International Civil Aviation Organization

Twenty Eighth Meeting of the Communications/ Navigation and Surveillance Sub-group (CNS SG/28) of APANPIRG

Bangkok, Thailand, 01-05 July 2024

Agenda Item 9: Regional implementation review and updates

9.5 Contingency Planning for CNS/ATM Infrastructure

TACKLE THE EQUIPMENT RENEWAL FOR SUSTAINABLE NAVIGATION SERVICES

(Presented by Japan)

SUMMARY

One of the ANSPs missions is to provide sustainable navigation services. This paper reports on the status of tackles to renewal the equipment for air navigation system in Japan to achieve this goal.

1. INTRODUCTION

1.1 As many as 5,000 aircraft flies through the skies of Japan every single day. As an air navigation service provider in Japan, it is essential to strive to maintain safer skies of Japan even in the circumstances where demand for air transportation is increasing. Also, it is essential to provide sustainable navigation services these aircraft and airports.

1.2 There are 85 airports (35: Airport Control Service, 9: Airport Mobile Communication Service, 33: Airport Remote Mobile Communication Service, 8: Military/Civil joint Airport) which are provided ATC service in Japan.

1.3 The ILS of 69 equipment's are installed in Japan, as depicted in Figure 1. The VOR/DME of 102 equipment's (including TACAN, DME only) are installed in Japan, as depicted in Figure 2.

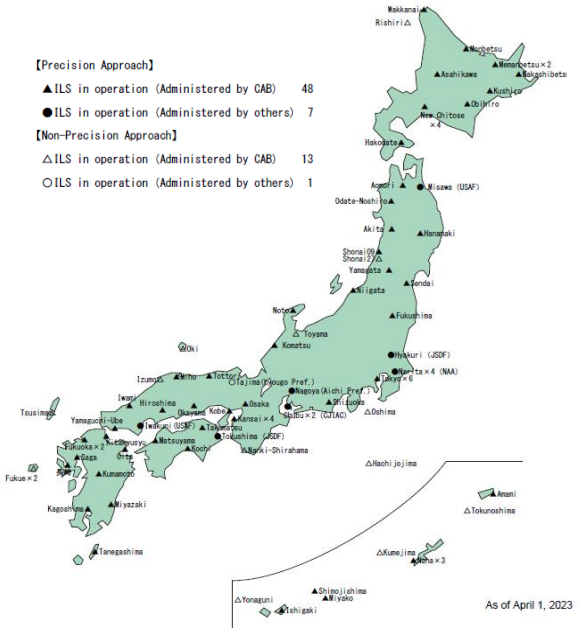


Figure 1: ILS Locations

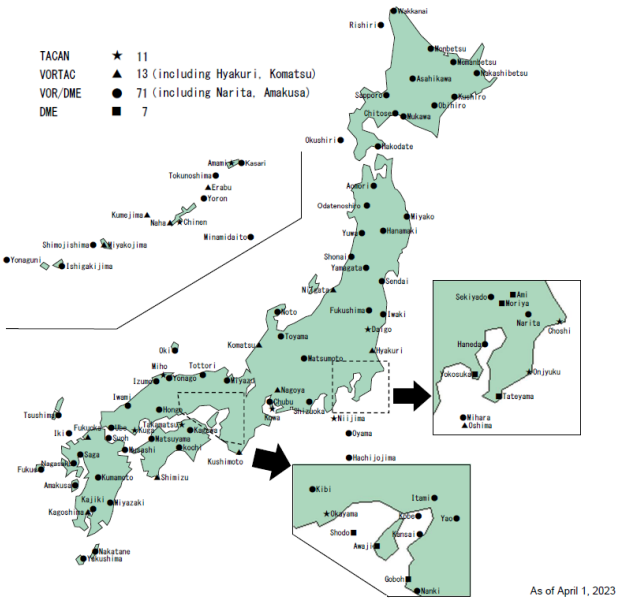


Figure 2: VOR/DME Locations

(Source: https://www.mlit.go.jp/en/koku/koku_fr13_000016.html)

2. DISCUSSION

2.1 RENEWAL ILS DUE TO SUSTAINABLE NAVIGATION SERVICES

2.1.1 Japan Civil Aviation Bureau (JCAB) has transportable LOC/T-DME, VOR/DME, SSR and Transportable Radar Control System (TRCS) for sustainable navigation service during renewal construction.

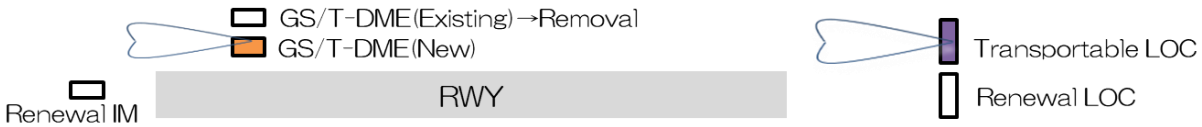
Currently, JCAB owns the following transportable equipment:

- LOC/T-DME 10 sets
- VOR/DME 10 sets
- SSR for En-route 2 sets
- TRCS 3 sets

2.1.2 The ILS of Kumamoto Airport which was one of some events was conducted renewal construction using this transportable LOC/T-DME as follows.

STEP 1 (CAT Ⅲ) : A transportable LOC and a new GS/T-DME were installed as replacement equipment during the existing LOC renewal period.

STEP 2 (CAT Ⅰ) : While the transportable LOC and new GS/T-DME were in operation, the existing LOC and IM were renewed and the existing GS/T-DME were removed.



STEP 3 (CAT Ⅰ) : A high category operational evaluation was conducted and transportable LOC was removed.

STEP 4 (CAT Ⅲ) : Category Ⅲ operation is resumed after completion of high category operation evaluation.

2.1.3 The renewal construction with similar procedure was carried out at other 24-hour airports as well. Not only ILS, but also VOR/DME and SSR are renewed using transportable equipment which is able to transport by a truck for sustainable navigation services.

VOR/DME

SSR

TRCS

2.2 CONCLUSION

2.2.1 The renewal construction using transportable equipment is the most important for sustainable navigation services. Also, these transportable equipment's are the most effective to do early resumption of operation for rapid recovery from disaster.

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.

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