August 15, 2014

Frank S. Borris II,
Director
Office of Defects Investigation
1200 New Jersey Avenue, S.E.
Washington, DC 20590

Re: Petition DP14-001, Supplement #2

Dear Mr. Borris:

This letter supplements Petition DP14– 001 in three areas: 1.) Clarifies the parameters for a search basis of the defective algorithm, 2.) Provides an estimate of the number of vehicles affected, 3.) Requests NHTSA to obtain production volumes of the occupant classification system with the defective algorithm.

1.) A 2010 study identifies environmental factors of NASS and FARS cases associated with non-deployment. [SAE 2010-01-1048 "Characteristics of Frontal Crashes with Serious Injuries and Airbag Non-deployment"]. These factors are often: contacts with curbs, berms or guardrails immediately preceding an impact with a pole or tree. The examples are GM vehicles.

Attached is a General Motors CDR download of a 2010 Chevrolet Tahoe accident which, as in the Martinez case, misclassified the right front passenger as a small adult in the last second (no significant delta V or injury).

A review of the previously submitted FARS files of all non-deployment events, indicates that 40% are GM vehicles, 20% are Ford vehicles and 10% are Toyota vehicles.

In summary searches should be for a GM non deployment impact preceded by a curb, berm or guardrail contact with a small occupant classification.

2.) Confidential information leads the petitioner to believe that the defective algorithm exists in most GM vehicles at least from 2006 to the present. During that eight year period GM produced about 3.5 million vehicles per year or an estimated total of about 25 million vehicles.

GM vehicles understood to have the defective algorithm are 2006 to 2013 platforms including:

GMT 800 - Chevrolet Silverado, GMC Sierra
GMT 610 - Chevrolet Express, GMC Savannah
GMX 270 - Cadillac Deville
GMT 265 - Cadillac SRX NS V8 RHD/LHD, Cadillac SRX 3.6l V6
GMT 355 - Chevrolet Colorado, GMC Canyon
GMX 215 - Cadillac XLR

GMX 320 - Cadillac CTS
GMX 245 - Chevrolet Corvette
GMX 211 - Chevrolet Impala

3.) The petitioner requests that ODI/NHTSA demand from Delphi the number of control modules produced by vehicle model and model year, with the same occupant classification algorithm identified by Delphi in the April 2012 download of the Martinez v. GM 2008 Chevrolet Impala vehicle. While this may not indicate the number of casualties it will identify the number of vehicles to be recalled with the potential for injury.

I would be pleased to facilitate your investigation any way I can.

Sincerely,

Donald Friedman

Encl.
Attachment 1: CDR of 2010 Chevrolet Tahoe

cc: Clarence Ditlow, Center for Auto Safety
Tom Krisher, Associated Press
Nick Choate, Senator McCaskill
Michal Freedhoff, Senator Markey
Joel Kelsey, Senator Blumenthal
Vanessa O'Connell, Wall Street Journal
Richard Gardella, NBC News

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN	1GNMCAE37AR132226
User	PHILLIP NOTTINGHAM
Case Number	733835
EDR Data Imaging Date	11/09/2011
Crash Date	08/20/2011
Filename	1GNMCAE37AR132226_ACM.CDRX
Saved on	Wednesday, November 9 2011 at 16:17:44
Collected with CDR version	Crash Data Retrieval Tool 4.1.1
Reported with CDR version	Crash Data Retrieval Tool 4.1.1
EDR Device Type	Airbag Control Module
Event(s) recovered	Non-Deployment, Deployment, Deployment

Comments

- 8790 CROWNHILL BLVD, SAN ANTONIO, TX
- DLC USED
- BATTERY PACK USED TO POWER VEHICLE SYSTEMS
- SIR LAMP: FLASHED ON AND OFF AND REMAINED ON
- MILEAGE: 50,715
- ATTENDED BY: DAN MORROW (GUERRA LAW FIRM REP), YVONNE HERNANDEZ (BROCK, PERSON, GUERRA, AND REYNA), STEVE HOWARD (REP DOLLAR THRIFTY), KELLEY ADAMSON (ADAMSON ENGINEERING), JOY TULL (HARTLINE), PATRICK WOLTER (REP LUCKY SEAFOOD).

Data Limitations

Recorded Crash Events:

There are two types of recorded crash events for Front, Side, and Rear (FSR) Events. The first is the Non-Deployment Event. A Non-Deployment Event records data but does not deploy the air bag(s). The minimum SDM Recorded Vehicle Velocity Change, that is needed to record a Non-Deployment Event, is five MPH [8 km/h]. A Non-Deployment Event contains Pre-Crash and Crash data. The oldest Non-Deployment event can be overwriten by a Deployment Event, if all three records are full and the Non-Deployment Event is not locked. Non-Deployment Events can be overwritten after approximately 250 ignition cycles. Also, a Non-Deployment event can be recorded if one of the following occurs without the Deployment of any of the frontal air bags, side air bags, or roll bars:

-Pretensioner(s) only Deployment
-Head Rest Deployment
-Battery Cut-Off Deployment

The second type of SDM recorded crash event for FSR Events is the Deployment Event. It also contains Pre-Crash and Crash data. Deployment Events cannot be overwritten or cleared by the SDM.
There are also two types of recorded crash events for Rollover Events. The first is the Non-Deployment (Non-rollover) Event. A Non-Deployment Event records data but does not deploy the air bag(s). A Non-Deployment Event contains Pre-Crash and Crash data. Non-Deployment Rollover event follow the same rules as FSR Non-Deployment events. The SDM can store up to three Events. Once the SDM records a combination of three Deployment or locked Non-Deployment Events, the SDM must be replaced.

Data:

For FSR Events, SDM Recorded Vehicle Velocity Change reflects the change in velocity that the sensing system experienced during the recorded portion of the event. SDM Recorded Vehicle 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. For Deployment Events, the SDM will record 220 milliseconds of data after the Deployment criteria is met and up to 70 milliseconds before the Deployment criteria is met. For Non-Deployment Events, the SDM will record the first 300 milliseconds of data after algorithm enable. Velocity Change data is displayed in SAE sign convention.
For Rollover Events, the SDM may record Lateral Acceleration, Vertical Acceleration, and Roll Rate data, if the SDM is rollover capable. This data reflects what the sensing system experienced during the recorded portion of the event. For Non-Deployment (Non-rollover) Events, the SDM will record 750 milliseconds of data before a calibrated angle threshold is reached. For Deployment Events, the SDM will record up to 490 milliseconds of data before the Deployment criteria is met and 250 milliseconds after the Deployment criteria is met. Vehicle Recorded Acceleration and Roll Rate data are displayed in SAE sign convention.

-Time Between Events is recorded at a 10 millisecond sample rate and is displayed in seconds for a maximum time of 655.33 seconds. The counter measures from the start of one event to the start of the next event, if both events occur within the same ignition cycle.
-The CDR tool displays time from Algorithm Enable (AE) to time of Deployment command in a Deployment event and AE to time of maximum SDM recorded vehicle velocity change in a Non-Deployment event. Time from AE begins when the first air bag system enable threshold is met and ends when Deployment command criteria is met or at maximum SDM recorded vehicle velocity change. Any air bag systems may be a source of an enable.
-Time From Algorithm Enable to Maximum SDM Recorded Vehicle Velocity Change is captured when the largest, absolute value of either the Longitudinal or Lateral Recorded Vehicle Velocity Change occurs. The Maximum may occur between the recorded 10 millisecond sample points.
-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 by various factors, including but not limited to the following:
    -Significant changes in the tire's rolling radius
    -Final drive axle ratio changes
    -Wheel lockup and wheel slip
-Brake Switch Circuit Status indicates the open/closed state of the brake switch circuit.
-Pre-Crash data is recorded asynchronously.
-Pre-Crash Electronic Data Validity Check Status indicates "Data Invalid" if:
    -The SDM receives a message with an "invalid" flag from the module sending the pre-crash data
-Pre-Crash Electronic Data Validity Check Status indicates "Data Not Available" if:
    -No data is received from the module sending the pre-crash data
-Belt Switch Circuit Status indicates the status of the seat belt switch circuit.
-The ignition cycle counter will increment when the power mode cycles from OFF/Accessory to RUN. Applying and removing of battery power to the module will not increment the ignition cycle counter.
-Ignition Cycles Since DTCs Were Last Cleared can record a maximum value of 253 cycles and can only be reset by a scan tool.
-Deployment Event Counter tracks the number of Deployment events that have occurred during the SDM's lifetime.
-Event Counter tracks the number of qualified events (either Deployments, Non-deploy, or Rollover events) that have occurred during the SDM's lifetime.
-The Algorithm Enable to Deployment Command Criteria Met times for the following will be indicated for whichever occurs first:
    -Driver Thorax or Driver Curtain
    -Passenger Thorax or Passenger Curtain
    -Driver Pretensioner Loop #1 or Driver Pretensioner Loop #2
    -Passenger Pretensioner Loop #1 or Passenger Pretensioner Loop #2
-All data should be examined in conjunction with other available physical evidence from the vehicle and scene

Data Source:
All SDM recorded data is measured, calculated, and stored internally, except for the following:
-Vehicle Status Data (Pre-Crash) is transmitted to the SDM, by Body Control Module, via the vehicle's communication network.
-The Belt Switch Circuit is wired directly to the SDM.

01041_SDM11-delphi_r007

Event Data (General)

Ignition Cycles At Investigation	3996
ESS # 1 Traceability Data	AU447039315011EC
ESS # 2 Traceability Data	AT44703931000E06
ESS # 3 Traceability Data	AH274429303013FA
ESS # 4 Traceability Data	AJ274429303013FD
ESS # 5 Traceability Data	DA44704931500DD0
ESS # 6 Traceability Data	DB44704931500E60
ESS # 7 Traceability Data	??00000000000000
ESS # 8 Traceability Data	??00000000000000
Vehicle Identification Number	?GNMCAE37AR132226
System Type	Delphi
Manufacturing Traceability Data	AS0674KZ932830PJ
Software Module Identifier 1	00CE1158
Software Module Identifier 2	013F0403
Software Module Identifier 3	01AE4BE4
End Model Part Number	00CE0102

Event Data (Event Record 1)

Event Recording Complete	Yes
Event Record Type	Non-Deployment
Crash Record Locked	No
Data Recording Complete - Deployment Status Data	No
Data Recording Complete - SDM Recorded Vehicle Velocity Change Data	No
Deployment Event Counter	0
Event Counter	1
OnStar Notification Event Counter	0
Algorithm Active: Rear	Yes
Algorithm Active: Rollover	Yes
Algorithm Active: Side	Yes
Algorithm Active: Frontal	Yes
Ignition Cycles At Event	3988
Time Between Events (sec)	Data Not Available
Concurrent Event Flag Set	No
Event Severity Status: Rollover	No
Event Severity Status: Rear	No
Event Severity Status: Right Side	No
Event Severity Status: Left Side	No
Event Severity Status: Frontal Stage 2	No
Event Severity Status: Frontal Stage 1	No
Event Severity Status: Frontal Pretensioner	No
Driver 1st Stage Deployment Loop Commanded	No
Passenger 1st Stage Deployment Loop Commanded	No
Driver 2nd Stage Deployment Loop Commanded	No
Passenger 2nd Stage Deployment Loop Commanded	No
Driver Pretensioner Deployment Loop #1 Commanded	No
Passenger Pretensioner Deployment Loop #1 Commanded	No
Driver Pretensioner Deployment Loop #2 Commanded (If Equipped)	No
Passenger Pretensioner Deployment Loop #2 Commanded (If Equipped)	No
Driver Thorax Loop Commanded (If Equipped)	No
Passenger Thorax Loop Commanded (If Equipped)	No
Driver Row 2 Thorax Loop Commanded (If Equipped)	No
Passenger Row 2 Thorax Loop Commanded (If Equipped)	No
Driver Row 1 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Passenger Row 1 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Driver Row 2 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Passenger Row 2 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Driver Row 3 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Passenger Row 3 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Driver Knee Deployment Loop Commanded (If Equipped)	No
Passenger Knee Deployment Loop Commanded (If Equipped)	No
Driver Row 2 Pretensioner Deployment Loop Commanded (If Equipped)	No
Passenger Row 2 Pretensioner Deployment Loop Commanded (If Equipped)	No
Center Row 2 Pretensioner Deployment Loop Commanded (If Equipped)	No
Battery Cutoff Loop Commanded (If Equipped)	No
Driver Roll Bar Loop Commanded (If Equipped)	No
Passenger Roll Bar Loop Commanded (If Equipped)	No
Steering Column Energy Absorbing Loop Commanded (If Equipped)	No
Driver Head Rest Loop Commanded (If Equipped)	No
Passenger Head Rest Loop Commanded (If Equipped)	No
Driver Row 2 Head Rest Loop Commanded (If Equipped)	No
Passenger Row 2 Head Rest Loop Commanded (If Equipped)	No
Center Row 2 Head Rest Loop Commanded (If Equipped)	No
High Voltage Battery Cutoff loop commanded (If Equipped)	No
Driver Belt Switch Circuit Status	Buckled
Passenger Belt Switch Circuit Status	Buckled
Driver Seat Position Status (If Equipped)	Rearward
Passenger Seat Position Status (If Equipped)	Data Not Available
Passenger Seat Occupancy Status	Occupied
Passenger Classification Status	Small Adult
Passenger SIR Suppression Switch Circuit Status (If Equipped)	Data Not Available

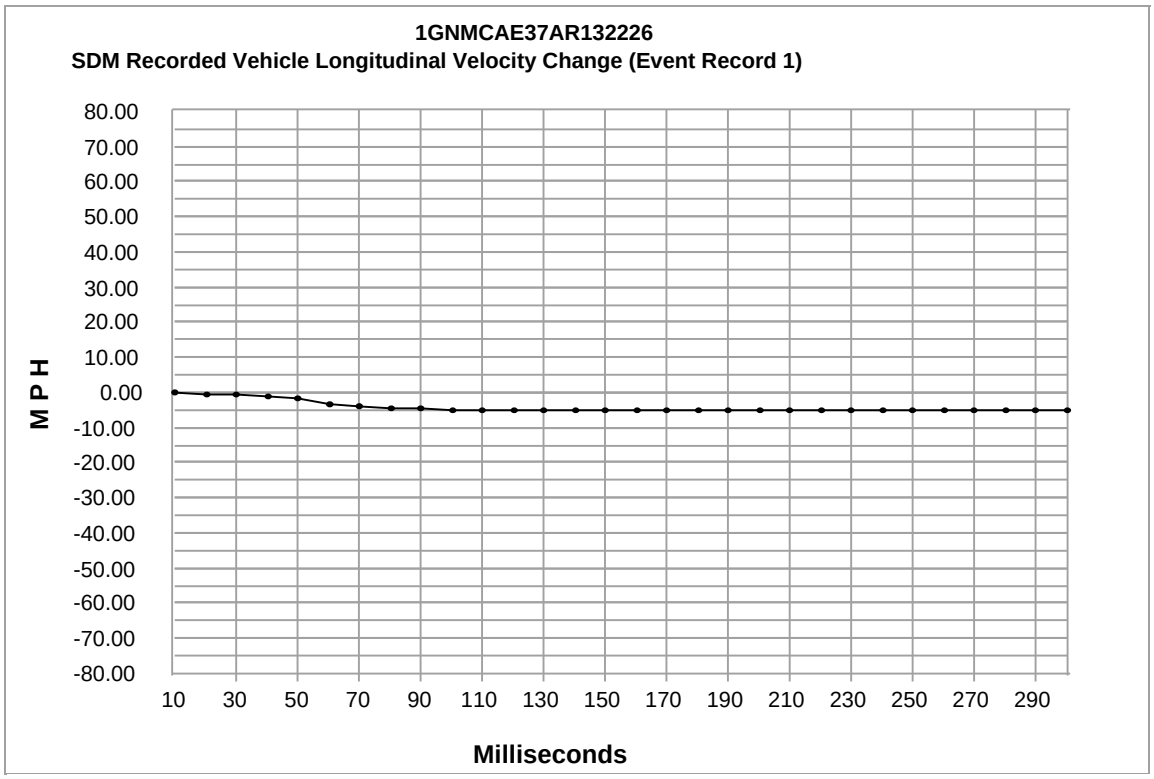
Passenger Air Bag ON Indicator Status	On
Passenger Air Bag OFF Indicator Status	Off
Low Tire Pressure Warning Lamp	Data Not Available
SIR Warning Lamp Status	Off
SIR Warning Lamp ON/OFF Time Continuously (seconds)	655330
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	3982
Ignition Cycles Since DTCs Were Last Cleared at Event Enable	253
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Time From Algorithm Enable to Maximum SDM Recorded Vehicle Velocity Change (msec)	140
Longitudinal SDM Recorded Vehicle Velocity Change at time of Maximum SDM Recorded Vehicle Velocity Change MPH [km/h]	-5 [-8]
Lateral SDM Recorded Vehicle Velocity Change at time of Maximum SDM Recorded Vehicle Velocity Change MPH [km/h]	-4 [-6]
Driver 1st Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Driver 2nd Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Passenger 1st Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Passenger 2nd Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Driver Thorax/Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Passenger Thorax/Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Driver Pretensioner Time From Algorithm Enable to Deployment Loop #1 or Loop #2 Command Criteria Met (msec)	Data Not Available
Passenger Pretensioner Time From Algorithm Enable to Deployment Loop #1 or Loop #2 Command Criteria Met (msec)	Data Not Available
Rollover Sensor - time from Event Enable to time of angle threshold (msec)	Data Not Available

Pre-Crash Data -1 to -.5 sec (Event Record 1)

Times (sec)	Cruise Control Active	Cruise Control Resume Switch Active	Cruise Control Set Switch Active	Engine Torque (lb-ft [N-m])	Reduced Engine Power Mode Indicator
-1.0	Data Not Available	Data Not Available	Data Not Available	-4 [-6]	Off
-0.5	Data Not Available	Data Not Available	Data Not Available	1 [1]	Off

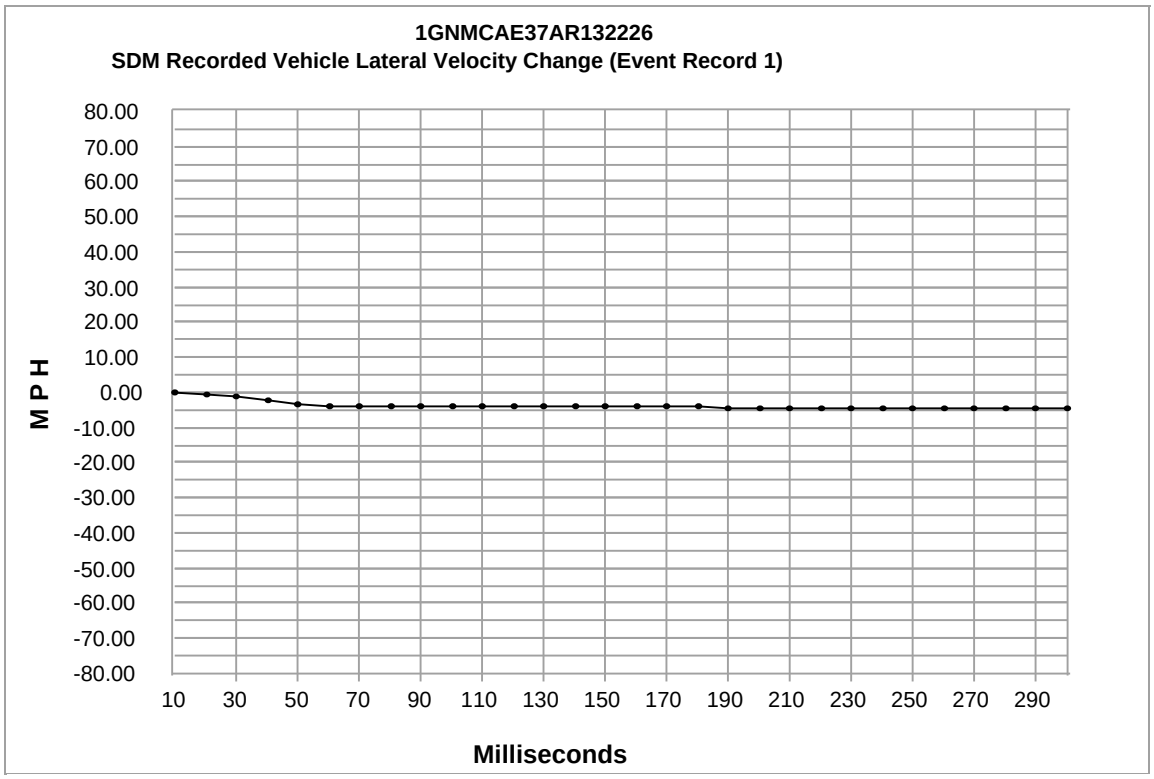
Pre-Crash Data -2.5 to -.5 sec (Event Record 1)

Times (sec)	Accelerator Pedal Position (percent)	Brake Switch Circuit State	Engine Speed	Throttle Position (%)	Vehicle Speed (MPH [km/h])
-2.5	0	Off	1472	13	68 [109]
-2.0	0	Off	1472	11	67 [108]
-1.5	0	On	1472	9	68 [109]
-1.0	0	On	1408	7	65 [105]
-0.5	0	On	1344	6	61 [98]



Time (msec)	Delta-V, longitudinal (MPH)	Delta-V, longitudinal (km/h)
10	0.0	0.0
20	-0.6	-1.0
30	-0.6	-1.0
40	-1.2	-2.0
50	-1.9	-3.0
60	-3.1	-5.0
70	-3.7	-6.0
80	-4.3	-7.0
90	-4.3	-7.0
100	-5.0	-8.0
110	-5.0	-8.0
120	-5.0	-8.0
130	-5.0	-8.0
140	-5.0	-8.0
150	-5.0	-8.0
160	-5.0	-8.0
170	-5.0	-8.0
180	-5.0	-8.0
190	-5.0	-8.0
200	-5.0	-8.0
210	-5.0	-8.0

Time (msec)	Delta-V, longitudinal (MPH)	Delta-V, longitudinal (km/h)
220	-5.0	-8.0
230	-5.0	-8.0
240	-5.0	-8.0
250	-5.0	-8.0
260	-5.0	-8.0
270	-5.0	-8.0
280	-5.0	-8.0
290	-5.0	-8.0
300	-5.0	-8.0



Time (msec)	Delta-V, lateral (MPH)	Delta-V, lateral (km/h)
10	0.0	0.0
20	-0.6	-1.0
30	-1.2	-2.0
40	-2.5	-4.0
50	-3.1	-5.0
60	-3.7	-6.0
70	-3.7	-6.0
80	-3.7	-6.0
90	-3.7	-6.0
100	-3.7	-6.0
110	-3.7	-6.0
120	-3.7	-6.0
130	-3.7	-6.0
140	-3.7	-6.0
150	-3.7	-6.0
160	-3.7	-6.0
170	-3.7	-6.0
180	-3.7	-6.0
190	-4.3	-7.0
200	-4.3	-7.0
210	-4.3	-7.0

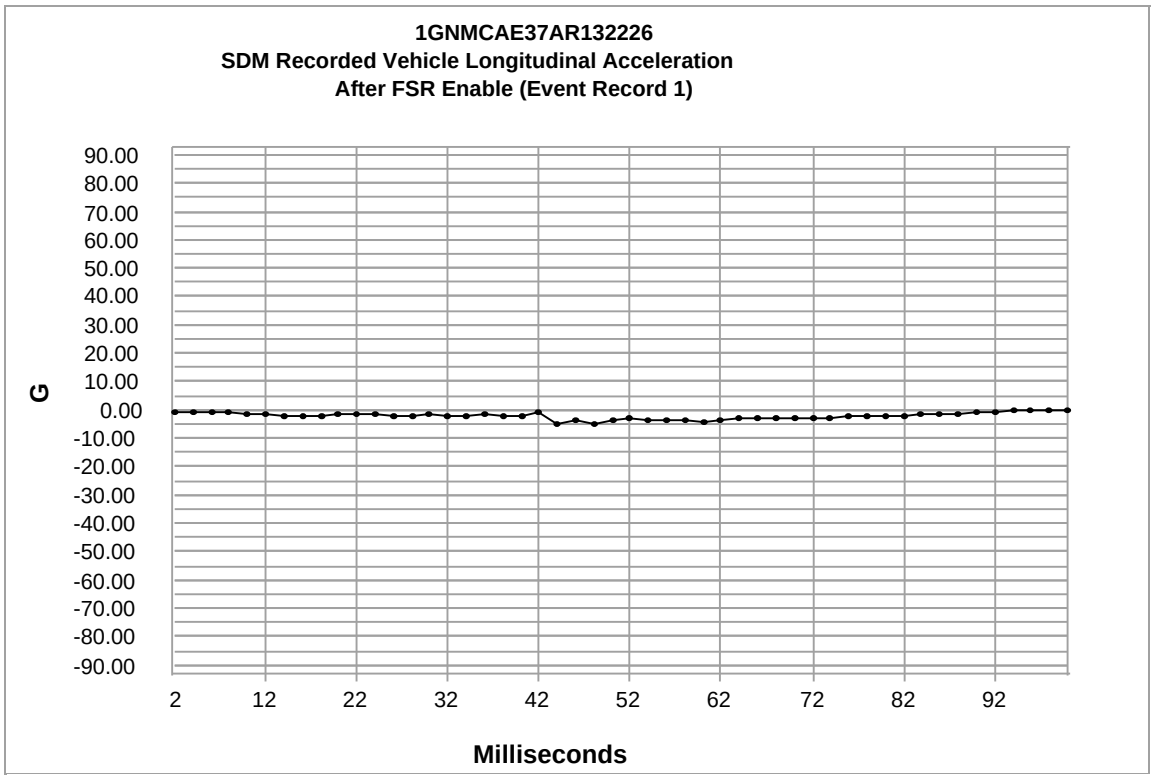
Time (msec)	Delta-V, lateral (MPH)	Delta-V, lateral (km/h)
220	-4.3	-7.0
230	-4.3	-7.0
240	-4.3	-7.0
250	-4.3	-7.0
260	-4.3	-7.0
270	-4.3	-7.0
280	-4.3	-7.0
290	-4.3	-7.0
300	-4.3	-7.0

SDM Recorded Vehicle Lateral Acceleration (Event Record 1)

Contains No Recorded Data

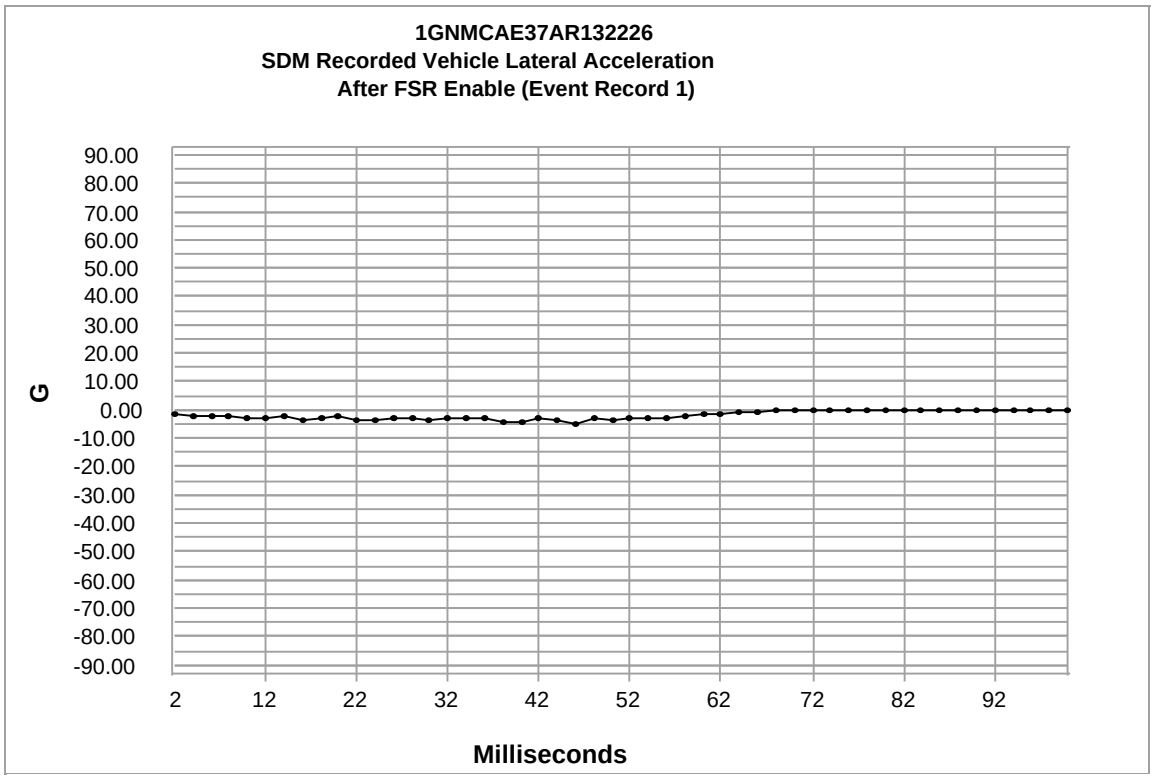
SDM Recorded Vehicle Roll Rate (Event Record 1)

Contains No Recorded Data



Time	G
2	-0.7
4	-0.7
6	-0.7
8	-0.7
10	-1.5
12	-1.5
14	-2.2
16	-2.2
18	-2.2
20	-1.5
22	-1.5
24	-1.5
26	-2.2
28	-2.2
30	-1.5
32	-2.2
34	-2.2
36	-1.5
38	-2.2
40	-2.2
42	-0.7
44	-5.1
46	-3.6
48	-5.1
50	-3.6

Time	G
52	-2.9
54	-3.6
56	-3.6
58	-3.6
60	-4.4
62	-3.6
64	-2.9
66	-2.9
68	-2.9
70	-2.9
72	-2.9
74	-2.9
76	-2.2
78	-2.2
80	-2.2
82	-2.2
84	-1.5
86	-1.5
88	-1.5
90	-0.7
92	-0.7
94	0.0
96	0.0
98	0.0
100	0.0



Time	G
2	-1.5
4	-2.2
6	-2.2
8	-2.2
10	-2.9
12	-2.9
14	-2.2
16	-3.6
18	-2.9
20	-2.2
22	-3.6
24	-3.6
26	-2.9
28	-2.9
30	-3.6
32	-2.9
34	-2.9
36	-2.9
38	-4.4
40	-4.4
42	-2.9
44	-3.6
46	-5.1
48	-2.9
50	-3.6

Time	G
52	-2.9
54	-2.9
56	-2.9
58	-2.2
60	-1.5
62	-1.5
64	-0.7
66	-0.7
68	0.0
70	0.0
72	0.0
74	0.0
76	0.0
78	0.0
80	0.0
82	0.0
84	0.0
86	0.0
88	0.0
90	0.0
92	0.0
94	0.0
96	0.0
98	0.0
100	0.0

Event Data (Event Record 2)

Event Recording Complete	Yes
Event Record Type	Deployment
Crash Record Locked	Yes
Data Recording Complete - Deployment Status Data	Yes
Data Recording Complete - SDM Recorded Vehicle Velocity Change Data	No
Deployment Event Counter	1
Event Counter	2
OnStar Notification Event Counter	1
Algorithm Active: Rear	Yes
Algorithm Active: Rollover	Yes
Algorithm Active: Side	Yes
Algorithm Active: Frontal	Yes
Ignition Cycles At Event	3988
Time Between Events (sec)	.87
Concurrent Event Flag Set	No
Event Severity Status: Rollover	Yes
Event Severity Status: Rear	No
Event Severity Status: Right Side	No
Event Severity Status: Left Side	No
Event Severity Status: Frontal Stage 2	No
Event Severity Status: Frontal Stage 1	No
Event Severity Status: Frontal Pretensioner	No
Driver 1st Stage Deployment Loop Commanded	No
Passenger 1st Stage Deployment Loop Commanded	No
Driver 2nd Stage Deployment Loop Commanded	No
Passenger 2nd Stage Deployment Loop Commanded	No
Driver Pretensioner Deployment Loop #1 Commanded	Yes
Passenger Pretensioner Deployment Loop #1 Commanded	Yes
Driver Pretensioner Deployment Loop #2 Commanded (If Equipped)	No
Passenger Pretensioner Deployment Loop #2 Commanded (If Equipped)	No
Driver Thorax Loop Commanded (If Equipped)	No
Passenger Thorax Loop Commanded (If Equipped)	No
Driver Row 2 Thorax Loop Commanded (If Equipped)	No
Passenger Row 2 Thorax Loop Commanded (If Equipped)	No
Driver Row 1 Roof Rail/Head Curtain Loop Commanded (If Equipped)	Yes
Passenger Row 1 Roof Rail/Head Curtain Loop Commanded (If Equipped)	Yes
Driver Row 2 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Passenger Row 2 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Driver Row 3 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Passenger Row 3 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Driver Knee Deployment Loop Commanded (If Equipped)	No
Passenger Knee Deployment Loop Commanded (If Equipped)	No
Driver Row 2 Pretensioner Deployment Loop Commanded (If Equipped)	No
Passenger Row 2 Pretensioner Deployment Loop Commanded (If Equipped)	No
Center Row 2 Pretensioner Deployment Loop Commanded (If Equipped)	No
Battery Cutoff Loop Commanded (If Equipped)	No
Driver Roll Bar Loop Commanded (If Equipped)	No
Passenger Roll Bar Loop Commanded (If Equipped)	No
Steering Column Energy Absorbing Loop Commanded (If Equipped)	No
Driver Head Rest Loop Commanded (If Equipped)	No
Passenger Head Rest Loop Commanded (If Equipped)	No
Driver Row 2 Head Rest Loop Commanded (If Equipped)	No
Passenger Row 2 Head Rest Loop Commanded (If Equipped)	No
Center Row 2 Head Rest Loop Commanded (If Equipped)	No
High Voltage Battery Cutoff loop commanded (If Equipped)	No
Driver Belt Switch Circuit Status	Buckled
Passenger Belt Switch Circuit Status	Buckled
Driver Seat Position Status (If Equipped)	Rearward
Passenger Seat Position Status (If Equipped)	Data Not Available
Passenger Seat Occupancy Status	Occupied
Passenger Classification Status	Small Adult
Passenger SIR Suppression Switch Circuit Status (If Equipped)	Data Not Available

Passenger Air Bag ON Indicator Status	On
Passenger Air Bag OFF Indicator Status	Off
Low Tire Pressure Warning Lamp	Data Not Available
SIR Warning Lamp Status	Off
SIR Warning Lamp ON/OFF Time Continuously (seconds)	655330
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	3982
Ignition Cycles Since DTCs Were Last Cleared at Event Enable	253
Diagnostic Trouble Codes at Event:	B0052
Fault type	$00
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Time From Algorithm Enable to Maximum SDM Recorded Vehicle Velocity Change (msec)	Data Not Available
Longitudinal SDM Recorded Vehicle Velocity Change at time of Maximum SDM Recorded Vehicle Velocity Change MPH [km/h]	Data Not Available
Lateral SDM Recorded Vehicle Velocity Change at time of Maximum SDM Recorded Vehicle Velocity Change MPH [km/h]	Data Not Available
Driver 1st Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Driver 2nd Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Passenger 1st Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Passenger 2nd Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Driver Thorax/Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	405
Passenger Thorax/Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	405
Driver Pretensioner Time From Algorithm Enable to Deployment Loop #1 or Loop #2 Command Criteria Met (msec)	405
Passenger Pretensioner Time From Algorithm Enable to Deployment Loop #1 or Loop #2 Command Criteria Met (msec)	405
Rollover Sensor - time from Event Enable to time of angle threshold (msec)	540

Pre-Crash Data -1 to -.5 sec (Event Record 2)

Times (sec)	Cruise Control Active	Cruise Control Resume Switch Active	Cruise Control Set Switch Active	Engine Torque (lb-ft [N-m])	Reduced Engine Power Mode Indicator
-1.0	Data Not Available	Data Not Available	Data Not Available	15 [21]	Off
-0.5	Data Not Available	Data Not Available	Data Not Available	20 [28]	Off

Pre-Crash Data -2.5 to -.5 sec (Event Record 2)

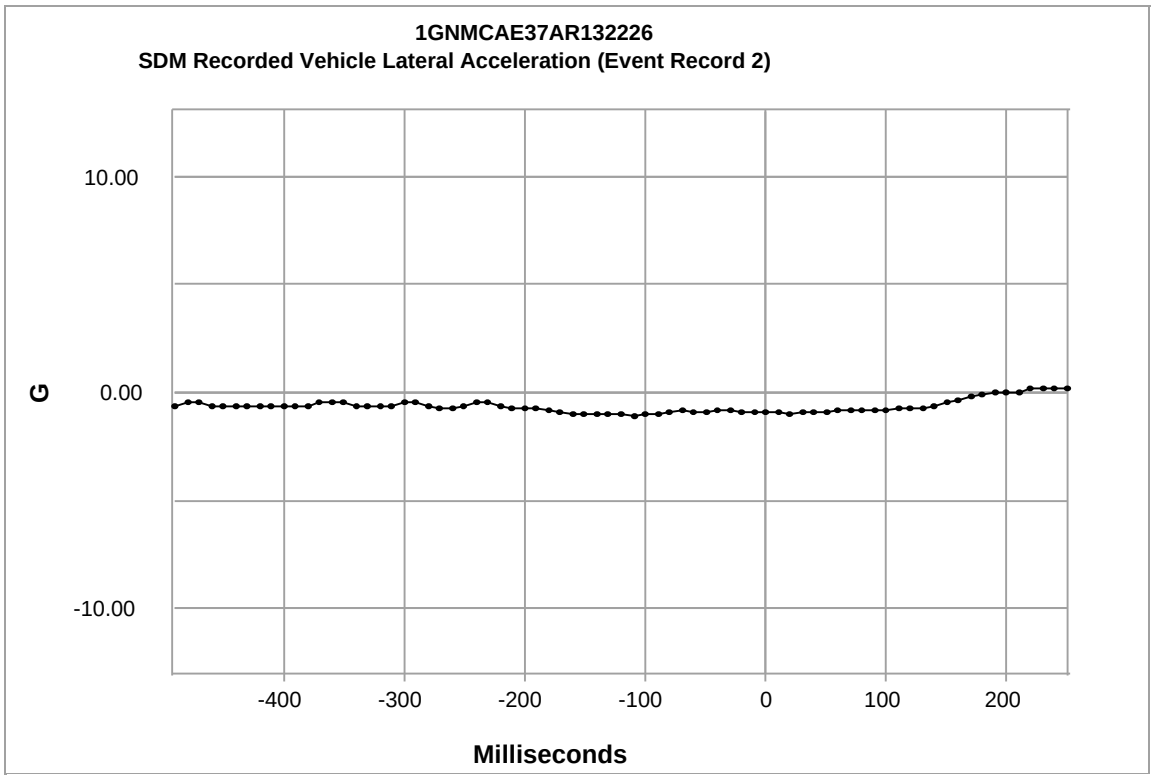
Times (sec)	Accelerator Pedal Position (percent)	Brake Switch Circuit State	Engine Speed	Throttle Position (%)	Vehicle Speed (MPH [km/h])
-2.5	0	On	1472	9	68 [109]
-2.0	0	On	1408	7	65 [105]
-1.5	0	On	1280	6	60 [97]
-1.0	0	Off	1152	12	50 [81]
-0.5	0	Off	1088	10	47 [76]

SDM Recorded Vehicle Longitudinal Velocity (Event Record 2)

Contains No Recorded Data

SDM Recorded Vehicle Lateral Velocity Change (Event Record 2)

Contains No Recorded Data



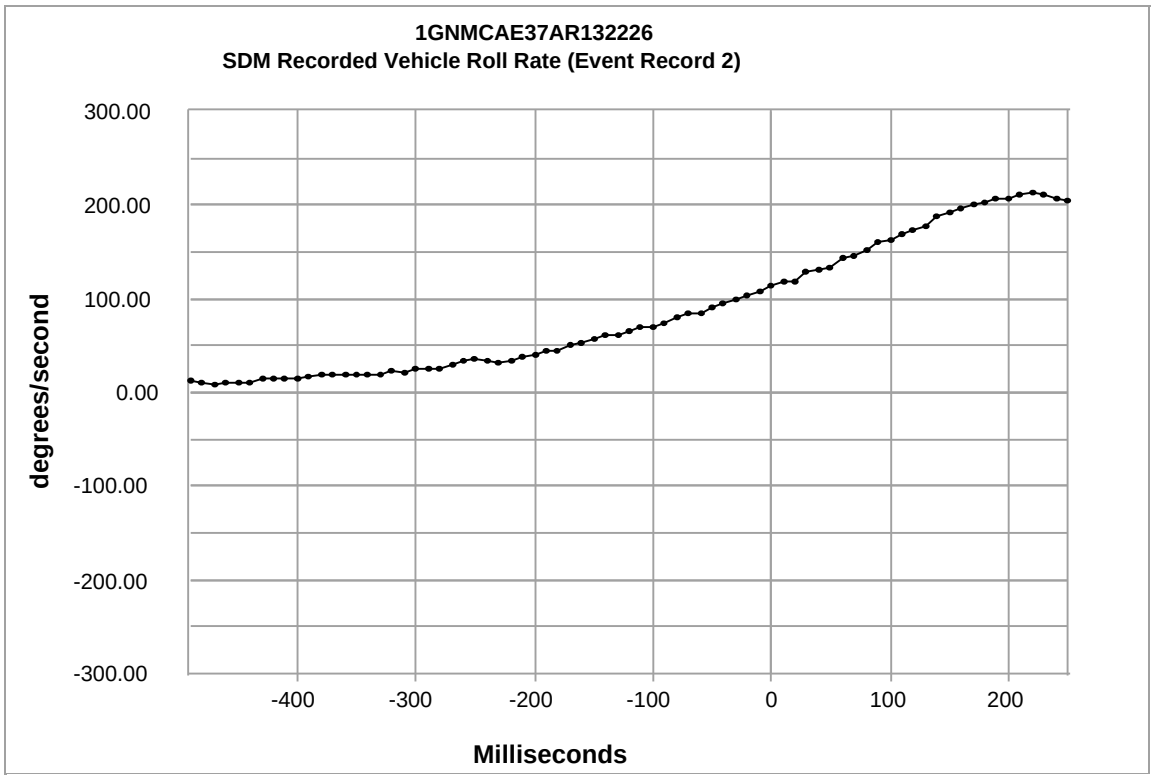
Time	g
-490	-0.6
-480	-0.5
-470	-0.5
-460	-0.6
-450	-0.6
-440	-0.6
-430	-0.6
-420	-0.6
-410	-0.6
-400	-0.6
-390	-0.6
-380	-0.6
-370	-0.5
-360	-0.5
-350	-0.5
-340	-0.6
-330	-0.6
-320	-0.6
-310	-0.6
-300	-0.5
-290	-0.5
-280	-0.6
-270	-0.7
-260	-0.7
-250	-0.6

Time	g
-240	-0.5
-230	-0.5
-220	-0.6
-210	-0.7
-200	-0.7
-190	-0.7
-180	-0.8
-170	-0.9
-160	-1.0
-150	-1.0
-140	-1.0
-130	-1.0
-120	-1.0
-110	-1.1
-100	-1.0
-90	-1.0
-80	-0.9
-70	-0.8
-60	-0.9
-50	-0.9
-40	-0.8
-30	-0.8
-20	-0.9
-10	-0.9
0	-0.9

Time	g
10	-0.9
20	-1.0
30	-0.9
40	-0.9
50	-0.9
60	-0.8
70	-0.8
80	-0.8
90	-0.8
100	-0.8
110	-0.7
120	-0.7
130	-0.7
140	-0.6
150	-0.5
160	-0.4
170	-0.2
180	-0.1
190	0.0
200	0.0
210	0.0
220	0.2
230	0.2
240	0.2
250	0.2

SDM Recorded Vehicle Vertical Acceleration (Event Record 2)

Contains No Recorded Data



Time	deg/sec
-490	12
-480	10
-470	8
-460	10
-450	10
-440	10
-430	14
-420	14
-410	14
-400	14
-390	16
-380	18
-370	18
-360	18
-350	18
-340	20
-330	20
-320	24
-310	22
-300	26
-290	26
-280	26
-270	30
-260	34
-250	36

Time	deg/sec
-240	34
-230	32
-220	34
-210	38
-200	40
-190	44
-180	44
-170	50
-160	52
-150	56
-140	62
-130	62
-120	66
-110	70
-100	70
-90	74
-80	80
-70	84
-60	84
-50	90
-40	96
-30	100
-20	104
-10	108
0	114

Time	deg/sec
10	118
20	118
30	128
40	130
50	134
60	144
70	146
80	152
90	160
100	162
110	170
120	174
130	178
140	188
150	192
160	196
170	200
180	202
190	206
200	206
210	212
220	214
230	212
240	208
250	204

SDM Recorded Vehicle Longitudinal Acceleration After FSR Enable (Event Record 2)

Contains No Recorded Data

SDM Recorded Vehicle Lateral Acceleration After FSR Enable (Event Record 2)

Contains No Recorded Data

Event Data (Event Record 3)

Event Recording Complete	Yes
Event Record Type	Deployment
Crash Record Locked	Yes
Data Recording Complete - Deployment Status Data	Yes
Data Recording Complete - SDM Recorded Vehicle Velocity Change Data	Yes
Deployment Event Counter	2
Event Counter	3
OnStar Notification Event Counter	1
Algorithm Active: Rear	Yes
Algorithm Active: Rollover	Yes
Algorithm Active: Side	Yes
Algorithm Active: Frontal	Yes
Ignition Cycles At Event	3988
Time Between Events (sec)	.77
Concurrent Event Flag Set	No
Event Severity Status: Rollover	No
Event Severity Status: Rear	No
Event Severity Status: Right Side	Yes
Event Severity Status: Left Side	No
Event Severity Status: Frontal Stage 2	No
Event Severity Status: Frontal Stage 1	Yes
Event Severity Status: Frontal Pretensioner	No
Driver 1st Stage Deployment Loop Commanded	Yes
Passenger 1st Stage Deployment Loop Commanded	Yes
Driver 2nd Stage Deployment Loop Commanded	Yes
Passenger 2nd Stage Deployment Loop Commanded	Yes
Driver Pretensioner Deployment Loop #1 Commanded	No
Passenger Pretensioner Deployment Loop #1 Commanded	No
Driver Pretensioner Deployment Loop #2 Commanded (If Equipped)	No
Passenger Pretensioner Deployment Loop #2 Commanded (If Equipped)	No
Driver Thorax Loop Commanded (If Equipped)	No
Passenger Thorax Loop Commanded (If Equipped)	Yes
Driver Row 2 Thorax Loop Commanded (If Equipped)	No
Passenger Row 2 Thorax Loop Commanded (If Equipped)	No
Driver Row 1 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Passenger Row 1 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Driver Row 2 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Passenger Row 2 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Driver Row 3 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Passenger Row 3 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Driver Knee Deployment Loop Commanded (If Equipped)	No
Passenger Knee Deployment Loop Commanded (If Equipped)	No
Driver Row 2 Pretensioner Deployment Loop Commanded (If Equipped)	No
Passenger Row 2 Pretensioner Deployment Loop Commanded (If Equipped)	No
Center Row 2 Pretensioner Deployment Loop Commanded (If Equipped)	No
Battery Cutoff Loop Commanded (If Equipped)	No
Driver Roll Bar Loop Commanded (If Equipped)	No
Passenger Roll Bar Loop Commanded (If Equipped)	No
Steering Column Energy Absorbing Loop Commanded (If Equipped)	No
Driver Head Rest Loop Commanded (If Equipped)	No
Passenger Head Rest Loop Commanded (If Equipped)	No
Driver Row 2 Head Rest Loop Commanded (If Equipped)	No
Passenger Row 2 Head Rest Loop Commanded (If Equipped)	No
Center Row 2 Head Rest Loop Commanded (If Equipped)	No
High Voltage Battery Cutoff loop commanded (If Equipped)	No
Driver Belt Switch Circuit Status	Buckled
Passenger Belt Switch Circuit Status	Buckled
Driver Seat Position Status (If Equipped)	Rearward
Passenger Seat Position Status (If Equipped)	Data Not Available
Passenger Seat Occupancy Status	Occupied
Passenger Classification Status	Small Adult
Passenger SIR Suppression Switch Circuit Status (If Equipped)	Data Not Available

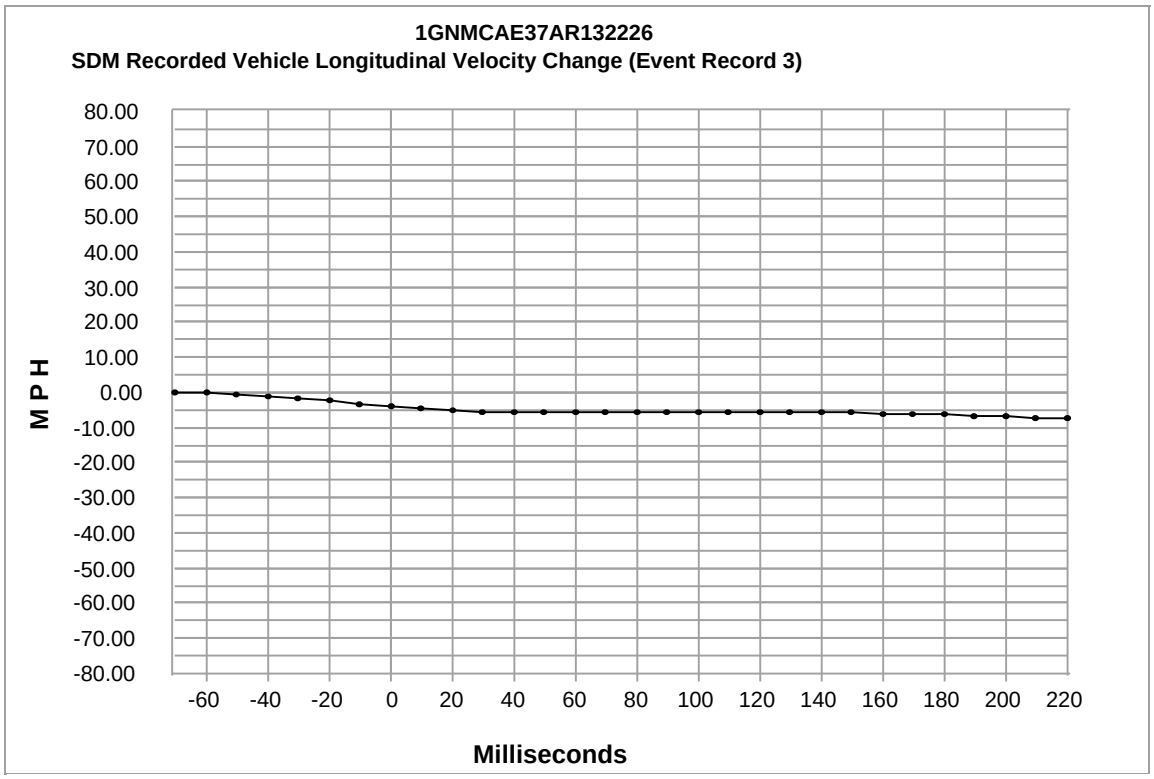
Passenger Air Bag ON Indicator Status	On
Passenger Air Bag OFF Indicator Status	Off
Low Tire Pressure Warning Lamp	Data Not Available
SIR Warning Lamp Status	On
SIR Warning Lamp ON/OFF Time Continuously (seconds)	0
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	0
Ignition Cycles Since DTCs Were Last Cleared at Event Enable	253
Diagnostic Trouble Codes at Event:	B0052
Fault type	$00
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Diagnostic Trouble Codes at Event:	N/A
Fault type	N/A
Time From Algorithm Enable to Maximum SDM Recorded Vehicle Velocity Change (msec)	400
Longitudinal SDM Recorded Vehicle Velocity Change at time of Maximum SDM Recorded Vehicle Velocity Change MPH [km/h]	-8 [-13]
Lateral SDM Recorded Vehicle Velocity Change at time of Maximum SDM Recorded Vehicle Velocity Change MPH [km/h]	4 [6]
Driver 1st Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	93
Driver 2nd Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	213
Passenger 1st Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	93
Passenger 2nd Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	213
Driver Thorax/Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	Data Not Available
Passenger Thorax/Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	306
Driver Pretensioner Time From Algorithm Enable to Deployment Loop #1 or Loop #2 Command Criteria Met (msec)	Data Not Available
Passenger Pretensioner Time From Algorithm Enable to Deployment Loop #1 or Loop #2 Command Criteria Met (msec)	Data Not Available
Rollover Sensor - time from Event Enable to time of angle threshold (msec)	Data Not Available

Pre-Crash Data -1 to -.5 sec (Event Record 3)

Times (sec)	Cruise Control Active	Cruise Control Resume Switch Active	Cruise Control Set Switch Active	Engine Torque (lb-ft [N-m])	Reduced Engine Power Mode Indicator
-1.0	Data Not Available	Data Not Available	Data Not Available	7 [10]	Off
-0.5	Data Not Available	Data Not Available	Data Not Available	14 [18]	Off

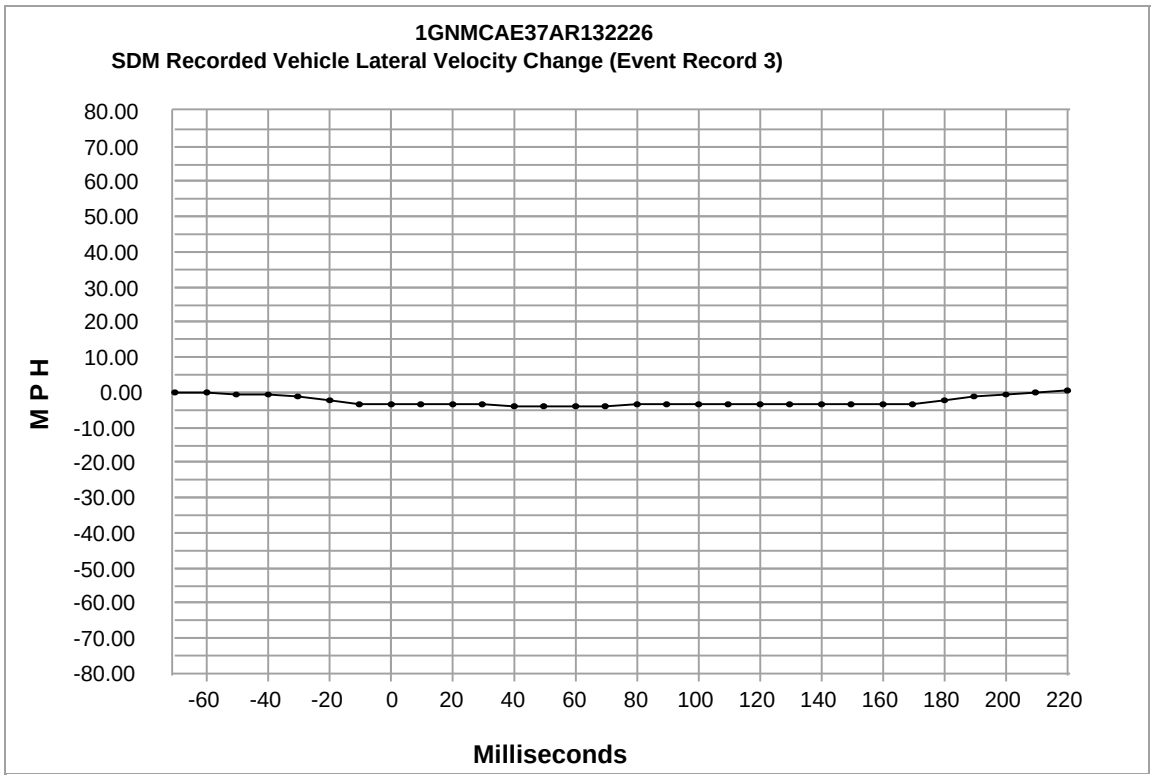
Pre-Crash Data -2.5 to -.5 sec (Event Record 3)

Times (sec)	Accelerator Pedal Position (percent)	Brake Switch Circuit State	Engine Speed	Throttle Position (%)	Vehicle Speed (MPH [km/h])
-2.5	0	On	1280	6	60 [97]
-2.0	0	On	1152	12	50 [81]
-1.5	0	Off	960	9	45 [72]
-1.0	0	Off	896	9	42 [67]
-0.5	0	Off	896	8	42 [67]



Time (msec)	Delta-V, longitudinal (MPH)	Delta-V, longitudinal (km/h)
-70	0.0	0.0
-60	0.0	0.0
-50	-0.6	-1.0
-40	-1.2	-2.0
-30	-1.9	-3.0
-20	-2.5	-4.0
-10	-3.1	-5.0
0	-3.7	-6.0
10	-4.3	-7.0
20	-5.0	-8.0
30	-5.6	-9.0
40	-5.6	-9.0
50	-5.6	-9.0
60	-5.6	-9.0
70	-5.6	-9.0
80	-5.6	-9.0
90	-5.6	-9.0
100	-5.6	-9.0
110	-5.6	-9.0
120	-5.6	-9.0
130	-5.6	-9.0

Time (msec)	Delta-V, longitudinal (MPH)	Delta-V, longitudinal (km/h)
140	-5.6	-9.0
150	-5.6	-9.0
160	-6.2	-10.0
170	-6.2	-10.0
180	-6.2	-10.0
190	-6.8	-11.0
200	-6.8	-11.0
210	-7.5	-12.0
220	-7.5	-12.0



Time (msec)	Delta-V, lateral (MPH)	Delta-V, lateral (km/h)
-70	0.0	0.0
-60	0.0	0.0
-50	-0.6	-1.0
-40	-0.6	-1.0
-30	-1.2	-2.0
-20	-2.5	-4.0
-10	-3.1	-5.0
0	-3.1	-5.0
10	-3.1	-5.0
20	-3.1	-5.0
30	-3.1	-5.0
40	-3.7	-6.0
50	-3.7	-6.0
60	-3.7	-6.0
70	-3.7	-6.0
80	-3.1	-5.0
90	-3.1	-5.0
100	-3.1	-5.0
110	-3.1	-5.0
120	-3.1	-5.0
130	-3.1	-5.0

Time (msec)	Delta-V, lateral (MPH)	Delta-V, lateral (km/h)
140	-3.1	-5.0
150	-3.1	-5.0
160	-3.1	-5.0
170	-3.1	-5.0
180	-2.5	-4.0
190	-1.2	-2.0
200	-0.6	-1.0
210	0.0	0.0
220	0.6	1.0

SDM Recorded Vehicle Lateral Acceleration (Event Record 3)

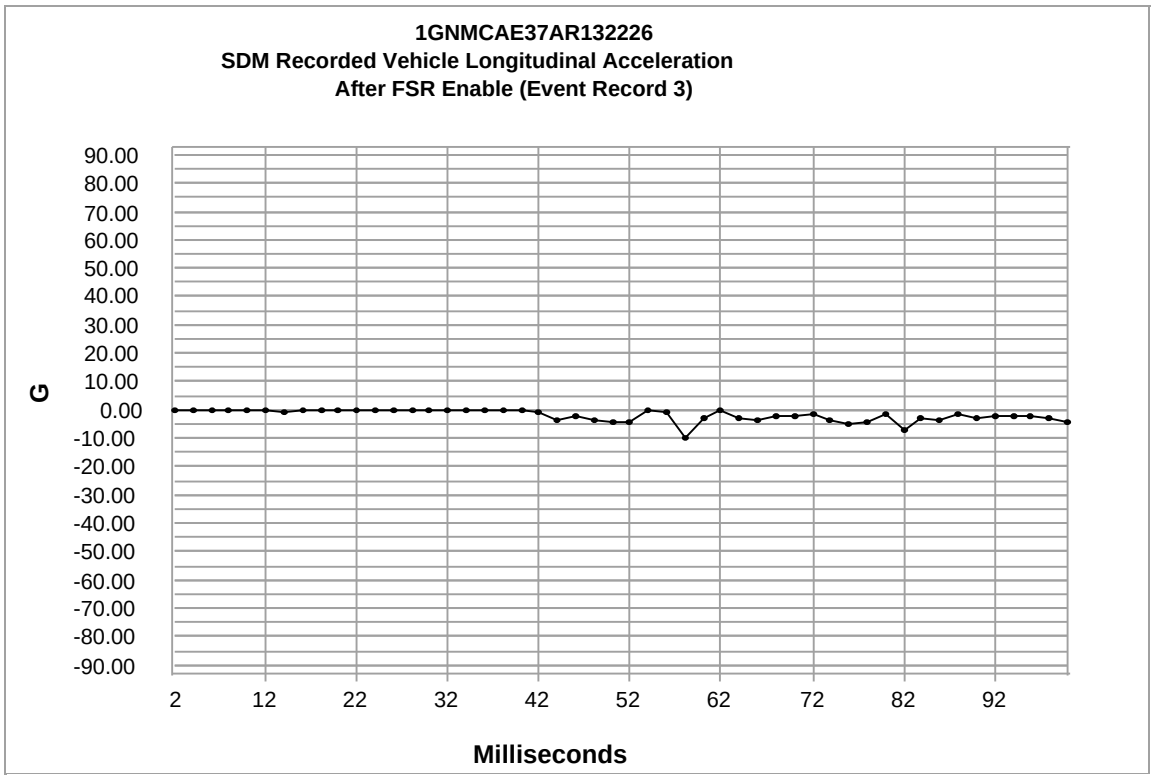
Contains No Recorded Data

SDM Recorded Vehicle Vertical Acceleration (Event Record 3)

Contains No Recorded Data

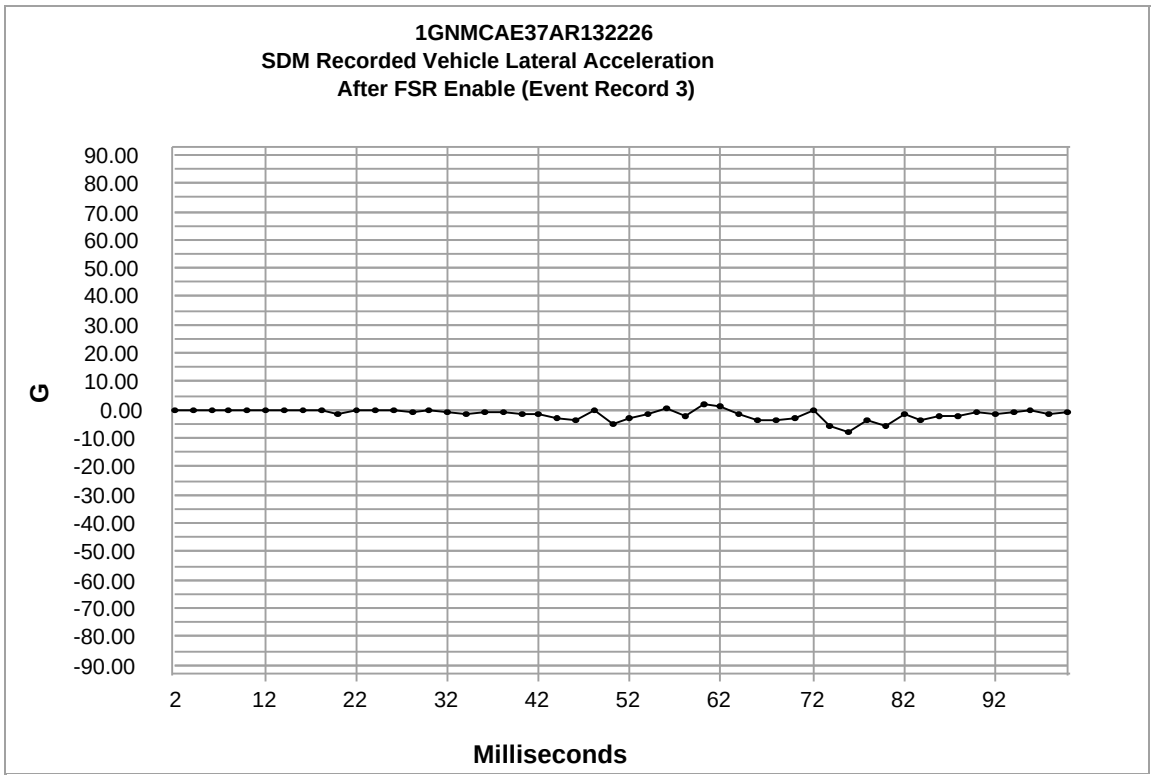
SDM Recorded Vehicle Roll Rate (Event Record 3)

Contains No Recorded Data



Time	G
2	0.0
4	0.0
6	0.0
8	0.0
10	0.0
12	0.0
14	-0.7
16	0.0
18	0.0
20	0.0
22	0.0
24	0.0
26	0.0
28	0.0
30	0.0
32	0.0
34	0.0
36	0.0
38	0.0
40	0.0
42	-0.7
44	-3.6
46	-2.2
48	-3.6
50	-4.4

Time	G
52	-4.4
54	0.0
56	-0.7
58	-10.2
60	-2.9
62	0.0
64	-2.9
66	-3.6
68	-2.2
70	-2.2
72	-1.5
74	-3.6
76	-5.1
78	-4.4
80	-1.5
82	-7.3
84	-2.9
86	-3.6
88	-1.5
90	-2.9
92	-2.2
94	-2.2
96	-2.2
98	-2.9
100	-4.4



Time	G
2	0.0
4	0.0
6	0.0
8	0.0
10	0.0
12	0.0
14	0.0
16	0.0
18	0.0
20	-1.5
22	0.0
24	0.0
26	0.0
28	-0.7
30	0.0
32	-0.7
34	-1.5
36	-0.7
38	-0.7
40	-1.5
42	-1.5
44	-2.9
46	-3.6
48	0.0
50	-5.1

Time	G
52	-2.9
54	-1.5
56	0.7
58	-2.2
60	2.2
62	1.5
64	-1.5
66	-3.6
68	-3.6
70	-2.9
72	0.0
74	-5.8
76	-8.0
78	-3.6
80	-5.8
82	-1.5
84	-3.6
86	-2.2
88	-2.2
90	-0.7
92	-1.5
94	-0.7
96	0.0
98	-1.5
100	-0.7

Hexadecimal Data

Data that the vehicle manufacturer has specified for data retrieval is shown in the hexadecimal data section of the CDR report. The hexadecimal data section of the CDR report may contain data that is not translated by the CDR program. The control module contains additional data that is not retrievable by the CDR system.

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DPID $32
00 FF 0F 9C 00 00 00

DPID $35
78 00 00 00 00 00 00

DID $01
41 55 34 34 37 30 33 39 33 31 35 30 31 31 45 43

DID $03
41 54 34 34 37 30 33 39 33 31 30 30 30 45 30 36

DID $05
41 48 32 37 34 34 32 39 33 30 33 30 31 33 46 41

DID $07
41 4A 32 37 34 34 32 39 33 30 33 30 31 33 46 44

DID $09
44 41 34 34 37 30 34 39 33 31 35 30 30 44 44 30

DID $0B
44 42 34 34 37 30 34 39 33 31 35 30 30 45 36 30

DID $0D
01 00 30 30 30 30 30 30 30 30 30 30 30 30 30 30

DID $0F
01 00 30 30 30 30 30 30 30 30 30 30 30 30 30 30

DID $30
02 00 08 01

DID $90
00 47 4E 4D 43 41 45 33 37 41 52 31 33 32 32 32 36

DID $9A
06 01

DID $B4
41 53 30 36 37 34 4B 5A 39 33 32 38 33 30 50 4A

DID $C1
00 CE 11 58

DID $C2
01 3F 04 03

DID $C3
01 AE 4B E4

DID $CB
00 CE 01 02
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DID $31

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 0020   5C FC FC 30 20 60 C0 40 00 00
 0030   00 00 00 54 00 FF F0 15 16 17
 0040   17 17 06 94 06 A2 06 07 09 0B
 0050   0D 62 69 6D 6C 6D 0C FF FD 0F
 0060   8E FD FF FF FF FF FF FF FF FF
 0070   FF FF FF FF FF FF FF FF FF FF
 0080   FF FF FF FF FF FF FF FF FF 0E
 0090   77 79 FF FF FF FF FF FF FF FF
 0100   7F 7F 7E 7E 7E 7D 7D 7B 7C 7A
 0110   7A 79 79 79 78 79 78 79 77 79
 0120   77 79 77 79 77 79 77 79 77 79
 0130   77 79 77 79 77 79 77 78 77 78
 0140   77 78 77 78 77 78 77 78 77 78
 0150   77 78 77 78 77 78 77 78 77 78
 0160   FF FF FF FF FF FF FF FF FF FF
 0170   FF FF FF FF FF FF FF FF FF FF
 0180   FF FF FF FF FF FF FF FF FF FF
 0190   FF FF FF FF FF FF FF FF FF FF
 0200   FF FF FF FF FF FF FF FF FF FF
 0210   FF FF FF FF FF FF FF FF FF FF
 0220   FF FF FF FF FF FF FF FF FF FF
 0230   FF FF FF FF FF FF FF FF FF FF
 0240   FF FF FF FF FF FF FF FF FF FF
 0250   FF FF FF FF FF FF FF FF FF FF
 0260   FF FF FF FF FF FF FF FF FF FF
 0270   FF FF FF FF FF FF FF FF FF FF
 0280   FF FF FF FF FF FF FF FF FF FF
 0290   FF FF FF FF FF FF FF FF FF FF
 0300   FF FF FF FF FF FF FF FF FF FF
 0310   FF FF FF FF FF FF FF FF FF FF
 0320   FF FF FF FF FF FF FF FF FF FF
 0330   FF FF FF FF FF FF FF FF FF FF
 0340   FF FF FF FF FF FF FF FF FF FF
 0350   FF FF FF FF FF FF FF FF FF FF
 0360   FF FF FF FF FF FF FF FF FF FF
 0370   FF FF FF FF FF FF FF FF FF FF
 0380   FF FF FF FF FF FF 7E 7E 7E 7E
 0390   7D 7D 7C 7C 7C 7D 7D 7D 7C 7C
 0400   7D 7C 7C 7D 7C 7C 7E 78 7A 78
 0410   7A 7B 7A 7A 7A 79 7A 7B 7B 7B
 0420   7B 7B 7B 7C 7C 7C 7C 7D 7D 7D
 0430   7E 7E 7F 7F 7F 7F 7D 7C 7C 7C
 0440   7B 7B 7C 7A 7B 7C 7A 7A 7B 7B
 0450   7A 7B 7B 7B 79 79 7B 7A 78 7B
 0460   7A 7B 7B 7B 7C 7D 7D 7E 7E 7F
 0470   7F 7F 7F 7F 7F 7F 7F 7F 7F 7F
 0480   7F 7F 7F 7F 7F 7F 00 00 00 00
 0490   00 00 00 00 00 00 00 00 00 00
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DID $32

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 0060   8E FD 80 52 00 FF FF FF FF FF
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 0160   77 FF 85 78 FF 84 78 FF 83 77
 0170   FF 84 77 FF 84 77 FF 84 77 FF
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 0190   77 FF 87 77 FF 88 78 FF 88 78
 0200   FF 88 78 FF 88 77 FF 89 77 FF
 0210   89 77 FF 8B 77 FF 8A 78 FF 8C
 0220   78 FF 8C 77 FF 8C 76 FF 8E 76
 0230   FF 90 77 FF 91 78 FF 90 78 FF
 0240   8F 77 FF 90 76 FF 92 76 FF 93
 0250   76 FF 95 75 FF 95 74 FF 98 73
 0260   FF 99 73 FF 9B 73 FF 9E 73 FF
 0270   9E 73 FF A0 72 FF A2 73 FF A2
 0280   73 FF A4 74 FF A7 75 FF A9 74
 0290   FF A9 74 FF AC 75 FF AF 75 FF
 0300   B1 74 FF B3 74 FF B5 74 FF B8
 0310   74 FF BA 73 FF BA 74 FF BF 74
 0320   FF C0 74 FF C2 75 FF C7 75 FF
 0330   C8 75 FF CB 75 FF CF 75 FF D0
 0340   76 FF D4 76 FF D6 76 FF D8 77
 0350   FF DD 78 FF DF 79 FF E1 7B FF
 0360   E3 7C FF E4 7D FF E6 7D FF E6
 0370   7D FF E9 7F FF EA 7F FF E9 7F
 0380   FF E7 7F FF E5 1B FF FF FF FF
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 0400   FF FF FF FF FF FF FF FF FF FF
 0410   FF FF FF FF FF FF FF FF FF FF
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 0430   FF FF FF FF FF FF FF FF FF FF
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 0450   FF FF FF FF FF FF FF FF FF FF
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 0480   FF FF FF FF FF FF 00 00 00 00
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 0010   4D 00 FF FF 24 E8 10 00 00 00
 0020   5C FC FC 30 20 60 C0 40 00 00
 0030   00 00 00 01 40 FF F0 0E 0E 0F
 0040   12 14 06 B4 06 C5 08 09 09 0C
 0050   06 43 43 48 51 61 0D 00 00 00
 0060   00 FD 80 52 00 FF FF FF FF FF
 0070   FF FF FF FF FF FF FF FF FF FF
 0080   FF FF FF FF FF FF FF FF FF 28
 0090   72 85 1F 47 1F 47 FF 66 FF FF
 0100   7F 7F 7F 7F 7E 7E 7D 7E 7C 7D
 0110   7B 7B 7A 7A 79 7A 78 7A 77 7A
 0120   76 7A 76 79 76 79 76 79 76 79
 0130   76 7A 76 7A 76 7A 76 7A 76 7A
 0140   76 7A 76 7A 76 7A 75 7A 75 7A
 0150   75 7B 74 7D 74 7E 73 7F 73 80
 0160   FF FF FF FF FF FF FF FF FF FF
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0170   FF FF FF FF FF FF FF FF FF FF
0180   FF FF FF FF FF FF FF FF FF FF
0190   FF FF FF FF FF FF FF FF FF FF
0200   FF FF FF FF FF FF FF FF FF FF
0210   FF FF FF FF FF FF FF FF FF FF
0220   FF FF FF FF FF FF FF FF FF FF
0230   FF FF FF FF FF FF FF FF FF FF
0240   FF FF FF FF FF FF FF FF FF FF
0250   FF FF FF FF FF FF FF FF FF FF
0260   FF FF FF FF FF FF FF FF FF FF
0270   FF FF FF FF FF FF FF FF FF FF
0280   FF FF FF FF FF FF FF FF FF FF
0290   FF FF FF FF FF FF FF FF FF FF
0300   FF FF FF FF FF FF FF FF FF FF
0310   FF FF FF FF FF FF FF FF FF FF
0320   FF FF FF FF FF FF FF FF FF FF
0330   FF FF FF FF FF FF FF FF FF FF
0340   FF FF FF FF FF FF FF FF FF FF
0350   FF FF FF FF FF FF FF FF FF FF
0360   FF FF FF FF FF FF FF FF FF FF
0370   FF FF FF FF FF FF FF FF FF FF
0380   FF FF FF FF FF FF 7F 7F 7F 7F
0390   7F 7F 7E 7F 7F 7F 7F 7F 7F 7F
0400   7F 7F 7F 7F 7F 7F 7E 7A 7C 7A
0410   79 79 7F 7E 71 7B 7F 7B 7A 7C
0420   7C 7D 7A 78 79 7D 75 7B 7A 7D
0430   7B 7C 7C 7C 7B 79 7F 7F 7F 7F
0440   7F 7F 7F 7F 7F 7D 7F 7F 7F 7E
0450   7F 7E 7D 7E 7E 7D 7D 7B 7A 7F
0460   78 7B 7D 80 7C 82 81 7D 7A 7A
0470   7B 7F 77 74 7A 77 7D 7A 7C 7C
0480   7E 7D 7E 7F 7D 7E 00 00 00 00
0490   00 00 00 00 00 00 00 00 00 00
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