Certified Advanced 208 Compliant Air Bag Investigation
Dynamic Science, Inc. (DSI), Case Number DS08024
2006 Chevrolet Silverado C1500
Oregon
July 2008

Technical Report Documentation Page

1. Report No. DS08024	2. Government Accession No.	3. Recipient Catalog No.
4. Title and Subtitle Certified Advanced 208 Compliant Air Bag Investigation		5. Report Date January 7, 2009 6. Performing Organization Report No.
7. Author(s) Dynamic Science, Inc.		8. Performing Organization Report No.
9. Performing Organization name and Address Dynamic Science, Inc. 299 West Cerritos Avenue Anaheim, CA 92805		10. Work Unit No. (TRAIS) 11. Contract or Grant no. DTNH22-07-00045
12. Sponsoring Agency Name and Address U.S. Dept. of Transportation (NVS-411) National Highway Traffic Safety Administration 1200 New Jersey Ave, SE Washington, DC 20590		13. Type of report and period Covered [Report Month, Year] 14. Sponsoring Agency Code
15. Supplemental Notes		

16. Abstract

This on-site Certified Advanced 208 Compliant Air Bag Investigation focused on the deployment of the frontal air bags in a 2006 Chevrolet Silverado pickup. The Chevrolet was being driven by a restrained 72-year-old male. This single-vehicle crash occurred in July 2008 during daylight hours. The Chevrolet was traveling westbound on a three-lane undivided roadway. It is this investigator's opinion that the driver had sustained a cardiac arrest and was not in control of the vehicle. The Chevrolet drifted to the right and departed the roadway on the right side, traveled across a sidewalk and over some shrubs, struck two curbs and two wooden signs, and finally impacted a building with its front end. The driver's frontal air bag deployed after striking one of the curbs. The crash occurred near a police station and there were emergency personnel on the scene within a few minutes. The driver was transported by ground ambulance to a local hospital, where he was pronounced deceased approximately 30 minutes post crash. The Chevrolet was towed from the scene due to damage and was later declared to be a total loss by the insurance company.

17. Key Words Event Data Recorder (EDR), air bag deployment, driver fatality, Certified Advanced 208 Compliant		18. Distribution Statement	
19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No of pages	22. Price

Form DOT F 1700.7 (8_72) `Reproduction of this form and completed page is authorized`

Dynamic Science, Inc.
Crash Investigation
Case Number: DS08024

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BACKGROUND

Figure 1. Subject vehicle, 2006 Chevrolet Silverado

This on-site Certified Advanced 208 Compliant Air Bag Investigation focused on the deployment of the frontal air bags in a 2006 Chevrolet Silverado pickup (**Figure 1**). The Chevrolet was being driven by a restrained 72-year-old male. This single-vehicle crash occurred in July 2008 during daylight hours. The Chevrolet was traveling westbound on a three-lane undivided roadway. The Chevrolet drifted to the right and departed the roadway on the right side, traveled across a sidewalk and over some shrubs, struck two curbs and two wooden signs, and finally impacted a building with its front end. The driver's frontal air bag deployed in the crash. The crash occurred near a police station and there were emergency personnel on the scene within a few minutes. The driver was transported by ground ambulance to a local hospital, where he was pronounced deceased approximately 30 minutes post crash. The Chevrolet was towed from the scene due to damage and was later declared to be a total loss by the insurance company.

This case was initiated in response to an online news article identified by the National Highway Traffic Safety Administration (NHTSA). On July 17, 2008, NHTSA forwarded to DSI the article which claimed a driver sustained injuries due to contact with his deploying frontal air bag which possibly led to his death. It was later determined that the driver died of a heart attack. DSI was instructed to conduct a remote investigation unless it was determined that the subject vehicle was a Certified Advanced 208 Compliant (CAC) vehicle. A CAC vehicle is certified by the manufacturer to be compliant to the Air Bag portion of the Federal Motor Vehicle Safety Standard (FMVSS) No. 208. On July 21, DSI obtained a copy of the police report and determined that the subject vehicle was a CAC vehicle. The vehicle was a 2006 Chevrolet Silverado C1500 pickup and was being held at a towing facility. On July 21, 2008, DSI obtained permission to inspect the vehicle. The vehicle inspection was completed on July 24, 2008.

SUMMARY

Crash Site

This single vehicle crash occurred off-road near a four-leg intersection of two local roadways in July 2008 at 0930 hours. At the time of the crash, there were no adverse weather conditions and the asphalt roadway was dry. The subject vehicle initially departed the roadway east of the intersection. The west leg of the intersection was configured with a westbound travel lane, a left turn lane, and an eastbound travel lane (**Figure 2**). The turn lane was separated from the westbound travel lane by a solid white line. The east leg of the intersection was configured with an eastbound travel lane, a left turn lane, and a westbound travel lane. There were several businesses to the north of the roadway. Two north/south driveways provided access to the businesses. The second driveway had curbed edges. The struck building was located 41.1 m (135 ft) west of the intersection and 4.6 m

(15 ft) north of the roadway edge. The posted speed for the roadway was 40 km/h (25 mph).

Pre Crash

The 2007 Chevrolet Silverado was traveling westbound. It is this investigator's opinion that the driver had sustained a cardiac arrest was not in control of the vehicle. The Silverado departed the roadway on the right side 24.3 m (80 ft) east of the intersection (**Figure 3**), causing damage to the right front tire. After departing the roadway, the Silverado continued westbound, crossed the northern leg of the intersection, and entered a north/south oriented driveway. An on-scene witness reported that during the crash the subject vehicle did not display brake lights or take any evasive actions.

Figure 2. Westbound approach for the 2006 Chevrolet Silverado

Figure 3. Area of right side roadway departure

Crash

As the Silverado crossed the driveway, the vehicle struck a curb on the western edge of the driveway. The curb was broken away. The vehicle continued traveling westbound and impacted some bushes and shrubbery. The Silverado continued west and entered a second driveway, where the vehicle's undercarriage contacted the ground and curb resulting in undercarriage damage (**Figure 4**). A 91 cm (36 in) long gouge was located on the driveway, 122 cm (48 in) east of the driveway curb. The Silverado continued forward and struck the 13 cm (5.1 in) high concrete curb with the both front tires and the undercarriage. A 91 cm (36 in) long segment of the curb was broken away. The vehicle continued past the curb, struck two wooden sign posts, and then struck a concrete building where it came to rest. The barrier routine of the WinSmash program computed a total delta V of 56 km/h (34.8 mph) for the impact with the building, based on Silverado's front end crush profile. The longitudinal and lateral components were -56 km/h (-34.8 mph) and 0 km/h (0 mph), respectively.

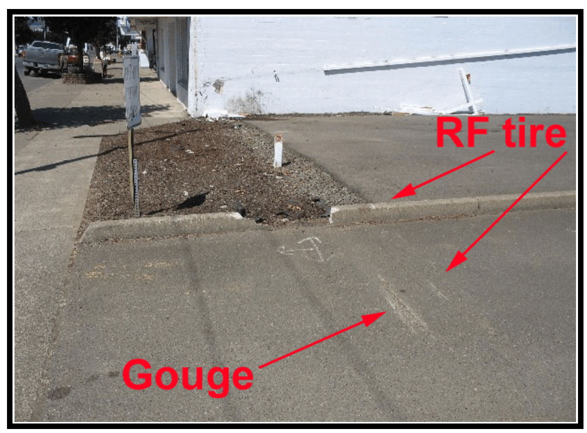


Figure 4. Impact with driveway and second curb

It is this investigator's opinion that the impact with second driveway curb caused the deployment event. The distance from the initial roadway departure and the second driveway curb impact was

71.3 m (234 ft); the distance to the impact with the building was 79.5 m (261 ft). The vehicle came to rest near the building, facing west.

Post Crash

The crash occurred near a police station and there were emergency personnel on the scene within a few minutes. At the scene, the driver was reportedly gasping for air and losing consciousness. He was transported by ground ambulance to a local hospital, where he was pronounced deceased at 1008 hours, 38 minutes post crash. The Chevrolet was towed from the scene due to damage and was later declared to be a total loss by the insurance company.

VEHICLE DATA - 2006 Chevrolet Silverado

The 2006 Chevrolet Silverado C1500 short bed crew cab pickup was identified by the Vehicle Identification Number (VIN): 2GCEC13V461xxxxxx. The vehicle was manufactured in November, 2005. The Chevrolet was equipped with a 4.8 liter, 8-cylinder engine, a 4-speed automatic transmission, front disc/rear drum power brakes with ABS, rear wheel drive, and power steering. The Silverado was configured with General Ameritrac P245/70R17 tires. The tire manufacturer's maximum pressure was 303 kPa (44 psi); the vehicle manufacturer's recommended cold tire pressure was 241 kPa (35 psi). The specific tire information was as follows:

Position	Measured Pressure	Measured Tread Depth	Restricted	Damage
LF	248 kPa (36 psi)	9 mm (11/32 in)	Yes	None
LR	276 kPa (40 psi)	8 mm (10/32 in)	No	None
RR	262 kPa (38 psi)	10 mm (13/32 in)	No	None
RF	Tire Flat	8 mm (10/32 in)	Yes	Tire holed

The seating in the Silverado was configured with a front 40/20/40 split bench seat with adjustable head restraints in the outboard seating positions and a rear 60/40 split bench seat adjustable head restraints in the outboard positions and an integral head restraint in the middle position. The driver's seat was adjusted to the middle track position. The seat back was positioned 16 degrees from vertical; the seat cushion was position at 3 degrees from horizontal.

VEHICLE DAMAGE

Exterior Damage

The 2006 Chevrolet Silverado sustained moderate undercarriage damage as a result of the impact with the ground and curb. There was direct contact to the lower A-arm on the left side and to the frame (**Figure 5)**.

Figure 5. Front view, undercarriage damage

There were three separate areas of contact to the right front rim (**Figure 6**). All of the contacts probably came from curb impacts. The most significant contact measured 9 cm (3.5 in) wide along the rim. There was an associated hole in the sidewall at this location that measured 2 cm (0.8 in) vertically and 1 cm (0.4 in) laterally. This contact most likely occurred during the impact with the first curb. The two other contacts were also located along the rim and measured 8 cm (3.1 in) and 9 cm (3.5 in), respectively.

Figure 6. Contacts to right front tire/rim

The Silverado sustained major frontal damage as a result of the impact with the building (**Figure 7**). The direct damage began at the right front bumper corner and extended 176 cm (69.3 in) laterally along the front end plane. The maximum crush was located at C4 and measured 63 cm (24.8 in). The entire front end was crushed rearward. The hood was deformed and displaced rearward. The left rear hood edge penetrated the left lower portion of the windshield. The penetration measured 8 cm (3.1 in) in depth, 10 cm (3.9 in) in width, and 8 cm (3.1 in) in height. Both front wheels were restricted. The wheelbase was shortened by 11 cm (4.3 in) on both sides. Six crush measurements were documented at the bumper level as follows: C1 = 54 cm (21.2 in), C2 = 56 cm (22.0 in), C3 = 59 cm (23.2 in), C4 = 63 cm (24.8 in), C5 = 48 cm (18.9 in), C6 = 42 cm (16.5 in). The CDC for the impact with the building was 12FDEW3.

Figure 7. Frontal damage

Damage from the pole impacts and the bushes could not be separated from the damage from the building.

Interior Damage

The 2006 Chevrolet Silverado sustained moderate interior damage as a result of passenger compartment intrusion (**Figure 8**). There was longitudinal intrusion of the toe pan and instrument panel. The glovebox was found in a open position during the inspection and would not close. The steering column was compressed 9 cm (3.5 in). The steering wheel rim was shifted 5 cm (1.9 in) to the left (**Figure 9**).

The specific passenger compartment intrusions were documented as follows:

Figure 8. Side view of driver's seated position

Figure 9. Lateral movement of steering wheel

Position	Intruded Component	Magnitude of Intrusion	Direction
Left front	Instrument panel	15 cm (5.9 in)	Longitudinal
Right front	Glove box door	14 cm (5.5 in)	Longitudinal
Right front	Toe pan	5 cm (1.9 in)	Longitudinal
Left front	Toe pan	2 cm (0.8 in)	Longitudinal

Manual Restraints

The 2006 Chevrolet Silverado was configured with 3-point lap and shoulder belts for the front outboard seats and the three rear seat positions. The driver's integrated safety belt was configured with a sliding latch plate and an Emergency Locking Retractor (ELR). The driver's safety belt webbing had curling which began 8 cm (3.1 in) from the stop button and measured 26 cm (10.2 in) in length. There was a 10 cm (3.9 in) area of loading to the safety belt webbing 67 cm (26.4 in) from the anchor (**Figure 10**). A 1 cm (0.4 in) x 3 cm (1.2 in) blood spot was located 116 cm (45.7 in) from the anchor.

Figure 10. Loading to seat belt webbing

Supplemental Restraint Systems

The 2006 Chevrolet Silverado was equipped with dual-stage frontal air bags. A dual-stage system senses the severity of a crash and determines whether to deploy the air bag with a primary amount of inflation or with primary and secondary amount of inflation. It is this investigator's opinion that the impact with second driveway curb caused the deployment event. The EDR-recorded velocity change was -9.4 km/h (-5.88 mph). The EDR summary indicated that a first stage deployment for the driver's air bag was commanded 60 ms after algorithm enable, and the second stage deployment was not commanded.

Based on the vehicle's speed prior to the deployment and the EDR recorded time between events (0.8 seconds), it was calculated that the non-deployment event occurred 17.0 m (56 ft) from that impact point–placing the non-deployment event at the impact with the first driveway curb.

Figure 11. Deployed driver's air bag

According to the data limitation section in the EDR report, the non-deployment file would be locked after the deployment event because the non-deployment event occurred within 5 seconds of the deployment event.

The EDR reported speed 5 seconds prior to algorithm enable (AE) was 43 km/h (27 mph). The throttle was at 100% and the vehicle was accelerating until 1 second prior to AE, when the throttle dropped to 90%. At 1 second prior to AE the reported speed was 77 km/h (48 mph). Based on the

EDR-reported speeds, it was calculated that the vehicle traveled approximately 84.1 m (276 ft) between 5 seconds before AE to 1 second before AE[1]. Based on the last known speed, it was estimated that the vehicle traveled an additional 21.3 m (70 ft) after the 1 second mark.

Although the EDR summary did not provide pretensioner information, it was probable that the retractor pretensioner actuated in conjunction with the frontal deployment.

The driver's air bag deployed from the center of the steering wheel hub through symmetrical I-configuration module cover flaps (**Figure 11**). Each flap measured 11.5 cm (4.5 in) in height and 6 cm (2.4 in) in width. The deployed driver's air bag measured 64 cm (25.2 in) in height and 53 cm (20.8 in) in width in its deflated state. The air bag was tethered by a single internal flap. The tether was attached to a 15 cm (5.9 in) diameter stitch in the center of the air bag face. Two circular vent ports that measured 3 cm (1.2 in) in diameter were located at the 11 and 1 o'clock aspects on the rear of the air bag. A light body fluid transfer that measured 2 cm (0.8 in) wide was present on the air bag face. The transfer was located 16 cm (6.3 in) to the right of the air bag center line and 2 cm (0.8 in) below the top edge of the air bag. A 3 cm (1.2 in) brown scuff was located in the left lower quadrant. A darker colored scuff that measured 5 cm (1.9 in) by 5 cm (1.9 in) was located at the bottom edge of the air bag face.

The front right passenger air bag did not deploy.

The Bosch system status at Deployment report indicated that:

1. SIR warning lamp status was OFF.
2. The driver's belt switch status was BUCKLED.
3. Ignition cycles at Deployment 1553.
4. Ignition cycles at investigation 1555.
5. Maximum SDM recorded velocity change -9.4 km/h (-5.88 mph).
6. Algorithm enable (AE) to maximum SDM recorded velocity change was 60 milliseconds.
7. Driver's 1st stage time from AE deployment command met was 10 ms.
8. Driver's 2nd stage time from AE deployment command met was N/A.
9. Time between Non-Deployment Event and Deployment Event was 0.8 seconds.
10. Event recording complete YES.
11. Multiple events associated with this record YES.
12. One or more associated events not recorded NO.
13. The vehicle speed was 43 km/h (27 mph) 5 seconds before AE and accelerated to 77 km/h (48 mph) 1 second before AE.
14. The brake switch status was OFF from 8 through 1 seconds before AE.

[1]See Attachment 2. Calculations

The Bosch system status at Non-Deployment report indicated that:

1. SIR warning lamp status was OFF.
2. The driver's belt switch status was BUCKLED.
3. Ignition cycles at Non-Deployment 1553.
4. Ignition cycles at investigation 1555.
5. Maximum SDM recorded velocity change -0.37 km/h (-0.23 mph).
6. AE maximum SDM recorded velocity change was 52.5 milliseconds.
7. Crash record locked YES.
8. Event recording complete YES.
9. Multiple events associated with this record NO.
10. One or more associated events not recorded NO.
11. The vehicle speed was 37 km/h (23 mph) 5 seconds before AE and accelerated to 76 km/h (47 mph) 1 second before AE.
12. The brake switch status was OFF from 8 through 1 seconds before AE.

OCCUPANT DEMOGRAPHICS

	Driver
Age/Sex:	72/Male
Seated Position:	Front left
Seat Type:	40/20/40 split bench
Height:	175 cm (69 in)
Weight:	91 kg (201 lbs)
Pre-existing Medical Condition:	History of hypertension, upper gastrointestinal bleeding, erosive esophagitis
Alcohol/Drug Involvement:	None
Body Posture:	Unknown
Hand Position:	Unknown
Foot Position:	Right foot on accelerator
Restraint Usage:	Lap and shoulder belt available, used
Air bag:	Steering wheel mounted frontal air bag, deployed

OCCUPANT KINEMATICS

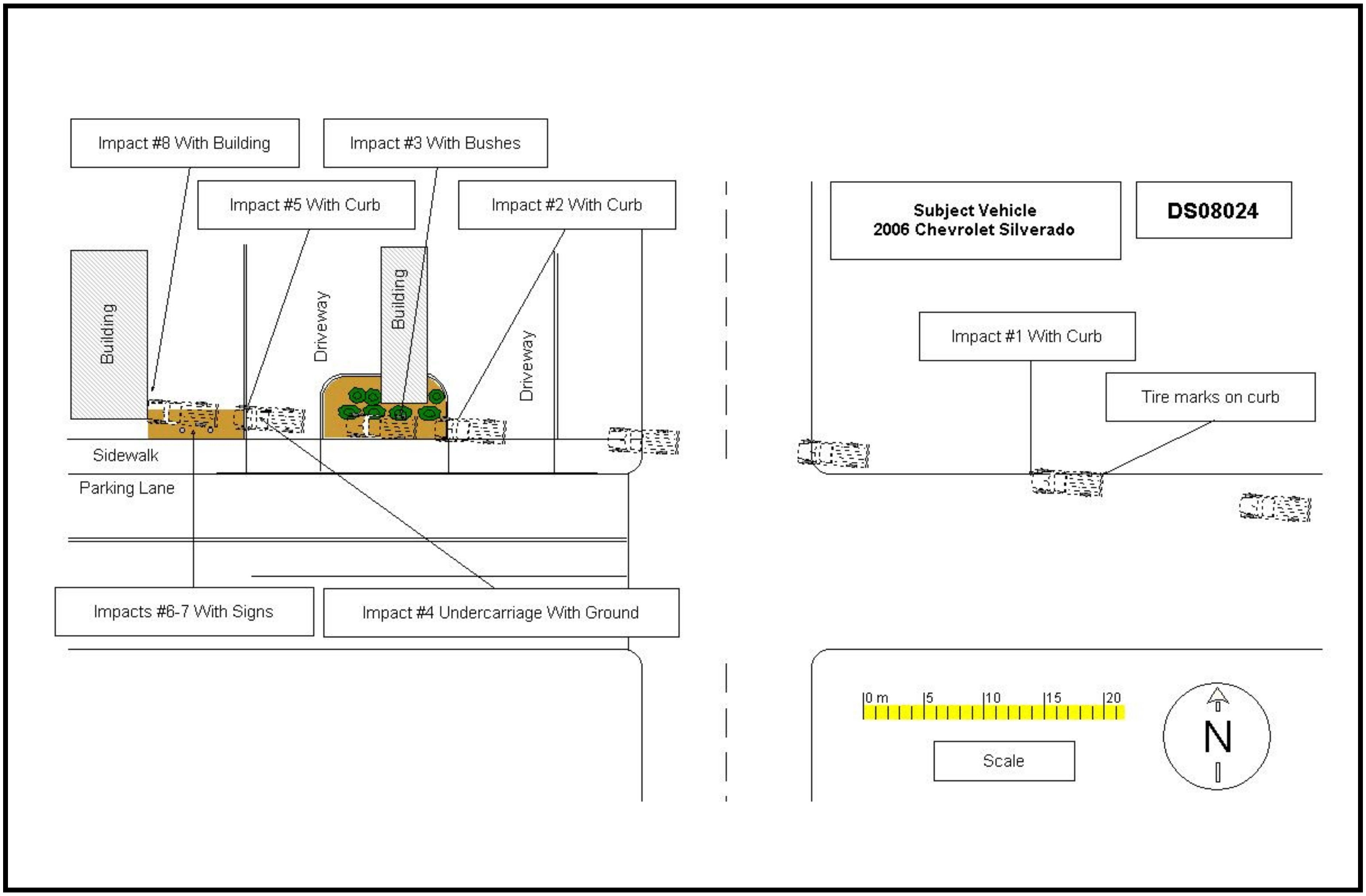
Driver Kinematics

The 72-year-old male driver was seated in an unknown posture and was restrained by the 3-point lap and shoulder belt. The seat was adjusted to the middle track position and the seat back was slightly reclined. The driver probably stayed in place during the initial roadway departure. At impact with the first curb, he was displaced slightly forward. There was likely little movement during the contact with shrubbery and bushes. As the vehicle's undercarriage impacted the second driveway, the driver was displaced slightly downward. At impact with the second curb, he was displaced slightly forward. At this impact, the driver's air bag deployed. The driver contacted the air bag; however, there were no residual injuries. There was no movement related to the minor impacts with the two wooden signs. At impact with the building, the driver initiated a forward trajectory. He loaded the safety belt and probably contacted the steering wheel. The steering column was displaced forward and to the left. The driver was transported by ground ambulance to a local hospital, where he was pronounced deceased 38 minutes post crash.

OCCUPANT INJURIES

Driver: Injury information obtained from emergency room report, final emergency department record, and radiology reports. There were no codeable injuries presented in any of the medical records. The records indicate the driver was totally unresponsive upon arrival. The pupils were fixed and dilated. Chest and cervical spine x-rays were taken during this time. There were no fractures or subluxations noted in the spinal x-rays. There were mild opacities present the lung bases that may have represented a lung contusion, but other possibilities were also indicated. CPR was continued until the driver was declared deceased at 1008 hours.

Attachment 1. Scene Diagram



Attachment 2. Calculations

*** * DISTANCE W/ LOWER TO HIGHER SPEED AND ACCEL FACTOR * ***

$$D = \frac{Sf^2 - So^2}{30 \times f}$$

$$D = \frac{48.00^2 - 27.00^2}{30 \times 0.19}$$

$$D = \frac{2304.00 - 729.00}{30 \times 0.19}$$

$$D = \frac{1575.00}{5.70}$$

$$D = 276.31$$

f = The Acceleration/Drag Factor.
D = The Distance in Feet.
So = The Original Speed in MPH.
Sf = The Final Speed in MPH.
30 = A Constant.

INPUTS:	
The Original Speed in MPH is:	27.00
The Final Speed in MPH is:	48.00
The Acceleration/Drag Factor is:	0.19

RESULTS:	
The Distance in Feet is:	276.31

* * ACCEL/DRAG FACTOR W/ LOWER TO HIGHER SPEED, KNOWN TIME * *

$$f = \frac{0.0455 \times (Sf - So)}{t}$$

$$f = \frac{0.0455 \times (48.00 - 27.00)}{5.00}$$

$$f = \frac{0.0455 \times 21.00}{5.00}$$

$$f = \frac{0.95}{5.00}$$

$$f = 0.19$$

f = The Acceleration/Drag Factor.
0.0455 = A Constant.
So = The Original Speed in MPH.
Sf = The Final Speed in MPH.
t = The Time in Seconds.

INPUTS:	
The Original Speed in MPH is:	27.00
The Final Speed in MPH is:	48.00
The Time in Seconds is:	5.00

RESULTS:	
The Acceleration/Drag Factor is:	0.19

Attachment 3. EDR report

CDR File Information

User Entered VIN	2GCEC13V461******
User	
Case Number	
EDR Data Imaging Date	
Crash Date	
Filename	08024 W NO VIN.CDR
Saved on	Thursday, July 24 2008 at 08:31:17 AM
Collected with CDR version	Crash Data Retrieval Tool 2.900
Reported with CDR version	Crash Data Retrieval Tool 3.1
EDR Device Type	airbag control module
Event(s) recovered	Deployment Non-Deployment

IMPORTANT NOTICE: Robert Bosch LLC recommends that the latest production release of Crash Data Retrieval software be utilized when viewing, printing or exporting any retrieved data from within the CDR program. This ensures that the retrieved data has been translated using the most recent information including but not limited to that which was provided by the manufacturers of the vehicles supported in this product.

Data Limitations

Recorded Crash Events:
There are two types of Recorded Crash Events. The first is the Non-Deployment Event. A Non-Deployment Event is an event severe enough to “wake up” the sensing algorithm but not severe enough to deploy the air bag(s). It contains Pre-Crash and Crash data. The SDM can store up to one Non-Deployment Event. This event can be overwritten by an event that has a greater SDM recorded vehicle Longitudinal velocity change. This event will be cleared by the SDM after the ignition has been cycled 250 times.
The second type of SDM recorded crash event is the Deployment Event. It also contains Pre-Crash and Crash data. The SDM can store up to two different Deployment Events, if they occur within 25.4 seconds of one another. Deployment Events cannot be overwritten or cleared from the SDM. Once the SDM has deployed the air bag, the SDM must be replaced.
The data in the Non-Deployment Event file will be locked after a Deployment Event, if the Non-Deployment Event occurred within 5 seconds before the Deployment Event. If multiple Non-Deployment Events occur within 5 seconds prior to a Deployment Event, then the most severe Non-Deployment Event will be recorded and locked. If multiple Non-Deployment Events precede a Deployment Event, and multiple Non-Deployment Events occur within 5 seconds of each other (but not necessarily all within 5 seconds of the Deployment Event), and subsequent Non-Deployment Events are less severe than prior Non-Deployment Events, and the last of the multiple Non-Deployment Events occurs within 5 seconds of a Deployment Event, then the most severe of the Non-Deployment Events (which may have occurred more than 5 seconds prior to the Deployment Event) will be recorded and locked.

Data Limitations:
-SDM Recorded Vehicle Longitudinal velocity Change reflects the change in Longitudinal velocity that the sensing system experienced during the recorded portion of the event. SDM Recorded Vehicle Longitudinal velocity Change is the change in velocity during the recording time and is not the speed the vehicle was traveling before the event, and is also not the Barrier Equivalent Velocity. This data should be examined in conjunction with other available physical evidence from the vehicle and scene when assessing occupant or vehicle Longitudinal velocity change. For Deployment Events and Deployment Level Events, the SDM will record 100 milliseconds of data after deployment criteria is met and up to 50 milliseconds before deployment criteria is met. For Non-Deployment Events, the SDM will record the first 150 milliseconds of data after algorithm enable.
-Event Recording Complete will indicate if data from the recorded event has been fully written to the SDM memory or if it has been interrupted and not fully written.
-SDM Recorded Vehicle Speed accuracy can be affected if the vehicle has had the tire size or the final drive axle ratio changed from the factory build specifications.
-Brake Switch Circuit Status indicates the status of the brake switch circuit.
-Pre-Crash Electronic Data Validity Check Status indicates “Data Invalid” if the SDM receive an invalid message from the module sending the pre-crash data.
-Driver’s and Passenger’s Belt Switch Circuit Status indicates the status of the seat belt switch circuit. If the vehicle’s electrical system is compromised during a crash, the state of the Belt Switch Circuit may be reported other than the actual state.
-The Time Between Non-Deployment and Deployment Events is displayed in seconds. If the time between the two events is greater than 25.4 seconds, “N/A” is displayed in place of the time.
-If power to the SDM is lost during a crash event, all or part of the crash record may not be recorded.

-Multiple Events Associated with this Record: This parameter will indicate whether one or more associated events preceded the recorded event.
-One or More Associated Events Not Recorded: If a single event is recorded, this parameter will indicate whether one or more associated events, prior to the recorded event, was not recorded.
If two associated events are recorded, this parameter for the first event will indicate whether one or more associated events, prior to the first event, was not recorded.
If two associated events are recorded, this parameter, for the second event, will indicate whether one or more associated events, between the first and second events, was not recorded.

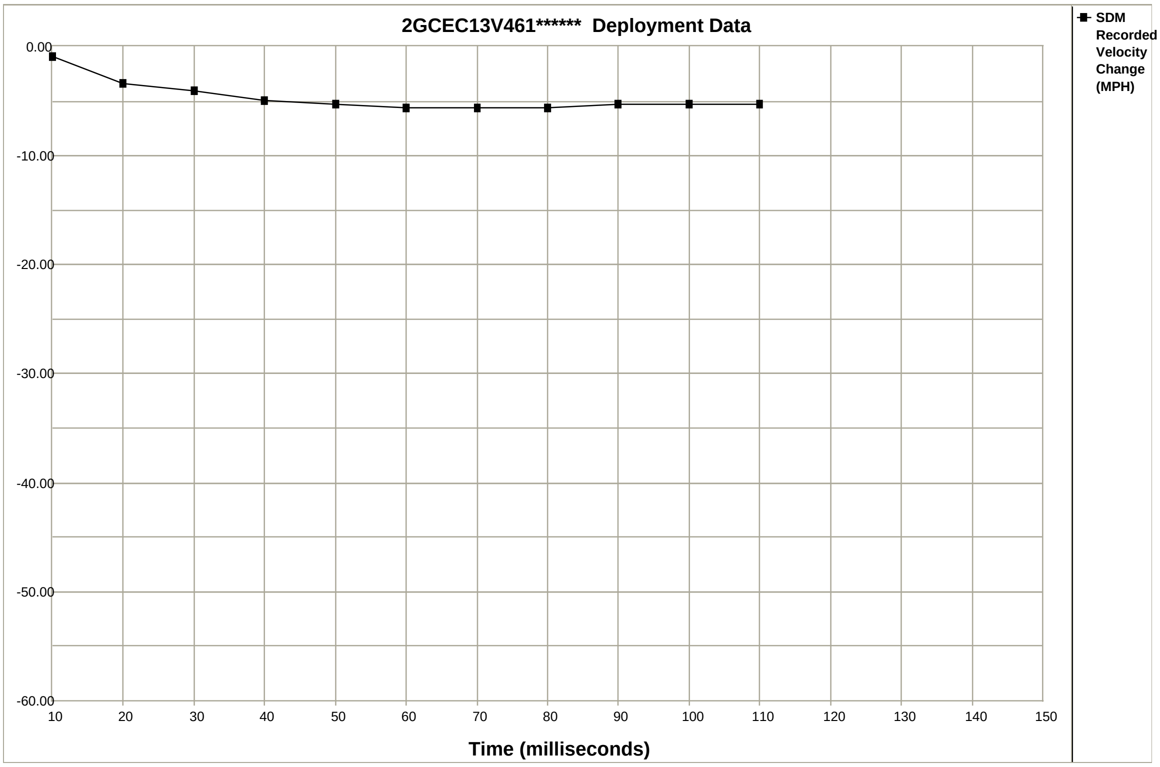
Data Source:
All SDM recorded data is measured, calculated, and stored internally, except for the following:
-Vehicle Speed, Engine Speed, and Percent Throttle data are transmitted once a second by the Powertrain Control Module (PCM), via the vehicle's communication network, to the SDM.
-Brake Switch Circuit Status data is transmitted once a second by either the ABS module or the PCM, via the vehicle's communication network, to the SDM.
-The SDM may obtain Belt Switch Circuit Status data a number of different ways, depending on the vehicle architecture. Some switches are wired directly to the SDM, while others may obtain the data from various vehicle control modules, via the vehicle's communication network.

System Status At Deployment

SIR Warning Lamp Status	OFF
Driver's Belt Switch Circuit Status	BUCKLED
Passenger's Belt Switch Circuit Status	UNBUCKLED
Passenger Seat Position Switch Circuit Status	Rearward
Ignition Cycles At Deployment	1553
Ignition Cycles At Investigation	1555
Maximum SDM Recorded Velocity Change (MPH)	-5.88
Algorithm Enable to Maximum SDM Recorded Velocity Change (msec)	60
Driver 1st Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	10
Driver 2nd Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	N/A
Passenger 1st Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Suppressed
Passenger 2nd Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	N/A
Time Between Non-Deployment And Deployment Events (sec)	.8
Frontal Deployment Level Event Counter	1
Event Recording Complete	Yes
Multiple Events	Yes
Multiple Events Not Recorded	No

Seconds Before AE	Vehicle Speed (MPH)	Engine Speed (RPM)	Percent Throttle
-5	27	2176	100
-4	31	3776	100
-3	42	4736	100
-2	47	3200	100
-1	48	3264	90

Seconds Before AE	Brake Switch Circuit Status
-8	OFF
-7	OFF
-6	OFF
-5	OFF
-4	OFF
-3	OFF
-2	OFF
-1	OFF



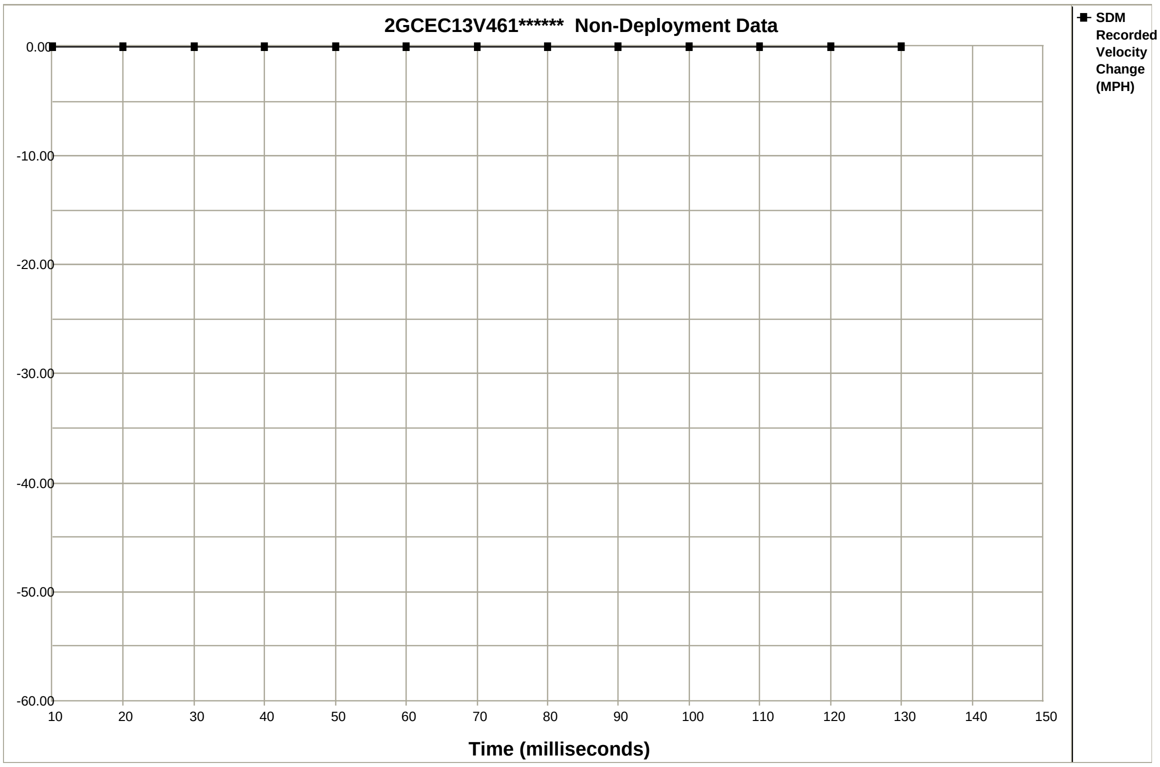
Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Recorded Velocity Change (MPH)	-0.93	-3.41	-4.03	-4.96	-5.27	-5.58	-5.58	-5.58	-5.27	-5.27	-5.27	N/A	N/A	N/A	N/A

System Status At Non-Deployment

SIR Warning Lamp Status	OFF
Driver's Belt Switch Circuit Status	BUCKLED
Passenger's Belt Switch Circuit Status	UNBUCKLED
Passenger Seat Position Switch Circuit Status	Rearward
Ignition Cycles At Non-Deployment	1553
Ignition Cycles At Investigation	1555
Maximum SDM Recorded Velocity Change (MPH)	-0.23
Algorithm Enable to Maximum SDM Recorded Velocity Change (msec)	52.5
Crash Record Locked	Yes
Event Recording Complete	Yes
Multiple Events	No
Multiple Events Not Recorded	No

Seconds Before AE	Vehicle Speed (MPH)	Engine Speed (RPM)	Percent Throttle
-5	23	1792	61
-4	27	2176	100
-3	31	3776	100
-2	42	4736	100
-1	47	3200	100

Seconds Before AE	Brake Switch Circuit Status
-8	OFF
-7	OFF
-6	OFF
-5	OFF
-4	OFF
-3	OFF
-2	OFF
-1	OFF



Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Recorded Velocity Change (MPH)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	N/A