*International Civil Aviation Organization* CNS/MET SG/6 – IP/13

**Sixth Meeting of CNS/MET Sub-Group of APANPIRG**

Bangkok, Thailand, 15 – 19 July 2002

**Agenda Item 18): Any other business**

# DEVELOPMENT OF UPLINK/DOWNLINK OF OPMET INFORMATION IN HONG KONG, CHINA

(Presented by Hong Kong, China)

**SUMMARY**

This paper presents the development of uplink and downlink of OPMET information in support of the new CNS/ATM systems in Hong Kong, China.

## 1. Introduction

1.1 The development of the meteorological system in support of the new Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) systems in Hong Kong, China, started in 2000. Over the past two years, trials were conducted on the downlink of meteorological information from aircraft. Operational uplink of OPMET information to aircraft was also launched in 2001. This paper reports the development in these two areas.

## 2. Downlink

2.1 Trials with Automatic Dependent Surveillance (ADS) and Controller-Pilot Data Link Communications (CPDLC) datalinks for automatic weather reporting from B747 aircraft were conducted by Hong Kong, China in 2000 over the South China Sea. Results of these trials were previously reported in CNS/MET SG5. Further ADS trials with B777 and Airbus aircraft were conducted in early 2002. During these further trials, 57 in-flight weather reports from B777 aircraft and 18 reports from Airbus aircraft were received and analysed by the Hong Kong Observatory (HKO).

2.2 Analysis of the B777 ADS data received in the 2002 trial revealed rather large deficiencies in the wind direction in the reports. The same had previously been noted by the Fifth ICAO Meteorological Information Data Link Study Group meeting (METLINKSG/5) in 2000. The manufacturer released a software upgrade in late 2001 for installation on-board the aircraft to rectify the problem. The airline participating in the B777 trial was advised of the availability of the software upgrade.

2.3 For the Airbus trial, no abnormal wind reports were found. All temperature reports received from the B777 and Airbus aircraft during the trials were found to be of acceptable quality.

2.4 With the digital aeronautical telecommunication network still under development, automatic weather reporting has to be carried out through FANS-1/A systems (FANS: Future Air Navigation System) and airline company datalinks. Under the tight operating environment currently experienced by the aviation industry, airlines have expressed concern over the additional telecommunication charges incurred by these datalink trials. The prospect of airlines' participation in future large-scale trials is uncertain and an alternative datalink has to be identified.

2.5 The SSR Mode-S datalink has been considered as an alternative for weather reporting. The ICAO Manual on Mode S Specific Services (Doc 9688) specifies the formats for meteorological routine air reports and meteorological hazard reports. Unlike weather reporting using ADS or CPDLC based on FANS-1/A system, there is no extra cost for using the Mode-S datalink. Hong Kong, China is exploring the use of such alternative datalink for weather reporting and is working on possible trials with small aircraft.

**3. Uplink**

3.1 In respect of uplink of OPMET information, Hong Kong, China introduced the Datalink Automatic Terminal Information Service (D-ATIS) and Datalink VOLMET service (D-VOLMET) in 2001. Aircraft equipped with suitable datalink capabilities can request full scripts of the ATIS and VOLMET messages and have them printed inside the cockpit. These datalink services are operated in parallel with the voice ATIS and VOLMET broadcast. Compared with the voice services, the datalink services enable pilots to more efficiently acquire the latest runway weather conditions at the Hong Kong International Airport and OPMET information of Hong Kong, China as well as weather information at a number of nearby international airports.

**4. Action**

4.1 The meeting is invited to note the information contained in this document.

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