



**Twenty First Meeting of the
Informal South Pacific ATS Co-ordinating Group (ISPACG/21)**

Auckland, New Zealand, 6-8 March 2007

Agenda Item xx:

TRUE / MAGNETIC REFERENCE

Presented by Airbus

SUMMARY

This paper describes the way true or magnetic reference is selected on the Airbus aircraft operating ADS and CPDLC. It raises some questions as to what is expected by the ANSP community regarding this reference

1. INTRODUCTION

A paper was recently presented at the latest IFALPA ADO committee that advocated switching from Magnetic North to True North for all navigation. Although there is an economic case for doing this, considering all the changes to approaches charts, runway markings, and ground-based nav aids as the result of the shift in magnetic variation, the way current navigation systems operate, and considering how easier it is to perform true navigation, such a question seems reasonable. At present, numerous airlines (e.g. LH, AF) fly all over water legs in True, and switch back to Magnetic approaching land. This is the same as going to Grid over the poles. The ADO committee will make this recommendation to the IFALPA Board, who will then recommend this to ICAO.

While doing the certification exercise of both the navigation and the FANS A+ systems of the A380, the question occurred of the selection of the True / Mag reference for the FMS and FANS set of messages.

The following describes the way this True / Mag reference is done on the Airbus FANS A/A+ aircraft.

2. DISCUSSION

2.1 On Airbus aircraft there are two basic modes of lateral navigation:

- The Managed mode, where the Auto-Pilot/Flight Director guides the a/c along the FMS Flight-Plan.
- The Selected mode, where the Auto-Pilot/Flight Director guides the a/c along the Heading / Track selected by the pilot on the Flight Control Unit (FCU).

In addition, the pilot may choose either the True or the Magnetic reference for the navigation on the FCU.

This being said, on Airbus FANS A/A+ aircraft, the answer to the UL#145 (CONFIRM HEADING) and UL# 146 (CONFIRM GROUND TRACK) is done as follows:

- 1) CONFIRM HEADING: The system automatically generates an answer with the current TRUE heading. This automatic proposal is independent of the selection the pilot may have done for his displays (TRUE/MAG switch). Once the answer is proposed, the pilot has always the possibility to modify it prior to downlink the reply.

In case the True heading is not available, the Magnetic heading is defaulted.

- 2) CONFIRM GROUND TRACK: The system automatically generates an answer with the current TRUE ground track. This automatic proposal is independent of the selection the pilot may have done for his displays (TRUE/MAG switch). Once the answer is proposed, the pilot has always the possibility to modify it prior to downlink the reply.

In case the True ground track is not available, the Magnetic ground track is defaulted.

2.2 Operational questions

The above description can be operationally summarized as follows:

- Whatever the True / Mag selection the pilot may have elected for his navigation, the FANS A/A+ system proposes a True DL#35 or DL#36 answer to the UL#145 and UL#146.

The following question is then worth being raised:

- What is expected by an Oceanic ATC controller as an answer to the two uplink messages “CONFIRM HEADING” and “CONFIRM GROUND TRACK”. A true or a magnetic value?

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

note the questions raised in this paper and to propose a consensual position as to the answers. These may have both operational and technical impacts. Airbus is willing to derive appropriate recommendations for crew procedures and take note of the group opinion to fine tune future designs.