Twenty Third Meeting of the
Informal South Pacific ATS Co-ordinating Group (ISPACG/23)

FANS Interoperability Team Meeting (FIT/16)
Santiago, Chile, 24-25 March 2009

Agenda Item 12: Any Other Business

ISSUES ASSOCIATED WITH MEASURING CPDLC PERFORMANCE

(Presented by Airservices Australia)

SUMMARY

While developing CPLDC performance measuring tools, a number of issues were identified. This working paper seeks clarification on these issues to ensure the standardisation of performance measurement.

1. INTRODUCTION

1.1 Compliance with the Oceanic SPR standard requires the monitoring of CPDLC performance by ATSUs. While this process is not yet complete, some work has been conducted within Airservices Australia to extract the data necessary to conduct CPDLC performance monitoring. While this work has been progressing a number of questions regarding what is actually required to be measured have been raised.

2. DISCUSSION

2.1 To provide a level of standardization we need to define a baseline of what it is that we are actually measuring. When developing a tool to measure performance, a number of issues were identified. Consideration needs to be given to:

- When measuring technical performance, do we just measure CPDLC round trip times only for uplinks that require WILCO responses? Or do we also measure round trip times for UNABLE, ROGER, STANDBY, AFFIRM and NEGATIVE responses? Is Connection Request/Connection Confirm a suitable message pair for measuring technical performance?

- Do we measure performance only for uplink clearances, or *any* uplink requiring a WILCO/UNABLE response (e.g. CONTACT/MONITOR)?

- Do we measure performance for **all** uplink clearances or only those that have received a successful MAS back?

- Does it matter if the MAS comes back via a different data link media to the clearance response? If so, is the performance still measured? What about if the response and the MAS are sent by different media?

- The data link application measures transmitted and received times to fractions of a second. Should these times be rounded or truncated? Is this carried out at each step of the process or only carried out once at the completion of all calculations?

- When estimating the uplink transit time, the uplink/MAS round trip is divided by two. Is the result truncated or rounded?

- If POR_T is negative (as can happen on some occasions, what is done with it? (is it left as negative, or rounded to zero?)

2.2 There are probably many other measurements that all need to be discussed and documented in a suitable location (e.g. GOLD).

2.3 Sample YBBB VHF and satellite CPDLC performance data for the B744 during January 2009 is included below. Please note that this data is still being assessed for accuracy, and is dependent on responses to the questions raised above.

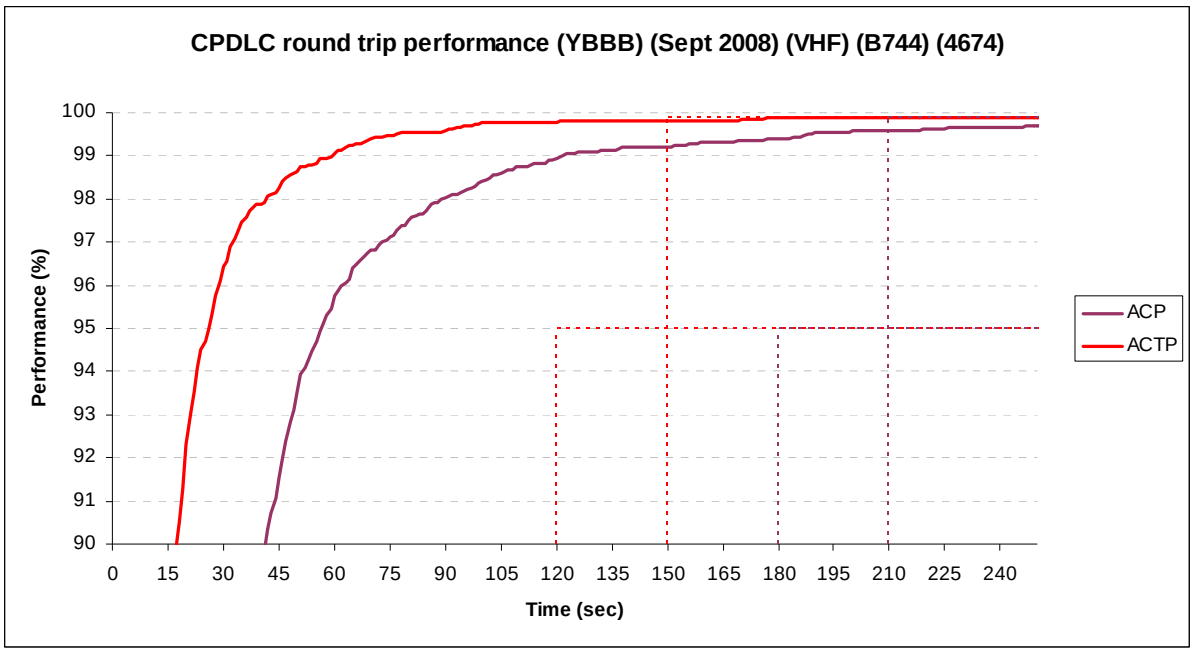

Figure 1 VHF CPDLC round trip performance

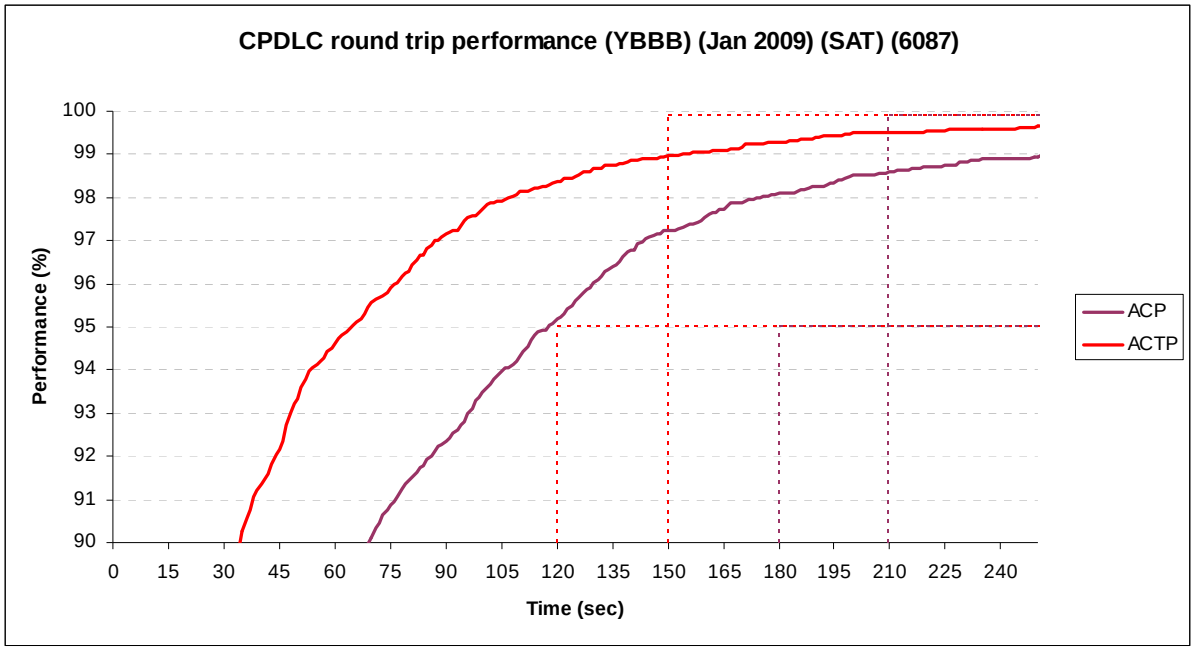

Figure 2 Satellite CPDLC round trip performance

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Note the sample (draft) CPDLC performance data provided;

b) Discuss the solutions that are preferred to the issues raised.