Combined Third Meeting of Arabian Sea Indian Ocean ATS Coordination Group ASIOACG/7 and Indian Ocean Strategic Partnership to Reduce Emissions (INSPIRE/3) – Mumbai, India, 11 – 14th December 2012

Agenda Item: INFORMATION PAPER ON DATALINK DEPARTURE CLEARANCE (DCL)

Departure Clearance Through SITA Link For Aircraft
(Presented by Airports Authority of India)

SUMMARY

A brief introduction to the Departure Clearance through Data-link (DCL) system introduced by Airports Authority of India in Mumbai and five other airports.

An overview of the traditional versus data-link based Departure Clearance is provided. The benefits of the service and highlights of the system are discussed

1. **Introduction:**

1.1 Airports Authority of India has introduced data-link based Departure Clearance at six airports (Mumbai, Delhi, Kolkata, Chennai, Bangalore and Hyderabad) in India, which is an ACARS (Aircraft Communications, Addressing, and Reporting System) based Air Traffic Service.

1.2 The implementation of the data-link based Departure Clearance at Mumbai is discussed below.

2. **Discussion:**

2.1 PDC in a non-data-link environment

In Mumbai, a pilot must request a departure clearance in order to obtain start-up and departure information prior to leaving the aircraft's parking space. This clearance is named Pre Departure Clearance (PDC) and the PDC controller is part of the Tower setup. Typically, the following sequence is followed:

> ➢ The pilot calls the pre-flight controller on the frequency and requests his clearance.
> ➢ The controller acknowledges the request, and checks the flight on his Automation System terminal.
> ➢ The controller calls the pilot and transmits (reads) the clearance information.
> ➢ The pilot reads back his clearance.

The issue associated with PDC is that frequency congestion can be quite high at times and VHF voice communication has some inherent limitations, especially in locations that are in the shadow of buildings and are not in line-of-sight of ATC VHF. These issues lead to potential misunderstandings between the pilot and the

controller and to lost time while the pilot waits for the clearance. Avoidance of all this is now possible through use of data-link by DCL enabled ACARS system on-board aircraft to obtain Departure Clearance.

2.2 Departure Clearances via Data-link

Using DCL, the pilot sends a request for Departure Clearance Downlink (RCD) and receives a Departure Clearance Uplink (CLD) from ATC which contains the cleared destination, cleared runway, type of departure and route, squawk code, departure time, next frequency, current ATIS identifier. The pilot can then send back an acknowledgement viz. Departure Clearance Read-back Downlink (CDA).

2.3 Benefits

The implementation of a data-link based PDC application requires that the usual PDC controller–pilot dialogue be transformed from Analog to Digital and from the VHF radio channel to the ACARS data-link channel. The implementation of a data-link PDC solution provides the following immediate operational benefits:

2.3.1 General benefits
- Reduced controller workload. PDC requests can be handled by the controller in sequence, and processed by a single keystroke, as convenient.
- Improved reliability. The data-link service eliminates potential misunderstandings due to poor VHF voice quality.
- Reduced frequency congestion. The use of data-link results in a significant decrease in ATC pre-flight frequency congestion.

2.3.2 Pilot
- Access even at high VHF voice workload when pilot is ready.
- No voice misunderstanding.
- Available outside VHF voice range.
- More 'comfortable' work.
- No lost waiting time on VHF frequency.
- Guaranteed safe clearance read back. The clearance is received and the pilot digitally acknowledges it by an error-free process.
- No need to listen to whole voice ATIS Message.

2.3.3 Controller
- No voice misunderstanding.
- No clutter on frequency.
- Guaranteed safe clearance read back.

2.4 DCL enabled ACARS

Aircraft Communications, Addressing, and Reporting System (ACARS) is the unit available with the pilot whereby clearance is requested, whereon it is received as also acknowledged. There are different versions available and only the DCL enabled are utilizable for the purpose.

2.5 Highlights of the SITA AIRCOM Clever DCL system
- The SITA AIRCOM DCL system receives Flight Plans through AMSS and has an independent AFTN address VABBDCLX.
- Validation of FPLs is based on place of Departure, place of Destination and Flight ID.
- This system is a part of the ATSDLN, viz. Air Traffic Services Data Link Network, of AAI which also includes D-ATIS and D-VOLMET.

  [D-ATIS provides a more automated means of generating the ATIS voice recording and enables the delivery of the ATIS information to the cockpit in text format through transmission of the ATIS information via data-link. This system is in place and operational in Mumbai.

  D-VOLMET is meteorological information for aircraft in flight. There are some technical issues that need to be resolved before it can be declared operational.]
- The service is provided through two servers, one each in Singapore and Montreal.

- Based on ED-85A, *Data-Link Application System Document (DLASD) for the "Departure Clearance" Data-Link Service* adopted in December 2003 by Euro-control.
- Currently this system is operational in Mumbai and is expected to be so in a further five airports soon.
- D-ATIS is operational in 36 airports in India.
- D-VOLMET is being provided only by Mumbai presently.

3. Action by the meeting:

3.1 The stakeholders are invited to take cognizance of the developments above leaf and to participate in the utilization of the system.

3.2 All the participants are also invited to participate in this dialogue of INSPIRE for INSPIRE to INSPIRE.