

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	1G1JC5SH6C4102209
User	
Case Number	MC0110
EDR Data Imaging Date	01/03/2012
Crash Date	
Filename	(7563) 12 CHEVROLET SONIC.CDRX
Saved on	Tuesday, January 3 2012 at 10:38:12
Collected with CDR version	Crash Data Retrieval Tool 4.3
Reported with CDR version	Crash Data Retrieval Tool 11.1.1
EDR Device Type	Airbag Control Module
Event(s) recovered	Deployment

Comments

No comments entered.

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 overwritten 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.

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.

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.

-Time between events is recorded in 10 msec intervals and is displayed in seconds for a maximum time of 655.33 seconds. The counter measures the time 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. The 0.5 second Pre-crash data value (most recent recorded data point) is the data point last sampled before AE. That is to say, the last data point may have been captured just before AE but no more than 0.5 second before AE. All subsequent Pre-crash data values are referenced from this data point.

-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.

-Algorithm Enable Counter tracks the number of times the sensing algorithm enabled (either Deployments, Non-deploy, or Rollover events) 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

-For Deployment Events, DTC B0052 (Deployment commanded) shall be recorded with the remainder of the data for this event even though it occurred after Event Enable.

-Once a firing loop has been commanded to be deployed, it will not be commanded to be deployed again during the same ignition cycle. Firing loop times for subsequent deployment type events, during the same ignition cycle, will record the deployment times as N/A.

-The reported range of the longitudinal and lateral acceleration values is approximately ± 50 g.

-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.

Data Element Sign Convention:

The following table provides an explanation of the sign notation for data elements that may be included in this CDR report. Directional references to sign notation are all from the perspective of the driver when seated in the vehicle facing the direction of forward vehicle travel.

Data Element Notation	Positive Sign
Longitudinal Velocity Change	Forward
Lateral Acceleration	Left to Right
Lateral Velocity Change	Left to Right
Vertical Acceleration	Downward
Roll Rate	Clockwise Rotation

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 tool.

01039_SDM10-conti_r013

Event Data (General)

Ignition Cycles At Investigation	78
ESS # 1 Traceability Data	AU4262TRM24HHE8M
ESS # 2 Traceability Data	AT4262TQG06P3E8M
ESS # 3 Traceability Data	AH2340TWCi9ERE8L
ESS # 4 Traceability Data	AJ2340TWCi3B3E8L
ESS # 5 Traceability Data	DA2341TM20JBIM8N
ESS # 6 Traceability Data	DB2341TM249GAM8N
ESS # 7 Traceability Data	000000T000000000
ESS # 8 Traceability Data	000000T000000000
Dynamic Deployment Event Counter	1
Dynamic Algorithm Enable Counter	1
Dynamic OnStar Notification Event Counter	1
Vehicle Identification Number	1G1JC5SH6C4102209
System Type	Continental
Manufacturing Traceability Data	AS3434T112090231
Software Module Identifier 1	00CF4445
Software Module Identifier 2	05B79477
Software Module Identifier 3	00CE01A1
End Model Part Number	00CF444A

Event Data (Event Record 1)

Event Recording Complete	Yes
Event Record Type	Deployment
Crash Record Locked	Yes
OnStar Deployment Status Data Sent	Yes
OnStar SDM Recorded Vehicle Velocity Change Data Sent	Yes
Deployment Event Counter	1
Algorithm Enable Counter	1
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	78
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	Yes
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)	Yes
Passenger Pretensioner Deployment Loop #2 Commanded (If Equipped)	Yes
Driver Thorax Loop Commanded (If Equipped)	Yes
Passenger Thorax Loop Commanded (If Equipped)	No
Left Row 2 Thorax Loop Commanded (If Equipped)	Yes
Right 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
Left Row 2 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Right Row 2 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Left Row 3 Roof Rail/Head Curtain Loop Commanded (If Equipped)	No
Right 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
Left Row 2 Pretensioner Deployment Loop Commanded (If Equipped)	No
Right 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
Left Row 2 Head Rest Loop Commanded (If Equipped)	No
Right 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 (If Equipped)	Buckled
Passenger Belt Switch Circuit Status (If Equipped)	Not Buckled
Driver Seat Position Status (If Equipped)	Data Not Available
Passenger Seat Position Status (If Equipped)	Data Not Available
Passenger Seat Occupancy Status (If Equipped)	Empty
Passenger Classification Status (If Equipped)	Not Applicable
Passenger SIR Suppression Switch Circuit Status (If Equipped)	Data Not Available
Passenger Air Bag ON Indicator Status (If Equipped)	Off
Passenger Air Bag OFF Indicator Status (If Equipped)	On

Low Tire Pressure Warning Lamp	Off
SIR Warning Lamp Status	Off
SIR Warning Lamp ON/OFF Time Continuously (seconds)	66700
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	0
Ignition Cycles Since DTCs Were Last Cleared at Event Enable	78
Time From Algorithm Enable to Maximum SDM Recorded Vehicle Velocity Change (msec)	40
Longitudinal SDM Recorded Vehicle Velocity Change at time of Maximum SDM Recorded Vehicle Velocity Change MPH [km/h]	-3 [-5]
Lateral SDM Recorded Vehicle Velocity Change at time of Maximum SDM Recorded Vehicle Velocity Change MPH [km/h]	15 [24]
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)	0
Passenger Thorax/Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	0
Driver Pretensioner Time From Algorithm Enable to Deployment Loop #1 or Loop #2 Command Criteria Met (msec)	0
Passenger Pretensioner Time From Algorithm Enable to Deployment Loop #1 or Loop #2 Command Criteria Met (msec)	0

DTCs Present at Time of Event (Event Record 1)

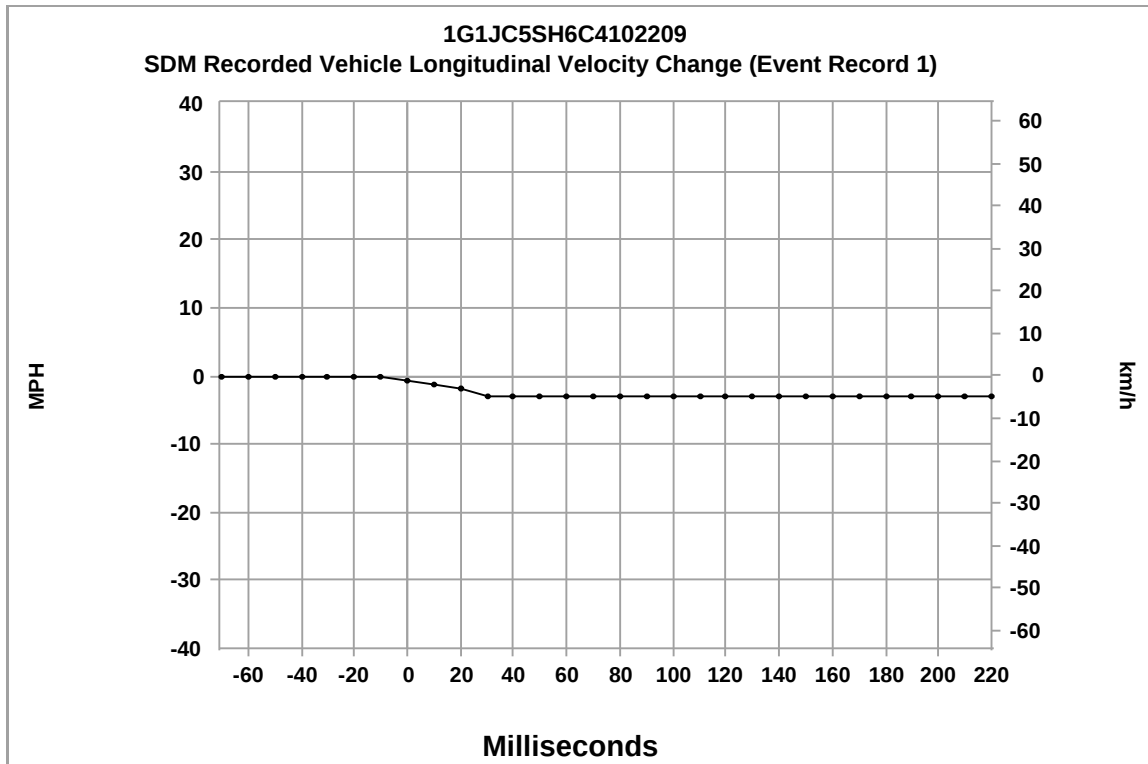
B0052-00

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	No	No	No	-28 [-38]	Off
-0.5	No	No	No	-28 [-38]	Off

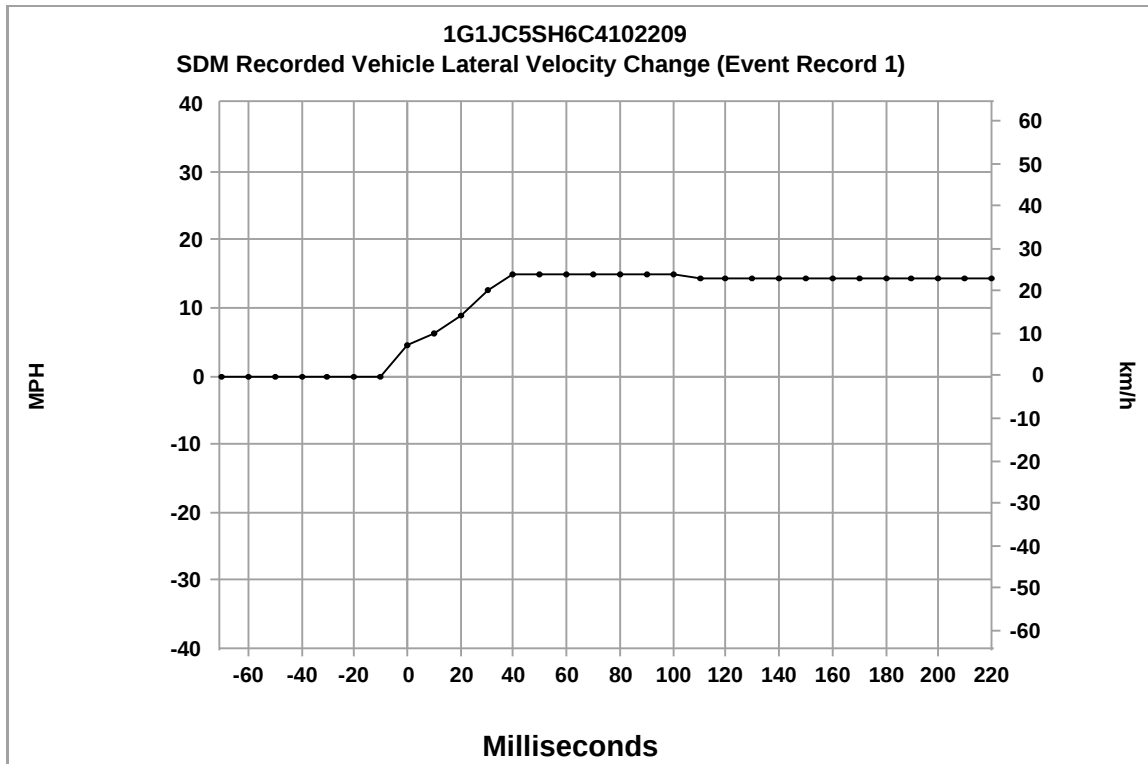
Pre-Crash Data -2.5 to -.5 sec (Event Record 1)

Times (sec)	Accelerator Pedal Position (percent)	Brake Switch Circuit State	Engine Speed	Throttle Position (%)	Vehicle Speed (MPH [km/h])
-2.5	0	Off	0	20	0 [0]
-2.0	0	Off	0	20	0 [0]
-1.5	0	Off	0	20	0 [0]
-1.0	0	Off	0	20	0 [0]
-0.5	0	Off	0	20	0 [0]



Time (msec)	Delta-V, longitudinal (MPH)	Delta-V, longitudinal (km/h)
-70	0.0	0.0
-60	0.0	0.0
-50	0.0	0.0
-40	0.0	0.0
-30	0.0	0.0
-20	0.0	0.0
-10	0.0	0.0
0	-0.6	-1.0
10	-1.2	-2.0
20	-1.9	-3.0
30	-3.1	-5.0
40	-3.1	-5.0
50	-3.1	-5.0
60	-3.1	-5.0
70	-3.1	-5.0
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, longitudinal (MPH)	Delta-V, longitudinal (km/h)
140	-3.1	-5.0
150	-3.1	-5.0
160	-3.1	-5.0
170	-3.1	-5.0
180	-3.1	-5.0
190	-3.1	-5.0
200	-3.1	-5.0
210	-3.1	-5.0
220	-3.1	-5.0



Time (msec)	Delta-V, lateral (MPH)	Delta-V, lateral (km/h)
-70	0.0	0.0
-60	0.0	0.0
-50	0.0	0.0
-40	0.0	0.0
-30	0.0	0.0
-20	0.0	0.0
-10	0.0	0.0
0	4.3	7.0
10	6.2	10.0
20	8.7	14.0
30	12.4	20.0
40	14.9	24.0
50	14.9	24.0
60	14.9	24.0
70	14.9	24.0
80	14.9	24.0
90	14.9	24.0
100	14.9	24.0
110	14.3	23.0
120	14.3	23.0
130	14.3	23.0

Time (msec)	Delta-V, lateral (MPH)	Delta-V, lateral (km/h)
140	14.3	23.0
150	14.3	23.0
160	14.3	23.0
170	14.3	23.0
180	14.3	23.0
190	14.3	23.0
200	14.3	23.0
210	14.3	23.0
220	14.3	23.0

SDM Recorded Vehicle Lateral Acceleration (Event Record 1)

Contains No Recorded Data

SDM Recorded Vehicle Vertical Acceleration (Event Record 1)

Contains No Recorded Data

SDM Recorded Vehicle Roll Rate (Event Record 1)

Contains No Recorded Data

Hexadecimal Data

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DPID \$32

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DPID \$35

78 00 00 00 00 00 00

DID \$01

41 55 34 32 36 32 54 52 4D 32 34 48 48 45 38 4D

DID \$03

41 54 34 32 36 32 54 51 47 30 36 50 33 45 38 4D

DID \$05

41 48 32 33 34 30 54 57 43 49 39 45 52 45 38 4C

DID \$07

41 4A 32 33 34 30 54 57 43 49 33 42 33 45 38 4C

DID \$09

44 41 32 33 34 31 54 4D 32 30 4A 42 49 4D 38 4E

DID \$0B

44 42 32 33 34 31 54 4D 32 34 39 47 41 4D 38 4E

DID \$0D

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DID \$9A

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DID \$B4

41 53 33 34 33 34 54 31 31 32 30 39 30 32 33 31

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Disclaimer of Liability

The users of the CDR product and reviewers of the CDR reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Robert Bosch LLC and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Robert Bosch LLC expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the CDR data, CDR software or use thereof.