



ICAO

*International Civil Aviation Organization***FOURTH MEETING OF SPECTRUM REVIEW
WORKING GROUP (SRWG/4)**

Web-conference, 9 – 10 June 2020

Agenda Item 3: Frequency coordination process and improvement for the Asia/Pacific Region**INTRODUCTION OF STUDIES ON THE GBAS VDB FREQUENCY ASSIGNMENT**

(Presented by China)

SUMMARY

This paper introduces the assignment criteria changes, and some studies on the signal compatibility analysis of VDB in China.

1. INTRODUCTION

1.1 GBAS has been technically verified in Shanghai and Tianjin airport of China, and the frequencies were assigned based on existing SARPs in Annex 10.

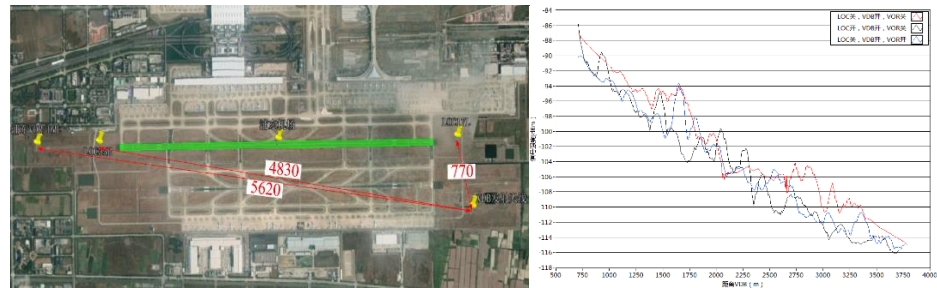
1.2 The frequency assignment of VDB needs to be analyzed by the compatibility with LOC, VOR and VDB. Notice the studies of assignment criteria on GBAS VDB frequency in relevant ICAO conference, the assignment criteria have changed. Firstly, the D/U value adopted for VDB/VDB, VDB/ILS LOC and VDB/VOR are increased compared with that for VOR/VOR. Secondly, the influence analysis of frequency offset extended from 100kHz to 1MHz. In this method, the protection distance between VDB and other stations (co-frequency and adjacent frequency) will be enlarged, and the number of frequencies that can be assigned will be reduced.

1.3 VOR stations are deployed intensively in China and some surrounding regions. Under the above conditions, new GBAS VDB frequency assignment would be very difficult.

1.4 Studies on the signal compatibility analysis of VDB were conducted by associate institution at Shanghai Pudong international airport.

A distance of 5.6km between VDB and VOR stations with frequency assigned with 116.75MHz and 116.9MHz (150kHz spacing), while VDB and LOC(35L) stations separated by 0.8km and with 108.1MHz assigned to LOC (1.35MHz spacing).

GBAS at Pudong international airport has been operating for more than 4 years, during such period flight inspection, ground signal monitoring and frequency compatibility tests of above aids were conducted for many times. No compatibility issue was found and no interference reports were received. The aids location and test results are shown in the following figure.



1.5 According to current GBAS VDB frequency assignment criteria, the geographical separation between the VDB and VOR stations should be more than 6 NM. In fact, those aids are operating by a separation of around 3 NM without any issue.

1.6 It is suggested that GBAS compatibility studies should be further carried out, meanwhile, GBAS operation effects of various states and the performance of airborne receivers should be taken into consideration. When amending DOC9718 and relevant documents, GBAS frequency assignment criteria should be classified and formulated to meet the development needs of GBAS in different regions.

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to:
- a) note the information contained in this paper; and
 - b) discuss any relevant matter as appropriate.
