

**Abstract for:**

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Crashdynamics session

**Title:**

CASA Child Restraint Research Outcomes - Standards and Guidance Material  
Changes

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**Abstract:**

CASA has previously presented research conducted into infant and child restraint. The programs, conducted 2005-2010, researched accident performance of Child Restraint Systems (CRS) in Transport Category Aeroplane seating with specific focus on Australian automotive Child Restraint Systems and their performance without the mandatory top tether strap.

Comparative performance of ISOfix, LATCH and lapbelt restrained Automotive Child Restraint Systems in airline style seating against aircraft forward emergency landing dynamic conditions was determined. Additionally, assessment of baseline performance of a supplementary loop restrained lap held infant and a child in their own seat was conducted. Design loads and recommendations for Child Restraint Lower Anchorage standards were determined. Finally, injury levels to adult occupants seated behind a child restraint system was evaluated and the variation with the different attachment methods and adult occupant size was documented.

Results showed that some Australian Automotive CRS will perform adequately in transport category seats without a top tether strap. ISOfix and LATCH systems perform better than lap belt restrained CRS. However, the level of occupant protection provided to the child by all CRS, no matter which attachment method, was vastly superior to contemporary systems, i.e. Lap Belt or Supplementary Loop Belt. For the Supplementary Loop Belt, evidence from tests conducted confirmed unsatisfactory interactions between the adult and the child.

This research has led to CASA developing, with Standards Australia, an optional 'aircraft use criteria' for the Australia-New Zealand standard AS/NZS1754:2013 'Child Restraint Systems for use in Motor Vehicles'. Additionally, CASA has developed new operational guidance material for the carriage of infants and small children, airworthiness guidance material for the installation of automotive Child Restraint Systems, and a Discussion Paper on certain regulatory provisions. The Discussion Paper is focused on receiving industry comment with regards to CASA regulations that currently allow for the carriage of two children in one seat and lap held infants. This presentation will document those regulatory developments that are derived from the previous research programs.