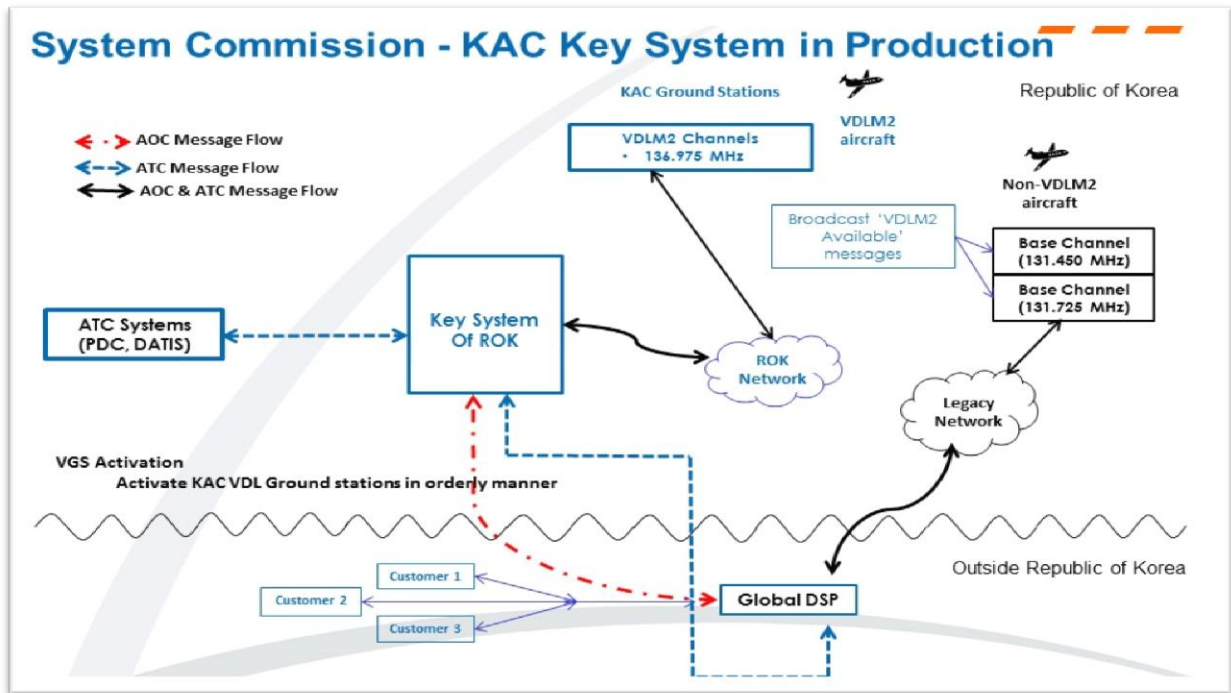
2.2.1 In order to conduct trial operation, several phases are scheduled for 3months from August to October in 2015 which makes sure that VDL M2 is more reliable. First phase is simulator test for system commissioning which is intended to ensure communication performance such as message format/flow compatibility between new VDLM2 Key system and Simulator. The system configuration is as below.



2.2.2 Second phase is designed to make best performance of interface among Key system, Simulator and aircraft via VDL ground station. This test will verify and confirm DATIS and PDC message format and message flow between Simulator and VDL active aircraft. The system configuration is as below.



2.2.3 Final phase is designed to optimize Key system in operation regarding interface among Key system, Simulator and aircraft via all (8sites) VDL ground station activated while broadcasting “VDLM2 Available message” from ACARS transceiver. The system configuration is as below.



2.3 Conclusion

The trial operation are going to transit from ACARS to VDL M2, for adopting future traffic growth and expanding various DFIS applications in Korea. For reliable operation from 2016, we are going to 3-phases trial operation with Global DSP. Further, Republic of Korea will continue to support all DFIS applications and functionality after the VDL M2 infrastructure has been completely deployed.

3. Action by the Meeting

3.1 The meeting is invited to take note of information about the progress regarding implementation and trial operation for VDL M2 made by Republic of Korea.
