International Civil Aviation Organization

Future Air Navigation Systems Interoperability Team-Asia (FIT-ASIA)

Bangkok, Thailand, 27 August 2012

Agenda Item 3: Review of ADS/CPDLC Operations

CPDLC/ADS-C DATA LINK APPLICATION IN CHINA

(Presented by China)

SUMMARY

This paper provides introduction about the application of CPDLC/ADS-C data link in China.

This paper relates to –

Strategic Objectives:

*A: **Safety** – Enhance global civil aviation safety*

Global Plan Initiatives:

GPI-17 Data link applications

1. INTRODUCTION

1.1 This paper provides introduction about the application of CPDLC/ADS-C data link in China.

2. DISCUSSION

2.1. Data-link communications have been used for CPDLC and ADS-C for many years, and data-link performance requirements have been established. Specific requirements are published in the Global Operational Data-link Document (GOLD), and reflect those contained in Doc 9869, Manual on Required Communication Performance. States are invited to ensure that the appropriate data link performance monitoring is undertaken and reported to CRAs/FITs, as required, in a timely manner.

CPDLC/ADS-C Data Link Application in China

2.2. ICAO issued the route designation L888 in 1999. The AIP Supplement for L888 was issued in April 2000. China has officially started providing data link services on FANS-L888 routes in Western China since 10 January 2001. It is an air route across European and Asia in West- China, the whole range is over 2800km. It is the first designated CNS/ATM route over land. Compared with the air route across India, Middle-East, the range reduced greatly, and it's very cost-effective.

2.3. The data link system in this remote airspace, as shown in **Appendix A**, comprises a variety of ground systems that may provide data link services to FANS 1/A aircraft. All the workstations are connected to ARINC and ADCC (CSP). The data link services improve communications and surveillance to support operational capabilities which enables 10 minutes longitudinal separation.

2.4. In recent years, the CPDLC/ADS-C workstations come to have more problems and caused long delay of message:

- Ground system: The spatial database and basic GIS database in the system was not updated on time and could no longer meet the actual requirement for application in Lanzhou and Urumqi.
- Software: Some bugs in the software functions caused many problems for the users: for instance, very slow logon, lack of information display in radar label, ADS unable to playback, CPDLC connect well but aircraft position on GEOMAP unable to refresh, etc.
- Work flow and usability need to be improved
- Maintenance: The system maintenance was not enough; the system time for two main gateways need to be strictly synchronized; the workstation in Lanzhou cannot be switched off by software, etc.

2.5. In early 2012, all the hardware and software for the four CPDLC/ADS-C workstations were updated by ADCC, ATMB (CSP). The systems are under test currently and all the new systems are going to be in service before early 2013.

System Operation Status

2.6. The status of ADS/CPDLC operations:

- All flights are required to have FANS 1/A capability; and
- Based on 2009 daily records, more than 600 aircraft from about 30 airlines having ADS/CPDLC connection with L888 CPDLC/ADS-C system every month.

2.7. Technical status:

- *Ground system:* The system in Lanzhou has been used as the primary system, and the systems in the other three regions are now under test and the former ARINC workstations are still in work. The update will be completed by the end of 2012.
- *ACARs link:* There were unplanned interruption and long delay of message reported before the ground station update. The current status is improved and data link performance data need to be further collected and analyzed.
- *Data link transfers:* The Data link transfers between Urumqi, Lanzhou and Chengdu are taking place smoothly.

2.8. Periodic Status Reports:

- The reports had been recorded locally but there has been no PR reported to the CRA yet.

2.9. In the recent years, China comes to realize the importance of conducting data link performance monitoring. ATMB, CAAC has started to study the GOLD manual and investigate the availability of relevant data requested by further data analysis.

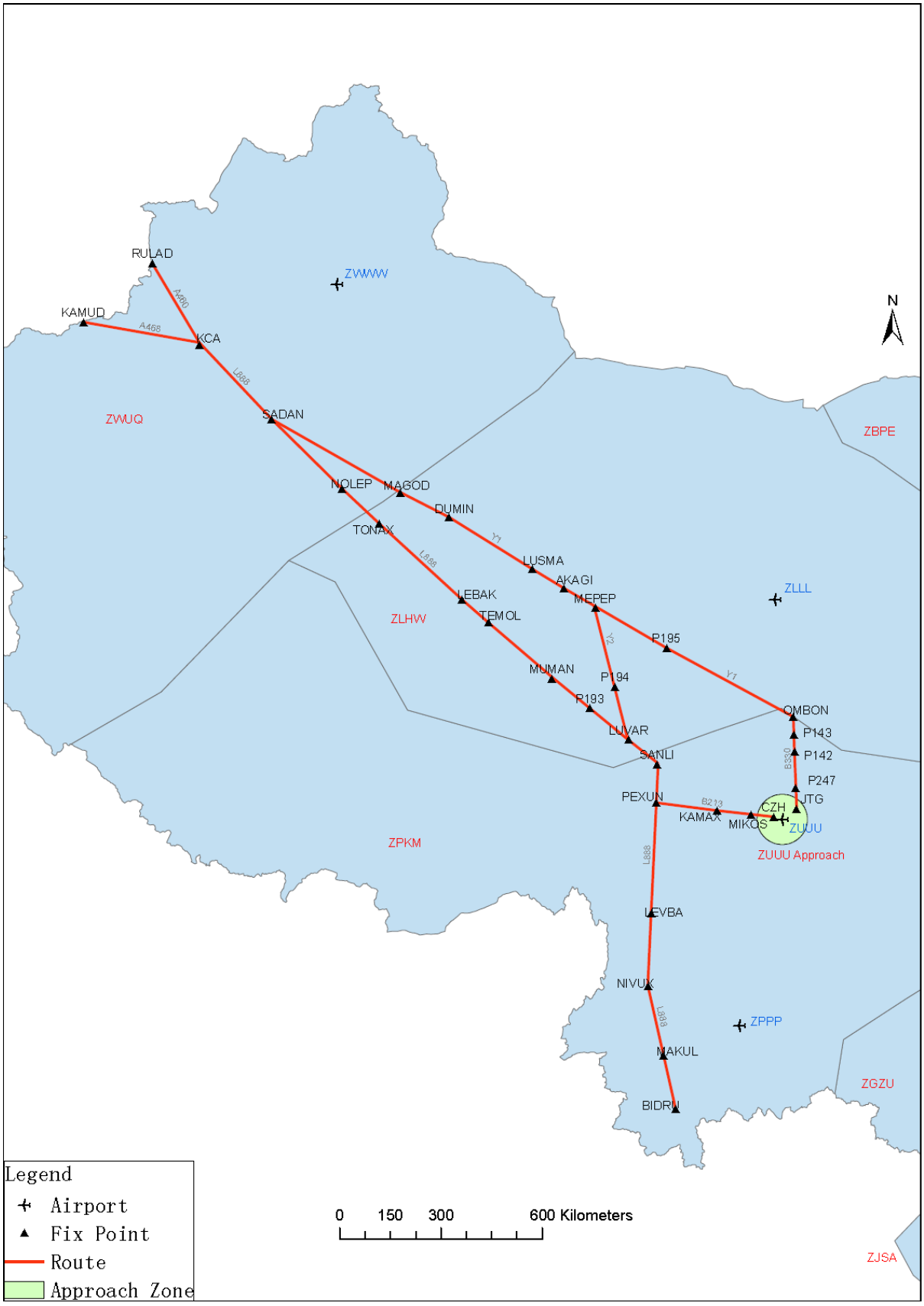
3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matters as appropriate.

APPENDIX A L888 ROUTE MAP



APPENDIX B L888 ROUTE ADS SYSTEM ILLUSTRATION