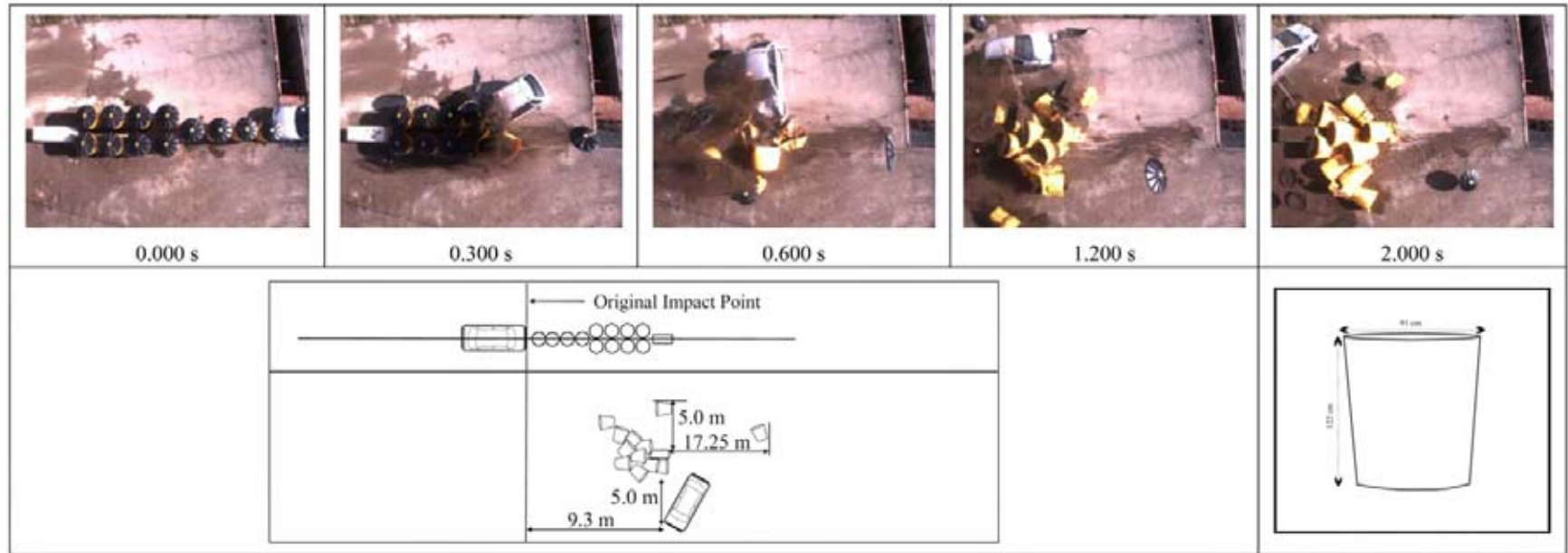


NCHRP-350 Test Level 3

Test 3-40



General Information

Test Agency	Transportation Research Center Inc. (TRC Inc.)
Test No.	061120
Date	November 20, 2006
Test Article	Sand barrel array
Type	Plastic Safety Systems, Inc.
Manufacturer	12 individual portable sand filled barrels, each being 122 cm high with a 91 cm diameter
Size and/or dimension and material of key elements	N/A
Soil Type and Condition	N/A
Test Vehicle	Production Model
Type	Passenger car
Designation	2000 Chevrolet Metro LSi
Model	
Mass (kg)	845.5
Curb	843.8
Test Inertial	76.0
Dummy(s)	919.8
Gross Static	

Impact Conditions

Speed (km/h)	101.8
Angle (deg)	0
Exit Conditions	
Speed (km/h)	N/A
Angle (deg)	N/A
Occupant Risk Values	
Impact Velocity (m/s)	
x-direction	9.6
y-direction	0.7
THIV (optional)	34.79 km/h
Ridedown Acceleration (g's)	
x-direction	9.5
y-direction	2.1
PHD (optional)	9.65 g
ASI (optional)	0.79
Max. 0.050 -s Average (g's)	
x-direction	-8.7
y-direction	1.5
z-direction	2.7

Test Article Deflections (m)

Dynamic	17.25
Permanent	17.25

Vehicle Damage

Exterior	
VDS	N/A
CDC	12FZEW2
Interior	
OCDI	RS0000000
Maximum Exterior Vehicle Crush (mm)	
Max. Occ. Compart. Deformation (mm)	40

Post-Impact Vehicular Behavior

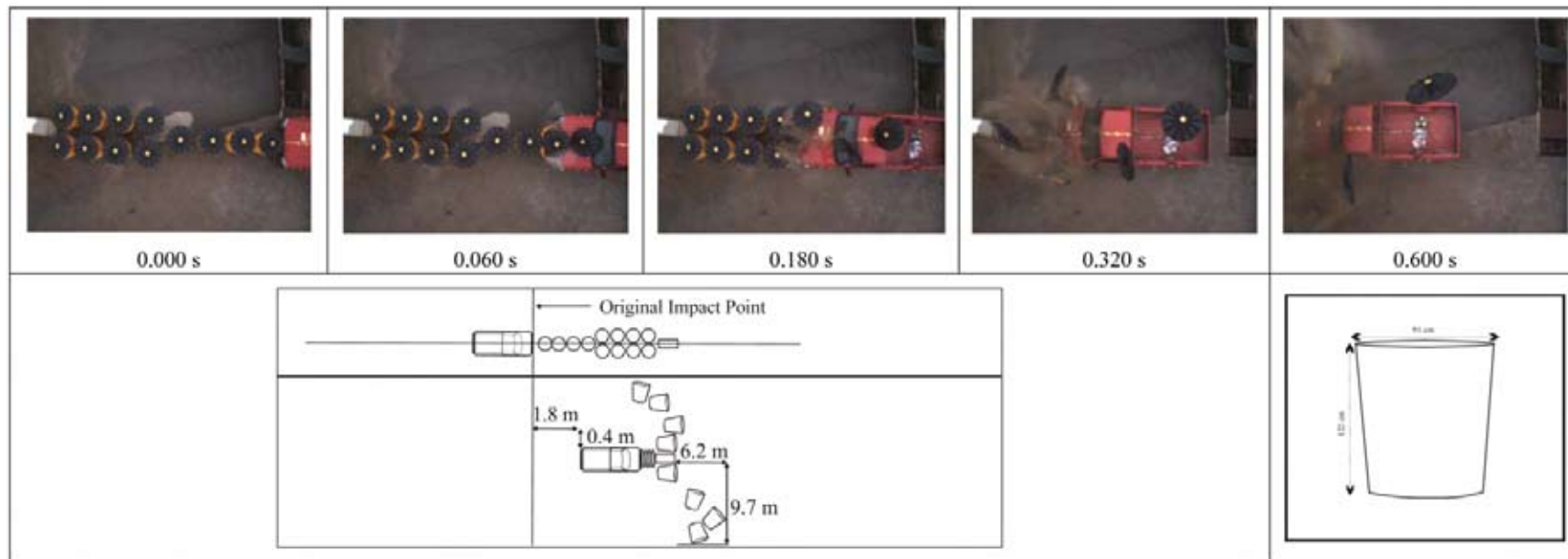
Maximum Roll Angle (deg)	-31.6
Maximum Pitch Angle (deg)	-23.9
Maximum Yaw Angle (deg)	-228.2

Vehicle Trajectory Post Test

The impacting vehicle's final most outer right trajectory did not stay within twelve feet of the barrier. Assuming that the barrier was at the right edge of the lane, the vehicle would not have stayed within a 12-foot lane width to the right.

NCHRP-350 Test Level 3

Test 3-41



General Information

Test Agency	Transportation Research Center Inc. (TRC Inc.)
Test No.	061111
Date	November 11, 2006
Test Article	Sand barrel array
Type	Plastic Safety Systems, Inc.
Manufacturer	12 individual portable sand filled barrels, each being 122 cm high with a 91 cm diameter
Size and/or dimension and material of key elements	N/A
Soil Type and Condition	Production Model
Test Vehicle	2000P
Type	2002 GMC Sierra 2500
Designation	
Model	
Mass (kg)	2285.0
Curb	2031.7
Test Inertial	0.0
Dummy(s)	2031.7
Gross Static	

Impact Conditions

Speed (km/h)	101.2
Angle (deg)	0
Exit Conditions	
Speed (km/h)	N/A
Angle (deg)	N/A
Occupant Risk Values	
Impact Velocity (m/s)	
x-direction	8.9
y-direction	0.4
THIV (optional)	32.24 km/h
Ridedown Acceleration (g's)	
x-direction	11.46
y-direction	1.6
PHD (optional)	11.54 g
ASI (optional)	0.68
Max. 0.050 -s Average (g's)	
x-direction	-7.7
y-direction	-0.9
z-direction	-2.8

Test Article Deflections (m)

Dynamic	9.69
Permanent	9.69

Vehicle Damage

Exterior	
VDS	N/A
CDC	12FZEW2
Interior	
OCDI	LF0000000
Maximum Exterior	
Vehicle Crush (mm)	167
Max. Occ. Comp.	
Deformation (mm)	6

Post-Impact Vehicular Behavior

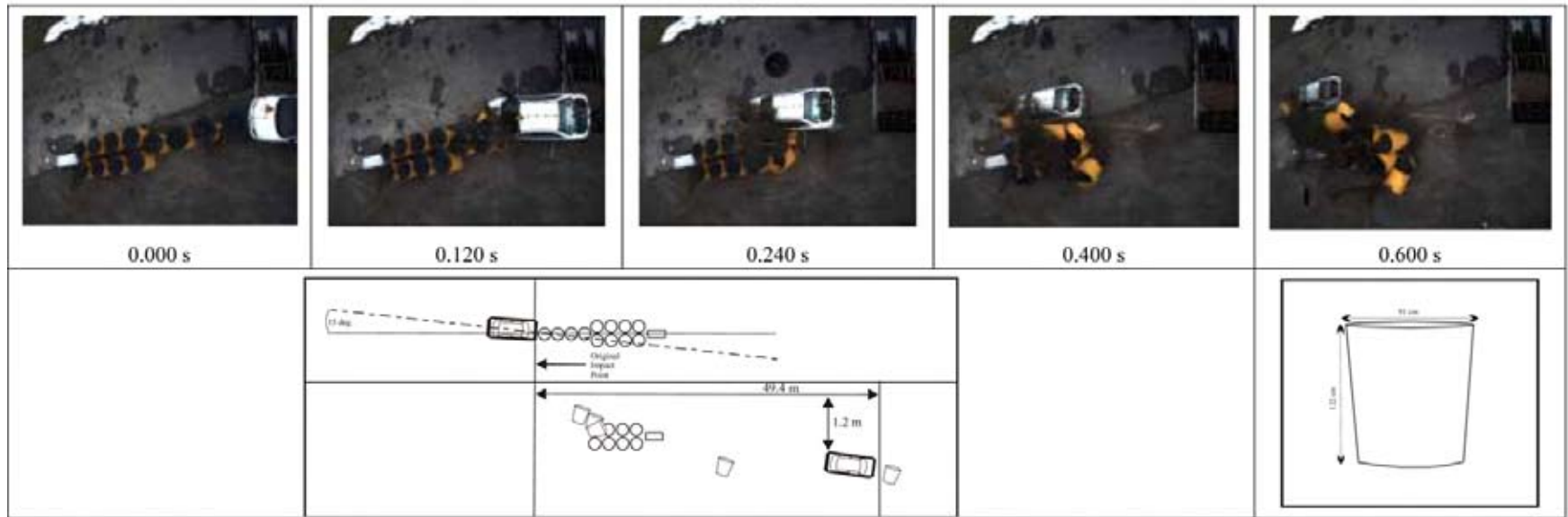
Maximum Roll Angle (deg)	-7.73
Maximum Pitch Angle (deg)	-6.04
Maximum Yaw Angle (deg)	-9.79

Vehicle Trajectory Post Test

The impacting vehicle's final most outer left trajectory stayed within twelve feet of the barrier. Assuming that the barrier was at the edge of the lane, the vehicle would have stayed within a 12-foot lane width.

NCHRP-350 Test Level 3

Test 3-42



General Information

Test Agency	Transportation Research Center Inc. (TRC Inc.)
Test No.	051227
Date	December 27, 2005
Test Article	
Type	Sand barrel array
Manufacturer	Plastic Safety Systems, Inc.
Size and/or dimension and material of key elements	12 individual portable sand filled barrels, each being 122 cm high with a 91 cm diameter
Soil Type and Condition	N/A
Test Vehicle	
Type	Production Model
Designation	820C
Model	2001 Chevrolet Metro
Mass (kg)	
Curb	895.5
Test Inertial	843.6
Dummy(s)	73.0
Gross Static	919.6

Impact Conditions

Speed (km/h)	101.3
Angle (deg)	15
Exit Conditions	
Speed (km/h)	N/A
Angle (deg)	N/A
Occupant Risk Values	
Impact Velocity (m/s)	
x-direction	8.2
y-direction	1.4
THIV (optional)	N/A
Ridedown Acceleration (g's)	
x-direction	4.7
y-direction	2.8
PHD (optional)	N/A
ASI (optional)	N/A
Max. 0.050 -s Average (g's)	
x-direction	N/A
y-direction	N/A
z-direction	N/A

Test Article Deflections (m)

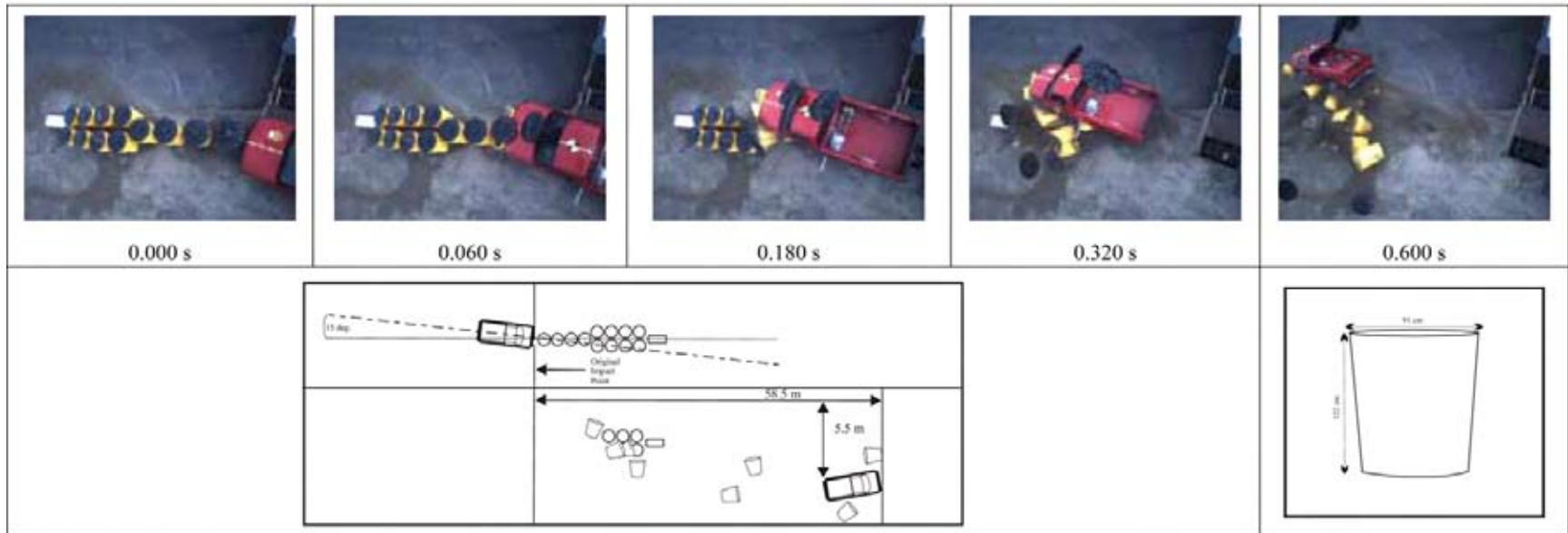
Dynamic	50.0
Permanent	50.0
Vehicle Damage	
Exterior	
VDS	N/A
CDC	12FZEW2
Interior	
OCDI	FS0000000
Maximum Exterior	
Vehicle Crush (mm)	111
Max. Occ. Compart.	
Deformation (mm)	12
Post-Impact Vehicular Behavior	
Maximum Roll Angle (deg)	7.6
Maximum Pitch Angle (deg)	-6.1
Maximum Yaw Angle (deg)	-7.4

Vehicle Trajectory Post Test

The impacting vehicle's final most outer left trajectory stayed within twelve feet of the barrier. Assuming that the barrier was at the edge of the lane, the vehicle would have stayed within a 12-foot lane width.

NCHRP-350 Test Level 3

Test 3-43



General Information

Test Agency	Transportation Research Center Inc. (TRC Inc.)
Test No.	051228
Date	December 28, 2005
Test Article	
Type	Sand barrel array
Manufacturer	Plastic Safety Systems, Inc.
Size and/or dimension and material of key elements	12 individual portable sand filled barrels, each being 122 cm high with a 91 cm diameter
Soil Type and Condition	N/A
Test Vehicle	
Type	Production Model
Designation	2000P
Model	2000 Chevrolet Silverado
Mass (kg)	
Curb	2238.0
Test Inertial	2027.0
Dummy(s)	0.0
Gross Static	2027.0

Impact Conditions

Speed (km/h)	101.9
Angle (deg)	15
Exit Conditions	
Speed (km/h)	N/A
Angle (deg)	N/A
Occupant Risk Values	
Impact Velocity (m/s)	
x-direction	8.0
y-direction	0.9
THIV (optional)	N/A
Ridedown Acceleration (g's)	
x-direction	3.6
y-direction	2.2
PHD (optional)	N/A
ASI (optional)	N/A
Max. 0.050-s Average (g's)	
x-direction	N/A
y-direction	N/A
z-direction	N/A

Test Article Deflections (m)

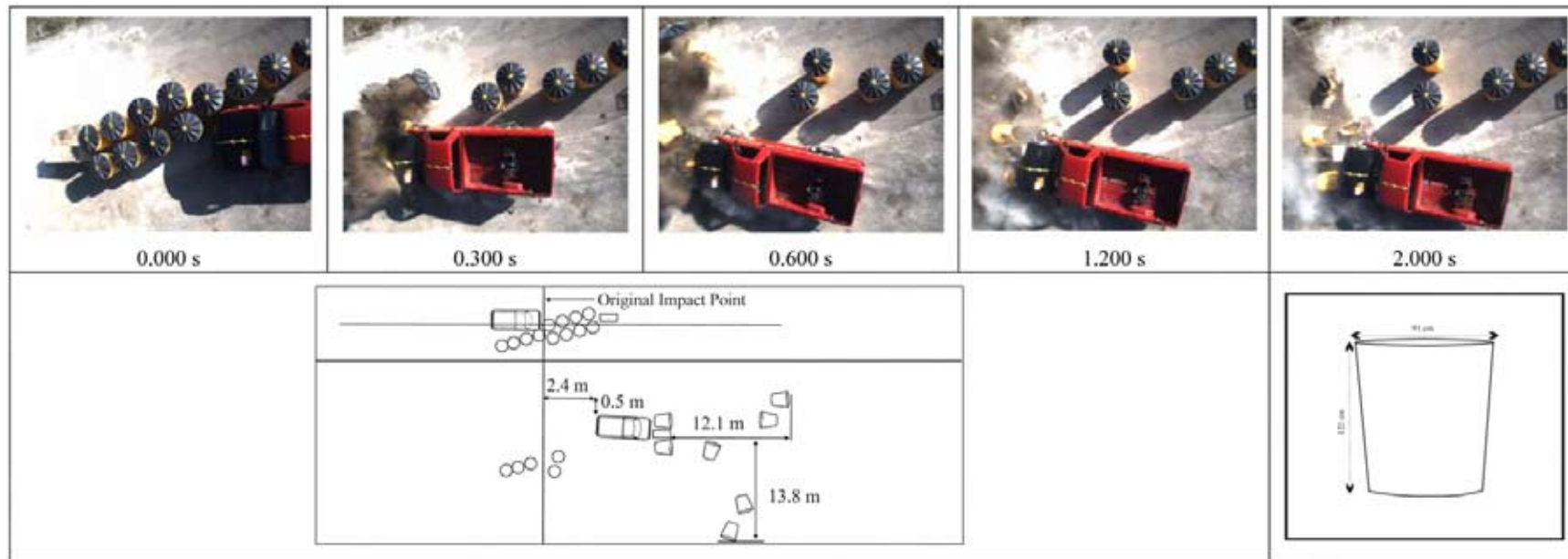
Dynamic	58.5
Permanent	58.5
Vehicle Damage	
Exterior	
VDS	N/A
CDC	12FZEW2
Interior	
OCDI	FS0000000
Maximum Exterior	
Vehicle Crush (mm)	201
Max. Occ. Compart.	
Deformation (mm)	7
Post-Impact Vehicular Behavior	
Maximum Roll Angle (deg)	45.6
Maximum Pitch Angle (deg)	7.6
Maximum Yaw Angle (deg)	12.2

Vehicle Trajectory Post Test

The impacting vehicle's final most outer left trajectory did not stay within twelve feet of the barrier. Assuming that the barrier was at the edge of the lane, the vehicle would not have stayed within a 12-foot lane width.

NCHRP-350 Test Level 3

Test 3-44



General Information

Test Agency	Transportation Research Center Inc. (TRC Inc.)
Test No.	061205
Date	December 5, 2006
Test Article	Sand barrel array
Type	Plastic Safety Systems, Inc.
Manufacturer	12 individual portable sand filled barrels, each being 122 cm high with a 91 cm diameter
Size and/or dimension and material of key elements	N/A
Soil Type and Condition	
Test Vehicle	
Type	Production Model
Designation	2000P
Model	2002 GMC Sierra 2500
Mass (kg)	
Curb	2285.0
Test Inertial	2028.8
Dummy(s)	0.0
Gross Static	2028.8

Impact Conditions

Speed (km/h)	102.3
Angle (deg)	20
Exit Conditions	
Speed (km/h)	N/A
Angle (deg)	N/A
Occupant Risk Values	
Impact Velocity (m/s)	
x-direction	12.5
y-direction	0.9
THIV (optional)	45.0 g
Ridedown Acceleration (g's)	
x-direction	14.1
y-direction	3.2
PHD (optional)	14.6 g
ASI (optional)	1.29
Max. 0.050 -s Average (g's)	
x-direction	-15.1
y-direction	-1.5
z-direction	

Test Article Deflections (m)

Dynamic	13.84
Permanent	13.84

Vehicle Damage

Exterior	
VDS	N/A
CDC	12FDEW2
Interior	
OCDI	RF0000000
Maximum Exterior	
Vehicle Crush (mm)	465
Max. Occ. Comp.	
Deformation (mm)	0

Post-Impact Vehicular Behavior

Maximum Roll Angle (deg)	-10.25
Maximum Pitch Angle (deg)	-5.27
Maximum Yaw Angle (deg)	18.19

Vehicle Trajectory Post Test

The impacting vehicle's final most outer right trajectory stayed within twelve feet of the barrier. Assuming that the barrier was at the right edge of the lane, the vehicle would have stayed within a 12-foot lane width to the right.