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EUROPEAN NEW CAR
ASSESSMENT PROGRAMME

Technical Bulletin

Assessment of Automatic Passenger Airbag Disabling Systems

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Preface

DISCLAIMER: Euro NCAP has taken all reasonable care to ensure that the information published in this document is accurate and reflects the technical decisions taken by the organisation. In the unlikely event that this protocol contains a typographical error or any other inaccuracy, Euro NCAP reserves the right to make corrections and determine the assessment and subsequent result of the affected requirement(s).

EUROPEAN NEW CAR ASSESSMENT PROGRAMME (Euro NCAP)

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1. Introduction

Euro NCAP uses a standardised method of assessing the functionality of automatic passenger airbag disabling systems. This is to avoid the need for human subjects, in particular children, to be present at the time of assessment. However, for the purposes of this assessment, it will be necessary to use a human 5th percentile female. The use of any human subjects to demonstrate system functionality is not precluded providing that all relevant ethical and privacy guidelines are followed.

This procedure evaluates the automatic airbag disabling system functionality with a variety of CRS sizes, orientations and attachment methods. The requirements for airbag disabling switches are detailed in the Child Occupant Protection Assessment Protocol, the following extract details additional requirements applicable to automatic deactivation systems:

- a) The system must ensure that the airbag is OFF for ANY rearward facing CRS and obviate any risk associated with airbag deployment
- b) If, with the ignition on and with engine running or not, the airbag status can be changed, the entire system must immediately react to the change correctly. Up to 10 seconds will be permitted from the change of occupant status to the corresponding signal from the airbag status indicator. Systems will be checked once the vehicle diagnostics/system checks have been completed.
- c) The system must automatically re-activate the airbag when the seat is occupied by a person who is not required to use a child restraint.

The Euro NCAP test laboratory must check if the minimum requirements are followed:

- Airbag is OFF when using any rearward facing CRS
- Airbag is ON for a 5th percentile female occupant and larger





It is the responsibility of the vehicle manufacturer to demonstrate the system functionality in all other situations, i.e. forward facing CRS & a child sat on the vehicle seat. The requirements detailed in the following section aim to address a variety of different occupant ages, statures and child installation modes.

Additional requirements for automatic airbag disabling systems can be found in the Euro NCAP Assessment protocol – Child Occupant Protection.

2. Installations and assessments

2.1 Test matrix

Installation of CRS listed in the table above and settings shall be performed in accordance with the CRS installation requirements in the Testing Protocol – Child Occupant Protection.

		System Requirements for Airbag Status				Can it be done by Lab?	
Occupant	No CRS	Rearward facing belted CRS with integral harness (Group 0, 0+, I & II) 	Forward Facing CRS (Group I) 	Forward Facing booster seat (Group II & III) 	Booster cushion (Group III) 	System functionality: Human IS NOT required	System functionality: Human IS required OEM data required
New-born <60cm		Mandatory OFF #1 Maxi Cosi Pebble 360* #2 Maxi Cosi Cabriofix & Easybase 2*				Yes	No
1.5YO 75cm-87cm & <15month		Mandatory OFF #1 Maxi Cosi Pebble 360 #2 Maxi Cosi Cabriofix & Easybase 2 #3 Maxi Cosi Pebble 360 & FamilyFix	a) OEM Strategy #4 Britax King II LS			Yes	No
3YO 87cm-105cm		Mandatory OFF #5 Britax Elite two way	a) OEM Strategy #4 Britax King II LS #6 Britax Trifix 2	a) OEM Strategy #8 Cybex Solution Z		Yes	No
6YO 105cm-125cm		Mandatory OFF #5 Britax Elite two way	a) OEM Strategy #7 Britax Advansafix	a) OEM Strategy #8 Cybex Solution Z	a)* OEM Strategy #9 Graco booster cushion	Yes	No
10YO >125cm	b)	c) N/A	c) N/A	a) OEM Strategy #8 Cybex Solution Z	a) OEM Strategy #9 Graco booster cushion	Yes	No
5 th female	Mandatory ON Human required					Yes	Yes
50 th male	Mandatory ON Human required					Yes	Yes
95 th male	Mandatory ON Human required					Yes	Yes

2.2 Notes

- a) The airbag deployment strategy is the decision of the OEM. There is no mandatory status requirement specified by Euro NCAP. However, where the strategy is airbag ON, the OEM must show that deployment does not lead to higher risk for a child compared to that with the airbag OFF. This demonstration applies to both manual and automatic airbag disabling systems. For CRS installations involving a child, the stature ranges for which the CRS is approved shall be adhered to.
- b) This configuration is permitted in certain EU countries as there are differences between the regulatory requirements within the EU. Some EU countries require children to use a suitable CRS for all statures up to 150cm, whereas others permit children of 135cm to occupy a vehicle seat with no CRS. Therefore, larger statures (6YO and 10YO) are included in the Euro NCAP assessment.
- c) Currently not applicable (N/A): It is theoretically possible to have a large rearward facing CRS for taller statures, but none are known to exist at present. If one becomes available in the future, Euro NCAP will consider its inclusion in this assessment.
- d) For cells marked X there will be no installation as this combination of CRS type and child is precluded.

3. Child Restraint Systems

3.1 Summary

Detailed below are the CRS to be used in the system assessment and the required installation modes.

	Child Restraint System	Installation mode	TB 012
1.	Maxi Cosi Pebble 360	B _ _ _	Yes
2.	Maxi Cosi Cabriofix + EasyBase 2	B _ L _	No
3.	Maxi Cosi Pebble 360 & FamilyFix 360	_ I L _	Yes
4.	Britax Römer King II LS Universal	B _ _ _	Yes
5.	Britax Römer Two-way Elite Uni FWF & Semi-Uni RWF	B _ _ _	No
6.	Britax Römer Trifix 2 i-Size	_ I _ S	Yes
7.	Britax Römer Advansafix III SICT	B I _ _	No
8.	Cybex Solution Z i-fix	B _ _ _	Yes
9.	Graco booster basic	B _ _ _	Yes

3.2 Key to installation modes:

B = Belted

I = ISOFIX attachments

L = Support leg

S = Top-tether

3.3 Notes

Installations of ISOFIX CRS (#3, #6, #7) are only applicable where the front passenger seat(s) is equipped with ISOFIX anchorages (including optional any seats & anchorages).

Seat #5 has universal approval for forward facing use and semi-universal approval when used rearward facing. This approval shall be ignored for the purposes of assessing the airbag disabling system when used rearwards facing and the vehicle does not have to be on the approved list of vehicles. This CRS is used as tool to check how the vehicle responds to a large, rearwards facing CRS, and a 6 year old child placed on the front passenger seat(s).