
**Road vehicles — Test procedures —
Evaluating small female dummy arm and
forearm interactions with driver frontal
airbags and side airbags**

*Véhicules routiers — Méthodes d'essai — Évaluation des interactions
du bras et de l'avant-bras du mannequin femme de petite taille avec les
sacs gonflables conducteur frontal et latéral*

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Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions.....	1
4 Test devices	2
4.1 Hybrid III small female dummy	2
4.2 SID-IIs small adult/adolescent side impact dummy	2
4.3 SAE small female instrumented arm and the enhanced airbag interaction arm	3
5 Instrumentation.....	3
5.1 Hybrid III small female dummy	3
5.2 SID-IIs small adult/adolescent side impact dummy	3
5.3 SAE small female instrumented arm	3
5.4 Impact response measurements.....	3
5.5 Dummy injury criteria	3
6 Condition of the test vehicle.....	5
6.1 General conditions	5
6.2 Seat adjustment	6
6.3 Steering wheel adjustment	6
6.4 Pedal adjustment	6
6.5 Dummy test temperature	6
6.6 Electrical grounding	6
7 Test configurations.....	6
7.1 Driver frontal airbag tests	6
7.2 Side airbag static deployment tests	8
8 Test procedure	9
Bibliography	10

Foreword

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Introduction

Driver frontal airbags and side airbags are inflatable devices intended to help reduce the risk of injury to the head and/or the chest and/or the pelvis of vehicle occupants. During its inflation process an airbag generates a considerable amount of energy and, as a result, substantial forces can be developed between the deploying airbag and the nearby occupant. Preliminary laboratory tests indicate that these forces can potentially, in certain circumstances, be sufficient to injure the vehicle occupant. A considerable but unknown portion of the occupant population does not drive/ride in exactly the vehicle design position, but rather leans/rests in various ways against the steering wheel, armrest, door or vehicle side interior, where airbag reaction forces can be particularly high. Through normal occupant preferences or during turning manoeuvres, the hand/forearm can be in various locations on/across the steering wheel rim, and thus interact with a deploying driver frontal airbag. These test procedures were developed to improve the understanding of such interactions and to help aid in the assessment of future airbag designs.

References [2], [4], [5], [8], [9], [12], [13] and [18] in the bibliography give some background on human impact tolerance and criteria, while references [15] and [17] describe scaling techniques for different size occupants and offer interpretations of dummy responses relative to human injury potential that might be helpful in the evaluation. References [1], [3], [7], [10], [11], [14], [16] and [19-22] describe the dummies used, and references [6] and [23] describe the filtering techniques used, in this test procedure.

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