

A340 Performance Deterioration

Performance monitoring in NZZO has detected substantial performance deterioration on one A340 fleet. This performance deterioration was initially detected in mid 2008 and when the performance deteriorated further in early 2009 a FANS problem report was raised.

Figure 1 below illustrates the extent of the deterioration by plotting on a monthly basis the actual percentage of ADS-C downlinks delivered within 180secs via SATCOM. This actual surveillance performance (ASP 180) can be compared with the Oceanic SPR required surveillance performance for the application of reduced separations of 99.9% within 180 seconds.

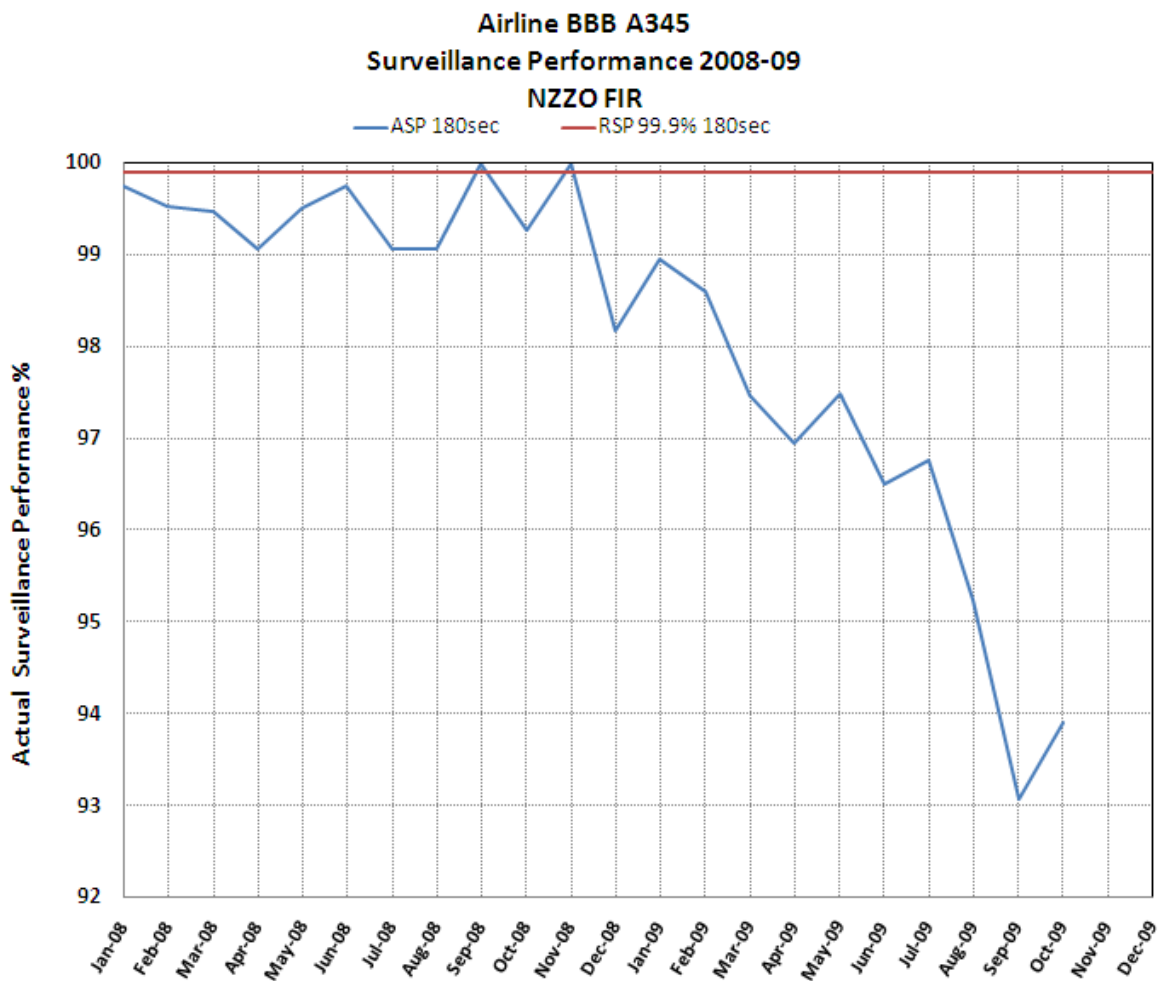


Figure 1: Airline BBB A345 Actual Surveillance Performance (SATCOM)

Figure 2 below illustrates the observed ADS-C SATCOM Actual Surveillance performance for the A345 fleet concerned in NZZO during 2009. This graph illustrates typical ANSP monitoring recommended by the Global Operational Data link Manual (GOLD) Appendix D.

Similar performance deterioration can be seen in the monitoring graphs for CPDLC actual communication performance.

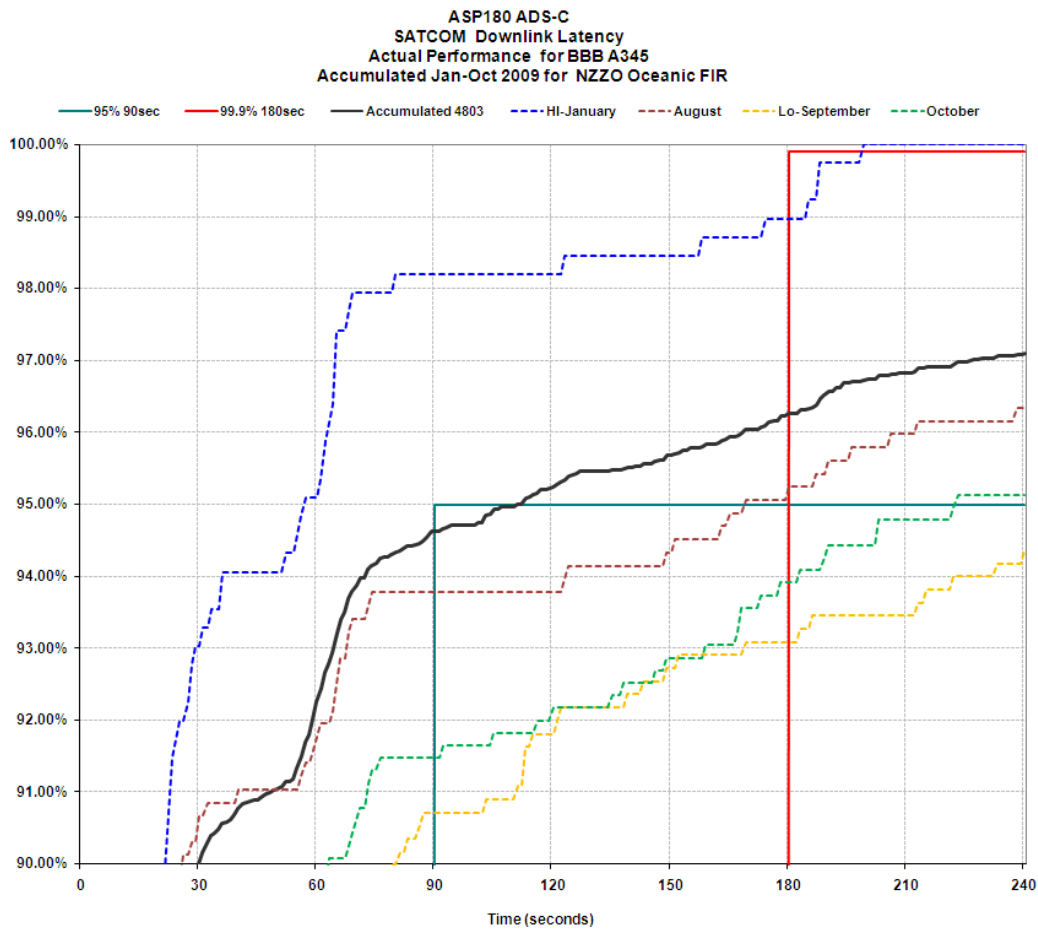


Figure 2: Airline BBB A345 Actual Surveillance Performance (SATCOM)

The performance deterioration by this fleet is such that actual performance has fallen well below that required by the Oceanic SPR for the application of reduced distance based separations. These separations have now been withdrawn for this fleet in NZZO.

When D30 separations were introduced in 2005 RCP and RSP monitoring as per the Oceanic SPR standard had not been developed. In 2005 GES stability issues were causing concern and the ISPACG implementation team determined that the required safety levels for the application of D30 would be maintained if 93.5% of ADS downlinks were received within 3 minutes, and 93.5% of CPDLC downlinks were received within 90 seconds. The performance of the A345 fleet using these requirements is illustrated in Figure 3.

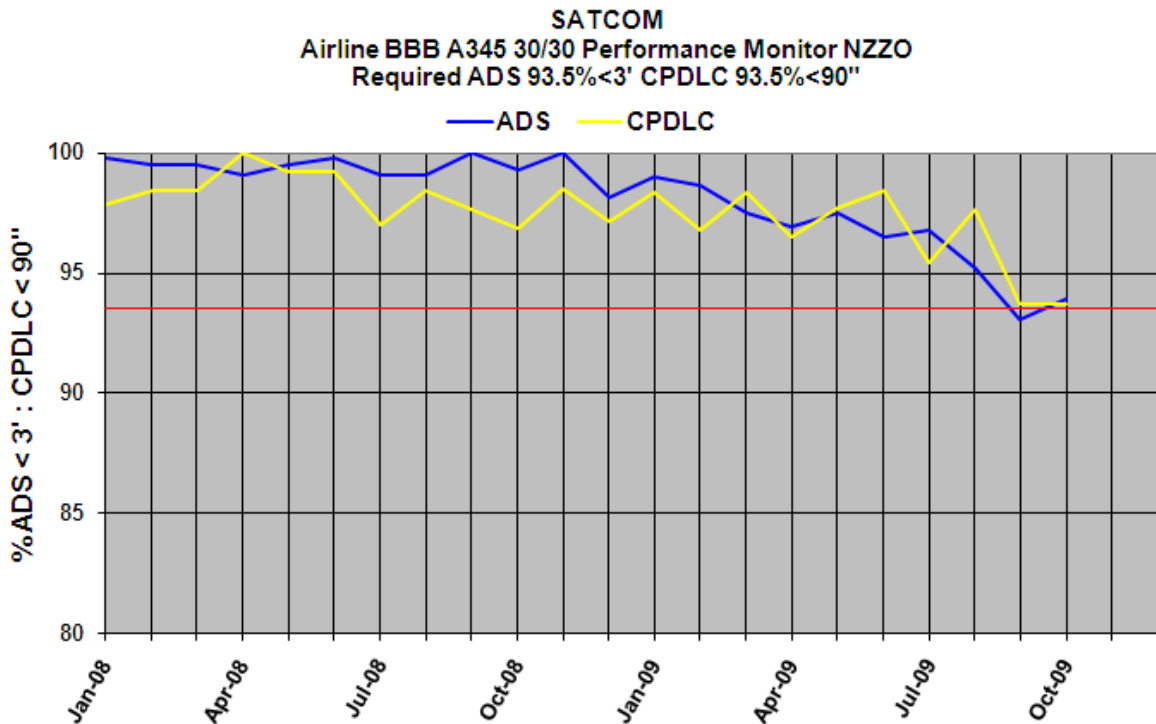


Figure 3: Airline BBB A345 30-30 Separation Performance Monitor

CSP feedback on the performance deterioration indicates that it has been confirmed as a system level Inmarsat SATCOM issue. A GES software upgrade is already available (known as Release 15) that is believed to address the problem. However, it should be noted that the costs involved are significant. Interested communications stakeholders are seeking assurances surrounding the operational longevity of the I3 GES from Inmarsat and compiling a business case to support funding and implementation of this software upgrade at the I3 GES sites. When these institutional issues have been worked through the timetable for the introduction of the software is expected to be quite short.

Airways NZ has been advised that the performance deterioration may be related to the implementation of cabin services offering passenger applications like voice calls and texting using Data-3 connectivity over Classic Aero. The A345 fleet under examination was the first to offer this service in our region but we are aware of a number of other airlines in the region that are looking at providing a similar service to their customers. Unless Release 15 is implemented similar performance deterioration should be expected from these airlines if they also offer these new cabin services.

The possibility that this performance deterioration has been caused by the implementation of a new data link service not even related to the provision of an Air Traffic Control service further highlights the necessity of post implementation monitoring by ANSP's.

Update 13 January 2010. Release 15 installation is expected at ARINC's Eik and Santa Paula I3 GES sites by mid-February 2010.

Update 9 August 2010. Release 15 has now been installed at both SITA and ARINC's I3 GES sites. Observed performance of the A345 fleet since the Release 15 upgrade is illustrated below in Figure 4. Performance is now meeting SPR requirements, and the graph illustrates degraded performance in February (pre R15) and significantly improved performance in May, June, and July (Post R15). The application of 30/30 separation has been restored on this fleet.

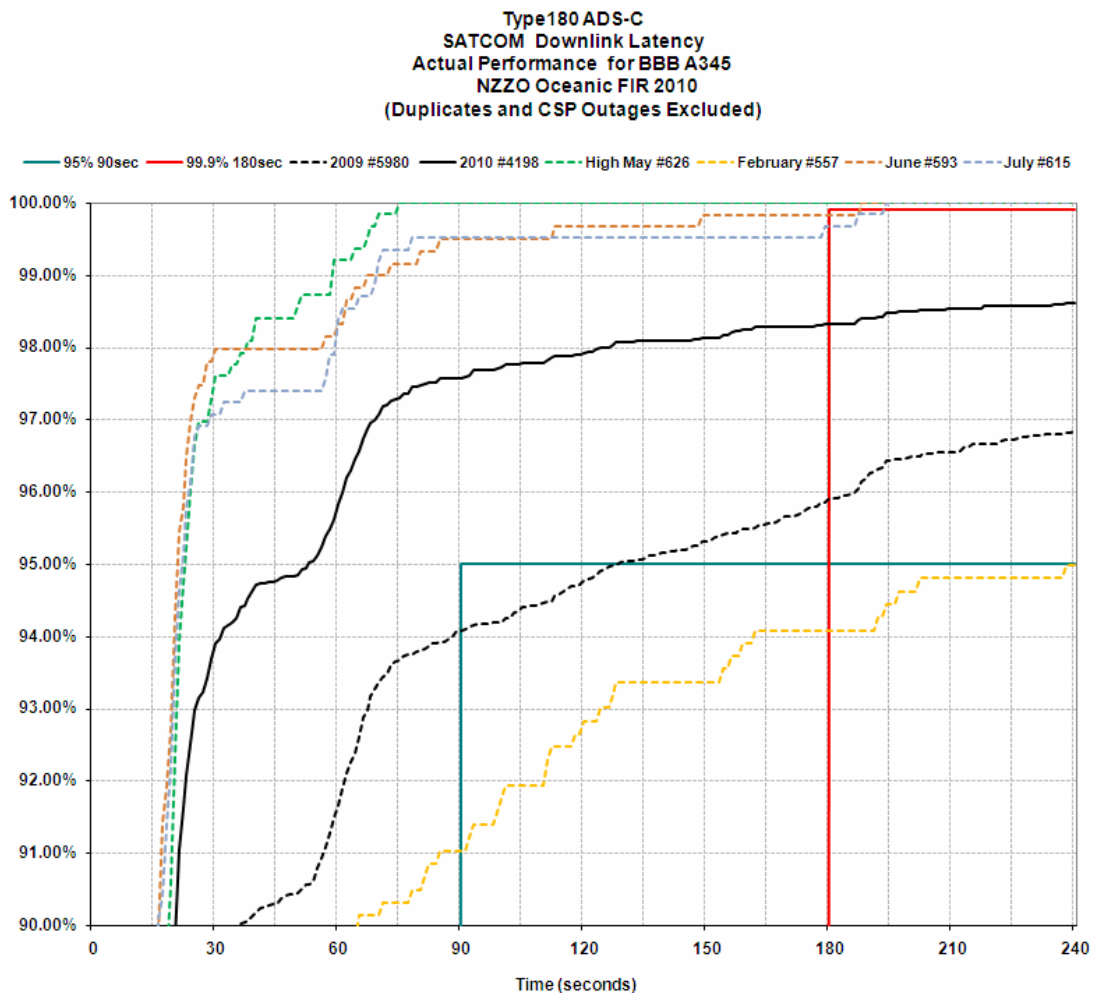


Figure 4: Airline BBB A345 30-30 Actual Surveillance Performance after R15