

U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
LABORATORY TEST PROCEDURE

FOR

FMVSS No. 214, DYNAMIC SIDE IMPACT PROTECTION

-Moving Deformable Barrier Impact Test Requirements-

**APPENDIX A  
DATA SHEETS**



**ENFORCEMENT**  
**Office of Vehicle Safety Compliance**  
**Mail Code: NVS-220**  
1200 New Jersey Ave. SE  
**Washington, DC 20590**

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### DATA SHEET NO. 1 TEST VEHICLE INFORMATION AND OPTIONS

Test Vehicle: \_\_\_\_\_  
Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
Test Date: \_\_\_\_\_

Test Vehicle Information	
Make	
Model	
Body Style	
VIN	
Body Color	
Engine Disp (liters)	
Number of Cylinders	
Engine Placement	
Transmission Type	
Transmission Speeds	
Overdrive	
Final Drive	
Odometer Reading	

Optional Equipment	
Anti-lock Brakes (ABS)	
All-Wheel Drive (AWD)	
Traction Control System (TCS)	
Electronic Stability Control (ECS)	
Side Curtain Airbags	
Torso Airbag - Front seats	
Torso Airbag - Rear seats	
Combination/Head Torso Bag	
Pelvic Airbag - Front seats	
Pelvic Airbag - Rear seats	
Knee Airbag – Driver	
Knee Airbag - Front Passenger	
Seat belt pretensioners - Front seats	
Seat belt pretensioners - Rear seats	
Seat belt load limiters - Front seats	
Seat belt load limiters - Rear seats	
Tire pressure monitoring system (TPMS)	
Tilt Steering Wheel	
Automatic Door Locks (ADL)	
Power Window Auto-reverse	
Power Seats	

#### CERTIFICATION LABEL DATA

Manufactured by	
Date of Manufacture	
Vehicle Type	

GVWR (kg)	
GAWR Front (kg)	
GAWR Rear (kg)	

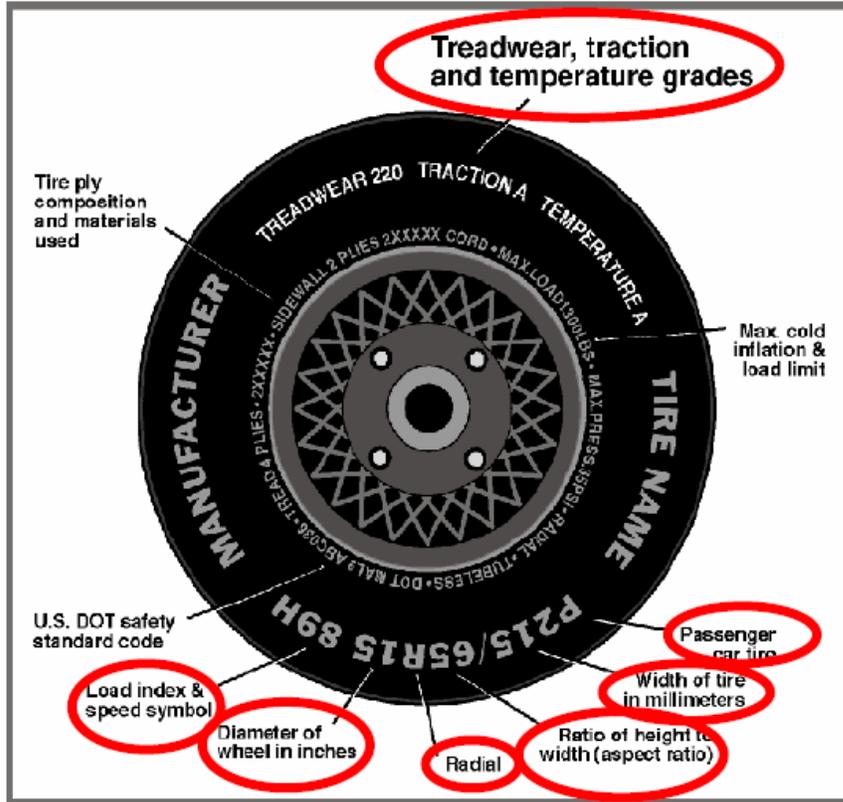
#### VEHICLE SEATING AND CAPACITY WEIGHT DATA

	Front	Rear	Third	Total
Type of Seats (Bench or Bucket)				
Number of Occupants (DSC)				
Vehicle Capacity Weight (VCW) (kg)				
Cargo Weight (RCLW) (kg)				

## DATA SHEET NO. 2 VEHICLE TIRE INFORMATION

Test Vehicle: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
 Test Date: \_\_\_\_\_



Tire Placard	Front	Rear
Recommended Cold Pressure (kPa)		
Recommended Tire Size		
Tire Sidewall		
Maximum Tire Pressure (kPa)		
Tire Size on Vehicle		
Tire Manufacturer Model		
Tire Name		
Tire Type		
Tire Width		
Aspect Ratio		
Radial		
Wheel Diameter		
Load Index/Speed Symbol		
Treadwear		
Traction Grade		
Temperature Grade		

**DATA SHEET NO. 3  
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: \_\_\_\_\_ NHTSA No.: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_ Test Date: \_\_\_\_\_

**TIRE PRESSURES**

	Units	LF	RF	LR	RR
As Delivered	kpa				
As Tested	kpa				

**TEST VEHICLE WEIGHTS**

	Units	As Delivered			Fully Loaded			As Tested		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg									
Right	kg									
Ratio	%									
Totals	kg									

**TEST VEHICLE TARGET WEIGHT (TVTW) CALCULATION**

Measured Parameter	Value (kg)
As Delivered Weight	
Weight of 2 P572 ATDS	
Rated Cargo/Luggage Weight (RCLW)	
Calculated Target Vehicle Test Weight (TVTW)	

**TEST VEHICLE ATTITUDES**

Wheel Opening Location	Distance (grd to ref. point above wheel opening in mm)		Diff (Δ mm)	Met Reqmnt (Δ ≤ 10 mm)
	Fully Loaded	As Tested		
Left Front				
Right Front				
Left Rear				
Right Rear				

**WEIGHT of BALLAST and VEHICLE COMPONENTS REMOVED TO MEET TVTW**

Description of Component	Weight (kg)
Ballast (if any)	

**CALCULATION OF THE VERTICAL IMPACT REFERENCE LINE**

Measured Parameter	Distance (mm)
Test Vehicle Wheel Base	
Vertical Impact Reference Line Aft of Front Axle	

**DATA SHEET NO. 4  
SEAT AND SEAT BELT ADJUSTMENT DATA**

Test Vehicle: \_\_\_\_\_  
Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
Test Date: \_\_\_\_\_

**NORMAL DESIGN RIDING POSITION  
(ES-2re Only)**

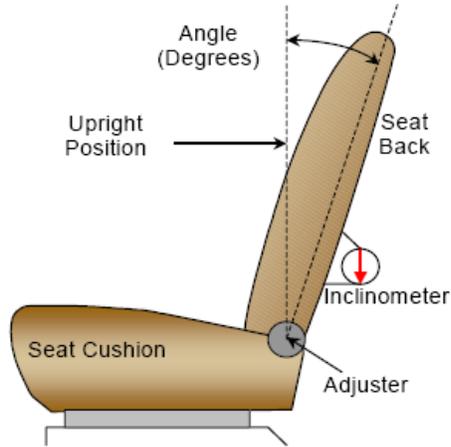
The driver and passenger seat backs are positioned to the manufacturer's designated angle. The procedure is as follows:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**SEAT BACK ANGLE** \_\_\_\_\_°



*FRONT SEAT ASSEMBLY*

	SCRL Mid-Angle° (7.5)		SCRCP Height (mm)		
			Rearmost (7.10)	Mid-fore/aft (7.12)	Full forward (7.14)
Driver		Max			
		Mid			
		Min			
Front Passenger		Max			
		Mid			
		Min			
Rear Passenger		Max			
		Mid			
		Min			

**SEAT FORE/AFT POSITIONING**

Seat	Total Fore/Aft Travel	Placed in Position #
Driver		
Front Passenger		
Rear Passenger		

**SEAT BELT UPPER ANCHORAGE**

Seat	Total # of Positions	Placed in Position #
Driver/Front Passenger		
Rear Passenger		

**HEAD RESTRAINT**

Seat	Total # of Positions	Placed in Position #
Driver/Front Passenger		
Rear Passenger		

## DATA SHEET NO. 5 FUEL SYSTEMS AND STEERING WHEEL POSITION DATA

Test Vehicle: \_\_\_\_\_ NHTSA No.: \_\_\_\_\_  
 Test Program: \_\_\_\_\_ Test Date: \_\_\_\_\_

### FUEL TANK CAPACITY

	Liters
Usable Capacity (Form 1)	
Usable Capacity (Owner's Manual)	
92-94% of Usable Capacity	
Actual Amount of Solvent Used	

### FUEL PUMP OPERATION

Describe the operation of the fuel pump.

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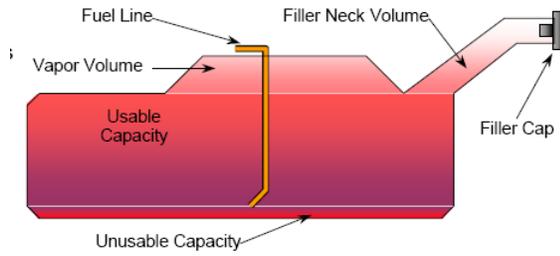
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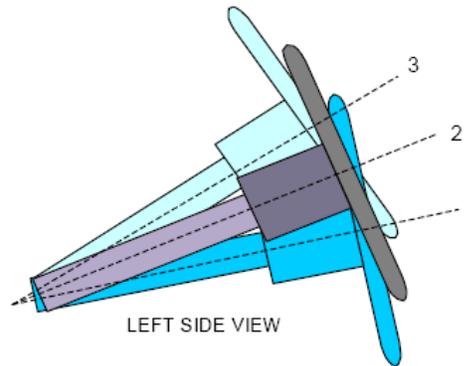
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VEHICLE FUEL TANK ASSEMBLY

### STEERING COLUMN ADJUSTMENT

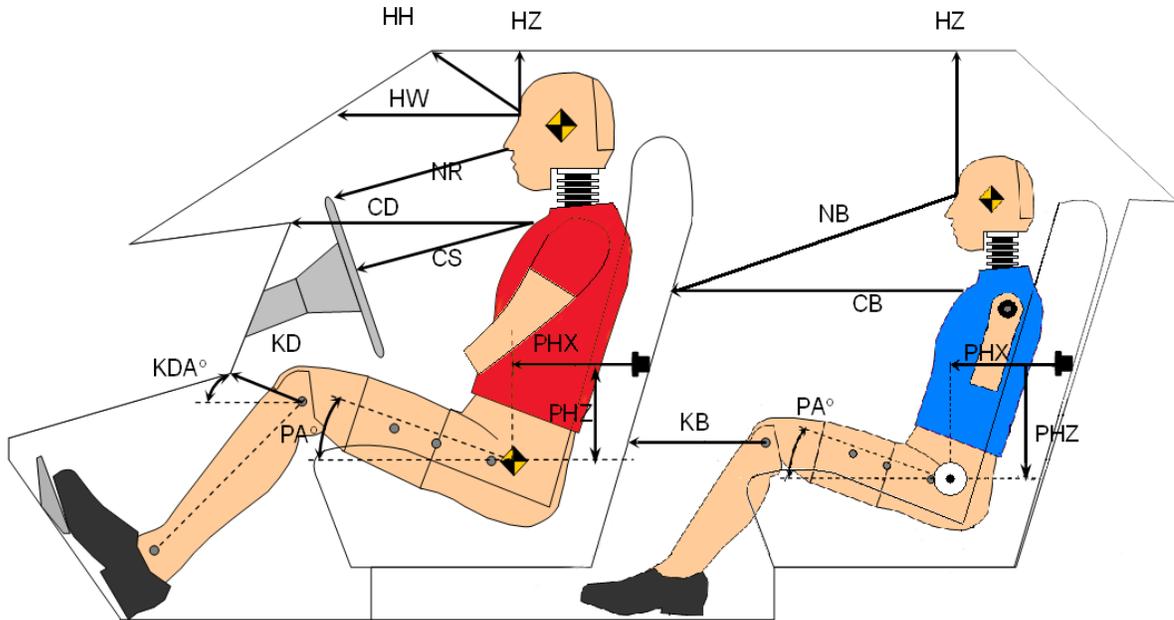


STEERING COLUMN ASSEMBLY

	Degrees	Fore/Aft Position (mm)
Lowermost - Position 1		
Geometric Center – Position 2		
Uppermost – Position 3		
Telescoping Steering Wheel Travel		
Test Position		

## DATA SHEET NO. 6 DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: \_\_\_\_\_ NHTSA No.: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_ Test Date: \_\_\_\_\_



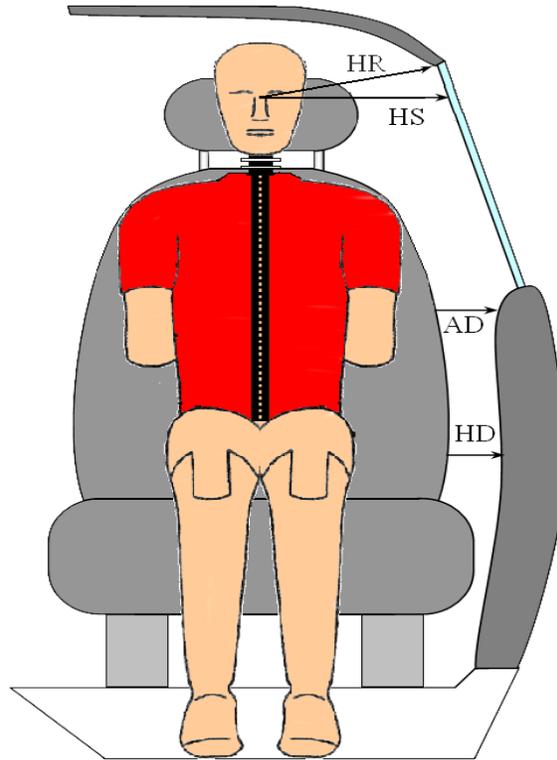
**NOTE:** 4-door vehicle shown. Rear dummy PHX and PHZ measurements for a 2-door vehicle would use the B-post striker as a reference point.

Driver Code	Rear Occupant Code	Measurement Description	ES2-re		SID-IIs	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header				
HW		Header to Windshield				
HZ	HZ	Head to Roof				
NR	NB	Nose to Rim/Seat Back				
CD	CB	Chest to Dash/Seat Back				
CS		Chest to Steering Wheel				
KDL	KBL	Left Knee to Dash/Seat Back				
KDR	KBR	Right Knee to Dash/Seat Back				
PA(X)	PA(X)	Pelvic Angle				
PA(Y)		Pelvic Angle				
PHX	PHX	H-Point to Striker (X-Axis)				
PHZ	PHZ	H-Point to Striker (Z-Axis)				

**DATA SHEET NO. 7  
DUMMY LATERAL CLEARANCE DIMENSIONS**

Test Vehicle: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
 Test Date: \_\_\_\_\_

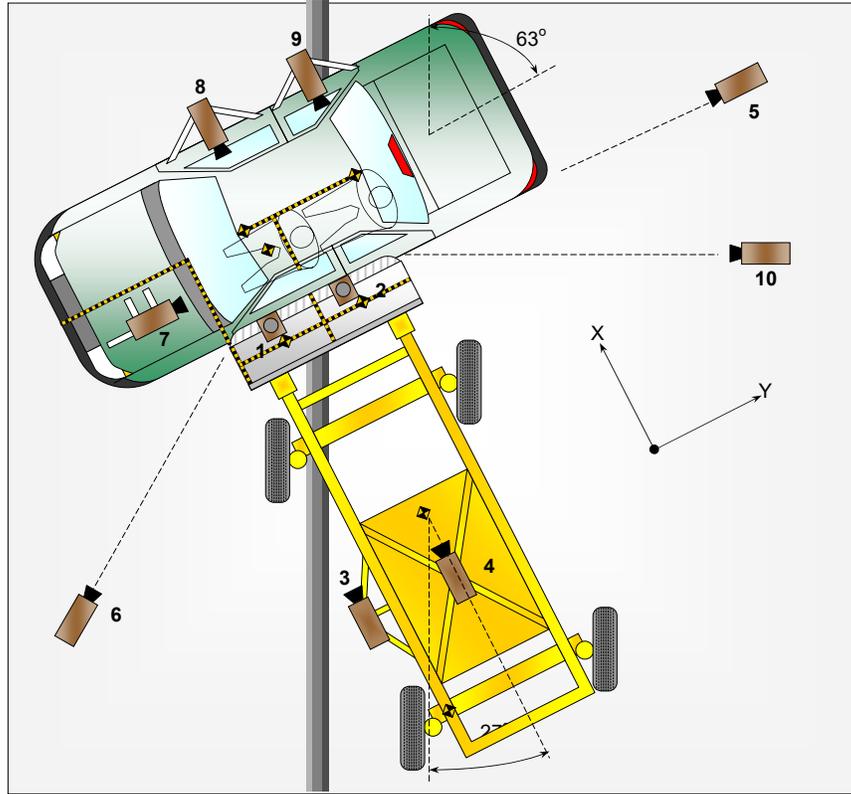


Code	Description	Units	Front Occupant	Rear Occupant
HR	Head to Side Header	mm		
HS	Head to Side Window	mm		
AD	Arm to Door	mm		
HD	H-point to Door	mm		

## DATA SHEET NO. 8 LOCATION OF CAMERAS

Test Vehicle: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
 Test Date: \_\_\_\_\_



No.	Camera View	Location			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Overall					
2	Overhead Close-up					
3	Impact Point Close-up (MDB)					
4	Centerline of Impact (MDB)					
5	Right Side View					
6	Left Side View					
7	Front Seat Occupant - Frontal View (OB)					
8	Front Seat Occupant - Side View (OB)					
9	Rear Passenger - Side View (OB)					
10	Real Time Coverage					

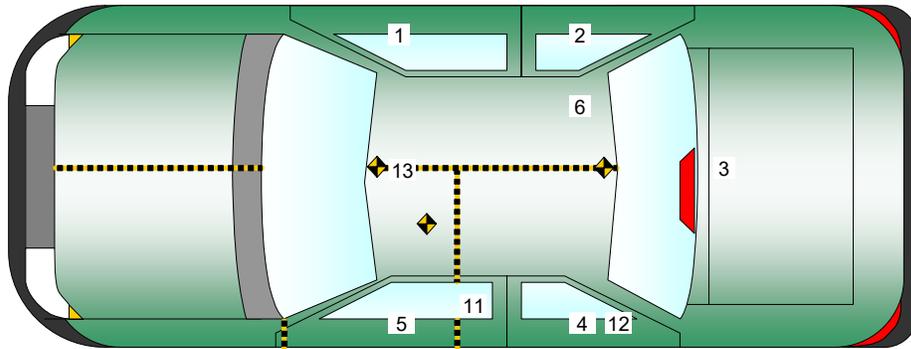
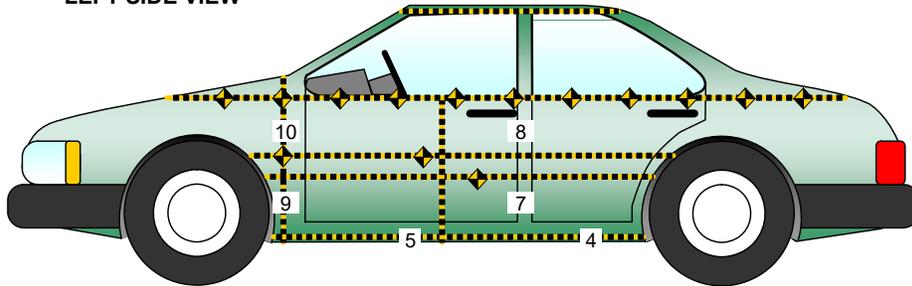
Reference: Impact Point projected to Ground  
 +X = To Front of MDB, +Y = To Right of MDB, +Z = Down

## DATA SHEET NO. 9 TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
 Test Date: \_\_\_\_\_

**LEFT SIDE VIEW**



Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Left (or Rt) Sill at Front Seat			
2	Left (or Rt.) Sill at Rear Seat			
3	Rear Floorpan Above Axle			
4	Left (or Rt.) Sill at Rear Door			
5	Left (or Rt.) Sill at Front Door			
6	Left (or Rt.) Rear Occ. Compartment			
7	Left (or Rt.) B-Post Lower			
8	Left (or Rt.) B-Post Middle			
9	Left (or Rt.) A-Post Lower			
10	Left (or Rt.) A-Post Middle			
11	Front Seat Track			
12	Rear Seat Track or Structure			
13	Vehicle CG			

X – Test Vehicle Rear Bumper (+ forward)  
 Y – Test Vehicle Centerline (+ to right)  
 Z – Ground Plane (+ down)

**DATA SHEET NO. 10  
TEST VEHICLE ACCELEROMETER DATA SUMMARY**

Test Vehicle: \_\_\_\_\_  
Test Facility: \_\_\_\_\_

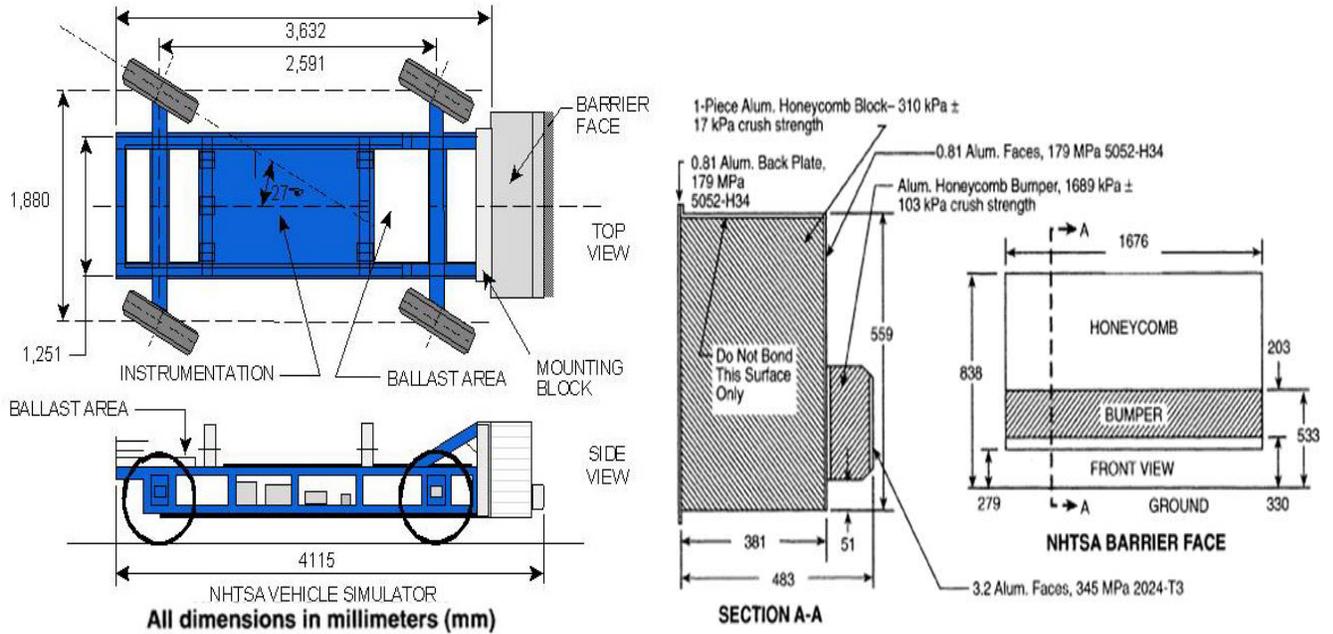
NHTSA No.: \_\_\_\_\_  
Test Date: \_\_\_\_\_

Loc. No	Description	Peak Values (g's)			
		Max	Time (ms)	Min	Time (ms)
1	Left (or Rt.) Sill at Front Seat (X)				
	(Y)				
	(Z)				
	Resultant				
2	Left (or Rt.) Sill at Rear Seat (X)				
	(Y)				
	(Z)				
	Resultant				
3	Rear Floor Pan Above Axle (X)				
	(Y)				
	(Z)				
	Resultant				
4	Left (or Rt.) Sill at Rear Door (Y)				
5	Left (or Rt.) Sill at Front Door (Y)				
6	Left (or Rt.) Rear Occ. Compartment(Y)				
7	Left (or Rt.) B-Post Lower (Y)				
8	Left (or Rt.) B-Post Middle (Y)				
9	Left (or Rt.) A-Post Lower (Y)				
10	Left (or Rt.) A-Post Middle (Y)				
11	Front Seat Track (Y)				
12	Rear Seat Track or Structure (Y)				
13	Vehicle CG (X)				
	(Y)				
	(Z)				
	Resultant				

## DATA SHEET NO. 11 MOVING DEFORMABLE BARRIER (MDB) SPECIFICATIONS

Test Vehicle: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
 Test Date: \_\_\_\_\_



### MDB SPECS

Measurement	Unit	Requirement	Value
<b>HONEYCOMB FACE</b>			
Width	mm	1670 – 1682	
Height	mm	553 – 665	
Ground Clearance	mm	276 – 282	
Depth at Bumper Height	mm	477 – 489	
Depth at upper impact face	mm	375 - 387	
<b>MDB CARRIAGE</b>			
Overall Width of the Framework Carriage	mm	1241 – 1261	
Overall length including honeycomb face	mm	4140 – 4090	
Wheelbase of Framework Carriage	mm	2566 – 2616	
Center of gravity location aft of front axle	mm		
Front Axle Weight	kg		
Rear Axle Weight	kg		
Total Weight	kg	1356.5 – 1365.5	
Crabbed angle	°	27° ± 1°	

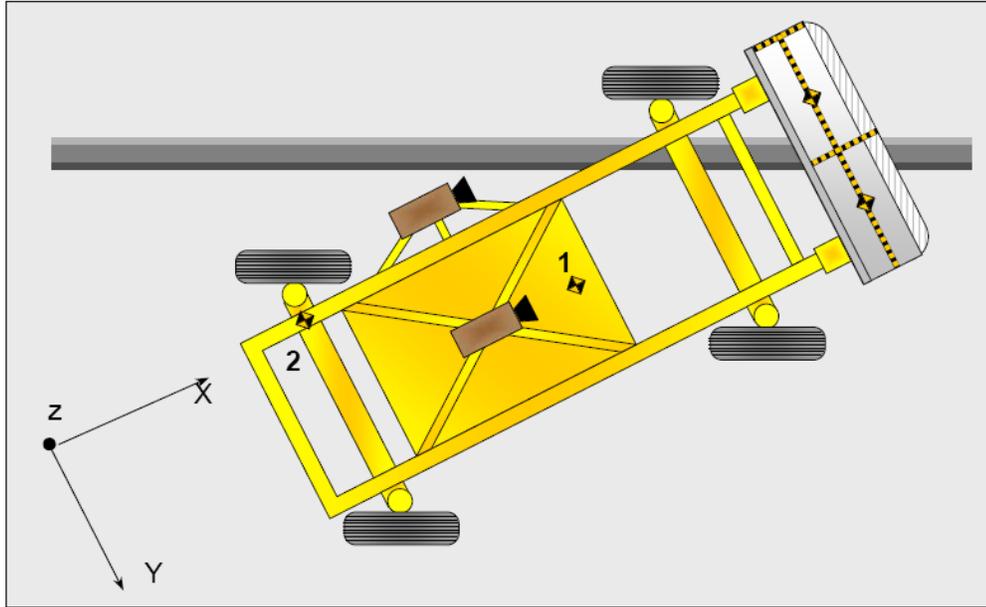
### MDB TIRE DATA

	RF	LF	RR	LR	Requirement
Tire Size					P205/75R15
Tire Pressure (kpa)					200 +/- 21 kPa

## DATA SHEET NO. 12 MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
 Test Date: \_\_\_\_\_



No.	Accelerometer Location	Coordinates (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	MDB CG				X				
					Y				
					Z				
					RES				
2	MDB Rear				X				
					Y				

Reference: +X = Rearward    +Y = To Right    +Z = Up

**DATA SHEET NO. 13  
DUMMY INJURY RESPONSE DATA  
(Subpart U, ES-2re)**

Test Vehicle: \_\_\_\_\_ NHTSA No.: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_ Test Date: \_\_\_\_\_

DUMMY Serial # _____	Positive		Negative	
	MAX	TIME (ms)	MAX	TIME (ms)
<b>HEAD ACCELERATION (g)</b>				
Longitudinal (X)				
Lateral (Y)				
Vertical (Z)				
Resultant (R)				
HIC36 (t1, t2)			<b>t1 =</b>	<b>t2 =</b>
<b>THORAX DEFLECTION (mm)</b>				
Upper Rib				
Middle Rib				
Lower Rib				
<b>ABDOMINAL FORCES (N)</b>				
Front				
Middle				
Rear				
SUM				
<b>PELVIS FORCE (N)</b>				
Pubic Symphysis (Y)				

Reference: Positive Direction - Longitudinal (X) = forward  
 - Lateral (Y) = to right  
 - Vertical (Z) = down

**DATA SHEET NO. 13  
DUMMY INJURY RESPONSE DATA  
(Subpart V, SIDIIs)**

Test Vehicle: \_\_\_\_\_  
Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
Test Date: \_\_\_\_\_

<b>DUMMY Serial No.</b> _____				
	<b>Positive</b>		<b>Negative</b>	
	<b>MAX</b>	<b>TIME (ms)</b>	<b>MAX</b>	<b>TIME (ms)</b>
<b>HEAD ACCELERATION (g)</b>				
Longitudinal (X)				
Lateral (Y)				
Vertical (Z)				
Resultant (R)				
HIC36 (t1, t2)			<b>t1 =</b>	<b>t2 =</b>
<b>LOWER SPINE (g)</b>				
Longitudinal (X)				
Lateral (Y)				
Vertical (Z)				
Resultant (R)				
<b>PELVIS FORCE (N)</b>				
Acetabular				
Iliac				

**DATA SHEET NO. 14  
POST TEST OBSERVATIONS**

Test Vehicle: \_\_\_\_\_ NHTSA No.: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_ Test Date: \_\_\_\_\_

**DUMMY CONTACT INFORMATION**

Description	Front Occupant	Rear Occupant
Head Contact		
Upper Torso Contact		
Lower Torso Contact		
Left Knee Contact		
Right Knee Contact		

**POST TEST DOOR OPENING AND SEAT TRACK INFORMATION**

		Front	Rear	Hatch
Struck Doors	Total separation from vehicle at the hinges or latches			
Non-Struck Doors	Disengaged from latched position			
	Latch separated from striker			
	Hinge components separated from each other			
	Latch or hinge systems pulled out of their anchorages			
Seat	Seat track remained attached to the floor pan			
	Seat back moved from initial position			

**DOOR AND DOOR PERFORMANCE\*\***

	Observation
Struck Door	
Non-Struck Door – Front(Left/Right)	
Non-Struck Door – Right Rear	
Non-Struck Door – Left Rear	
Non-Struck Door – Rear Hatch	

**POST TEST STRUCTURAL OBSERVATIONS**

	Observation
Pillar Performance	
Sill Separation	
Windshield Damage	
Side Window Damage	

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

Restraint Type	Front Occupant		Rear Occupant	
	Installed	Deployed	Installed	Deployed
Front Airbag				
Side Torso Airbag				
Head Airbag				
Curtain Airbag				
Seat Belt Pretensioner				
Seat Belt Load Limiter				

**DATA SHEET NO. 14 (Continued)  
POST TEST OBSERVATIONS**

Test Vehicle: \_\_\_\_\_ NHTSA No.: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_ Test Date: \_\_\_\_\_

**SPEED AND IMPACT ANGLE DATA**

	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	52.9 ± 0.8	
Trap No. 2 Velocity (Redundant)	km/h	52.9 ± 0.8	
MDB C/L to Target Vehicle C/L	Degrees	90° ± 1.5°	

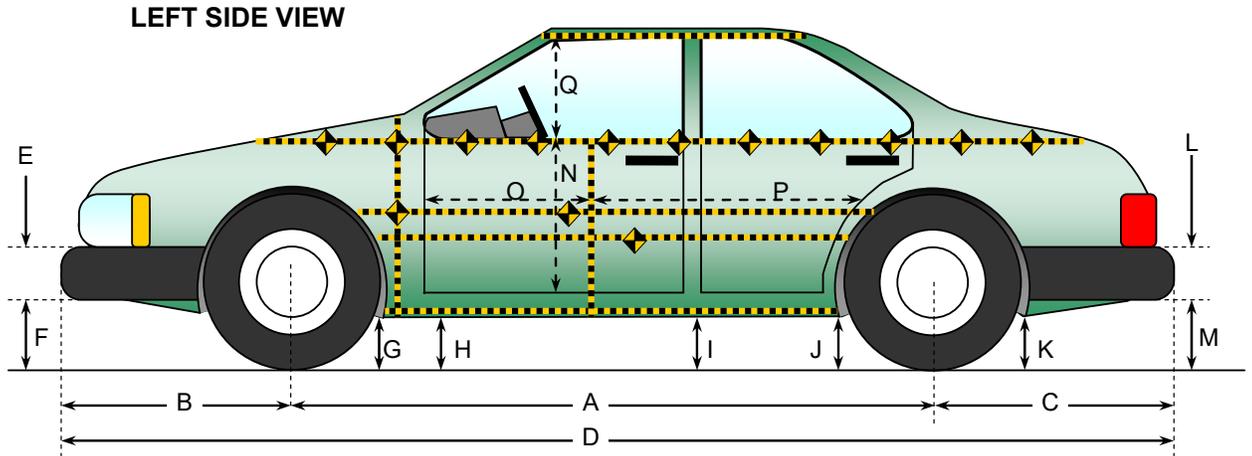
**MDB IMPACT POINT DATA**

	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	
Vertical Offset	mm	+/- 20	

## DATA SHEET NO. 15 VEHICLE PRETEST AND POST TEST MEASUREMENTS

Test Vehicle: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
 Test Date: \_\_\_\_\_

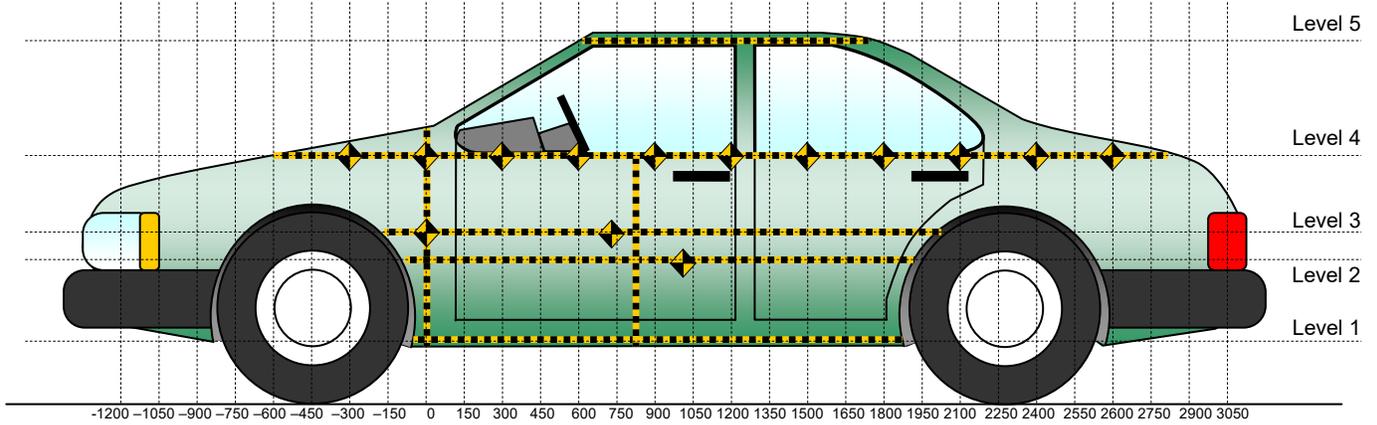


Code	Description	Pre-Test	Post-Test	Diff Δ
A	Wheelbase			
B	Front Axle to FSOV			
C	Rear Axle to RSOV			
D	Total Length at Centerline			
E	Front Bumper Thickness			
F	Front Bumper Bottom to Ground			
G	Sill Height at Front Wheel Well			
H	Sill Height at Front Door Leading Edge			
I	Sill Height at B Pillar			
J1	Sill Height at Rear Wheel Well			
J2	Pinch Weld Height at Rear Wheel Well			
K	Sill Height Aft of Rear Wheel Well			
L	Rear Bumper Thickness			
M	Rear Bumper Bottom to Ground			
N	Sill Height to Window Bottom Sill			
O	Front Door Leading Edge to Impact CL			
P	Rear Door Trailing Edge to Impact CL			
Q	Front Window Opening			
R	Right Side Length			
S	Left Side Length			
T	Vehicle Width at B Post			

## DATA SHEET NO. 16 VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: \_\_\_\_\_  
 Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
 Test Date: \_\_\_\_\_



All Measurements Shown in mm

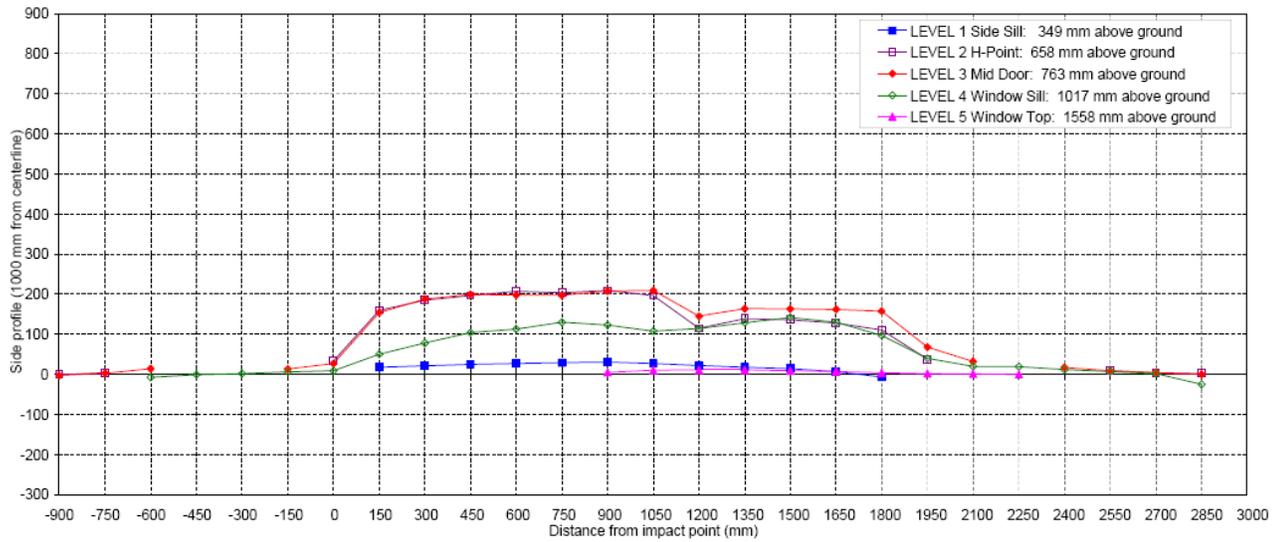
### LEFT SIDE VIEW

Level	Measurement Description	Maximum Exterior Static Crush	Distance from Impact	Height Above Ground
1	Sill Top			
2	Occupant H-Point			
3	Mid-Door			
4	Window Sill			
5	Window Top			

## DATA SHEET NO. 17 VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: \_\_\_\_\_  
Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
Test Date: \_\_\_\_\_

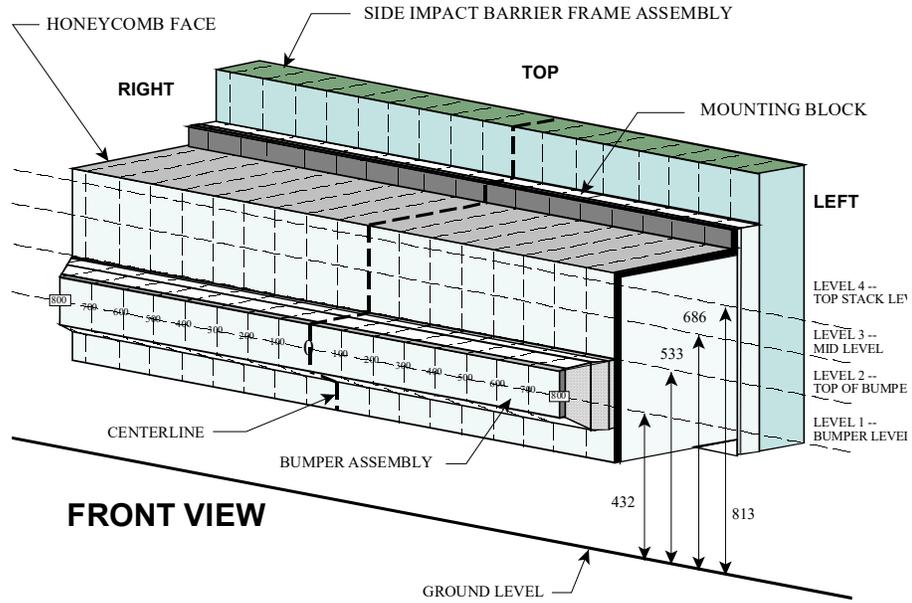


	Pre-Test					Post-Test					Diff Δ				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300															
-150															
0															
150															
300															
450															
600															
750															
900															
1050															
1200															
1350															
1500															
1650															
1800															
1950															
2100															
2250															
2400															
2550															
2700															
2850															

## DATA SHEET NO. 18 EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Test Vehicle: \_\_\_\_\_  
Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
Test Date: \_\_\_\_\_



NOTE: Dimensions are shown in millimeters, mm

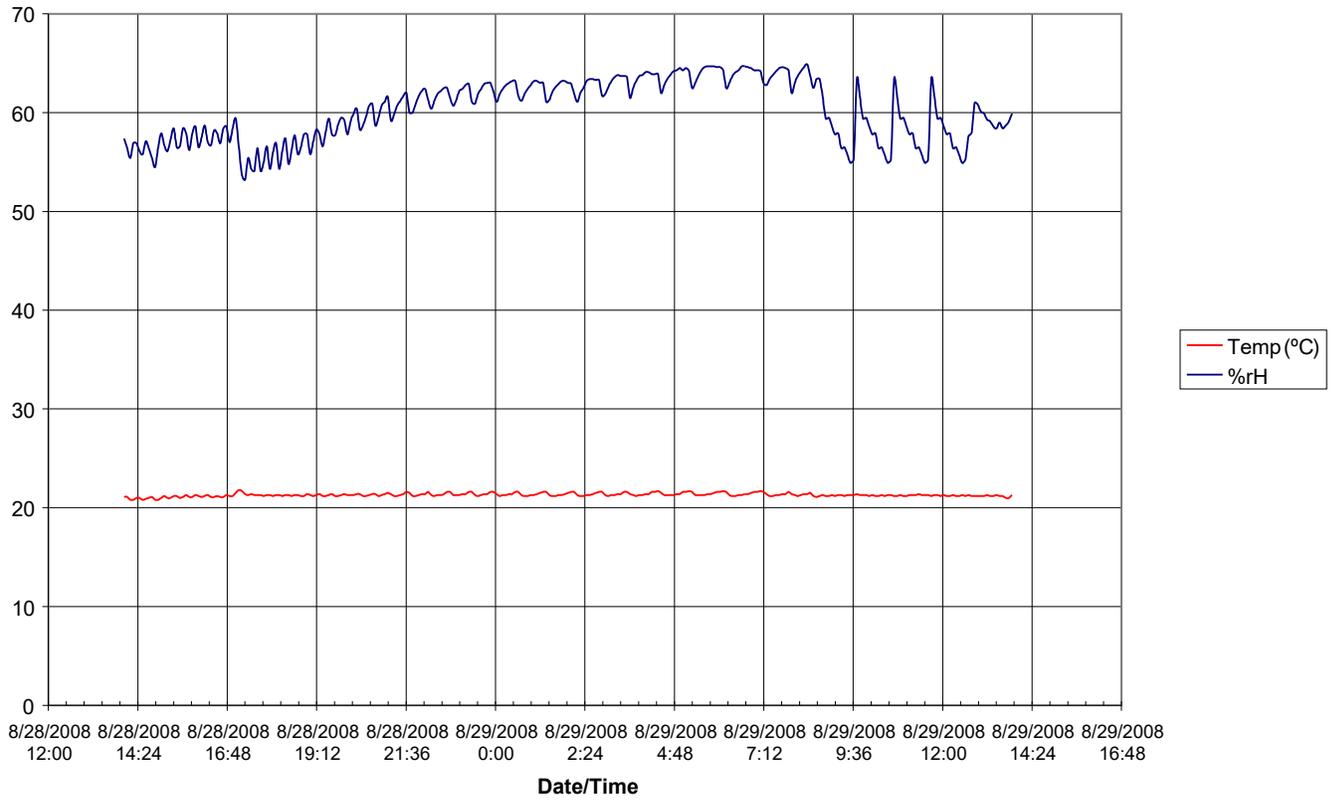
Stack Level	Distance Right of Center									C/L	Distance Left of Center								
	800	700	600	500	400	300	200	100	0		100	200	300	400	500	600	700	800	
Level 1																			
Level 2																			
Level 3																			
Level 4																			

Reference: + X = Forward + Y = To Right + Z = Down

### DATA SHEET NO. 19 TEMPERATURE AND HUMIDITY TRACE

Test Vehicle: \_\_\_\_\_  
Test Facility: \_\_\_\_\_

NHTSA No.: \_\_\_\_\_  
Test Date: \_\_\_\_\_



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