

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	1HGCV1F19LA147373
User	
Case Number	
EDR Data Imaging Date	11/18/2021
Crash Date	08/13/2021
Filename	1HGCV1F19LA147373_ACM.CDRX
Saved on	Thursday, November 18 2021 at 17:37:51
Imaged with CDR version	Crash Data Retrieval Tool 21.2.1
Imaged with Software Licensed to (Company Name)	Biomechanical Research and Testing
Reported with CDR version	Crash Data Retrieval Tool 21.2.1
Reported with Software Licensed to (Company Name)	Biomechanical Research and Testing
EDR Device Type	Airbag Control Module
Event(s) recovered	1

Comments

No comments entered.

Data Limitations

General Information:

These limitations are intended to assist you in reading the event data that has been imaged from the vehicle's SRS control unit. They contain general information and are not specific to this particular event. Event data should be considered in conjunction with other available physical evidence from the vehicle and scene.

Honda and Acura passenger vehicles designated as 2013 or later model year production are designed to be compatible with the Bosch CDR tool. Only some 2012 model year vehicles are compatible with the Bosch CDR tool.

Recorded Crash Events:

Data for front, side, rear and rollover events can be recorded as either non-deployment or deployment events. Both types of events can contain pre-crash and crash data.

- A non-deployment event is recorded if the change in longitudinal or lateral velocity equals or exceeds 8km/h over a 150ms timeframe or another type of non-reversible deployable restraint device other than a front, side, or side curtain airbag (e.g. seatbelt pretensioner) is commanded to deploy. Except as indicated below, non-deployment events are not locked into memory and can be over-written by subsequent non-deployment or deployment events.
- A deployment event is recorded if front airbag(s), side airbag(s), or side curtain airbag(s) are commanded to deploy. Deployment events are locked into memory and cannot be over-written.

The SRS control unit typically records only one event. Two events can be recorded if the T0 (time zero) values for each event occur within 5 seconds of each other. Therefore, a non-deployment event can be recorded and locked if it occurs within 5 seconds of a deployment event.

T0 is established by whichever of the following occurs first: (1) the change in longitudinal velocity at the SRS control unit equals or exceeds 0.8km/h over a 20ms timeframe; or (2) the change in lateral velocity at the SRS control unit equals or exceeds 0.8km/h over a 5ms timeframe; or (3) the occupant restraint control algorithm is activated; or (4) a commanded deployment of any type of non-reversible deployable restraint device (e.g. airbag or seatbelt pretensioner). If the time to deploy equals 0, then the command to deploy occurred at T0 or the device was not commanded to deploy during the event.

TEnd (end of event) is established by whichever of the following occurs first: (1) the change in longitudinal and lateral Delta V equals or falls below 0.8km/h over a 20ms timeframe; or (2) the occupant restraint control algorithm resets; or (3) time from T0 exceeds 300ms.

Data:

- Data recorded by the SRS control unit and imaged by the CDR tool is displayed relative to T0, not the time at which the vehicle made contact with another vehicle or object.
- Pre-crash data is recorded at 2 samples per second within the 5 seconds before T0. The sampling point at 0.0 is taken at T0 and is asynchronous with the other sample points. The time between -0.5 and 0.0 is not recorded and is between 1 and 500ms.
- Delta V data is recorded at 100 samples per second from T0 to 250ms or T0 to TEnd plus 30ms.
- Acceleration data is recorded at 100 samples per second from T0 to 250ms.
- Delta V, longitudinal reflects the change in velocity that the SRS control unit experienced in the longitudinal direction during the recorded portion of the event and is not the speed the vehicle was traveling before the event.
- Depending on the severity of the event and the accelerometer characteristics, saturation of the SRS control unit longitudinal or lateral accelerometers may occur, decreasing the recorded Delta V value.

- Time, accelerometer range exceeded is recorded if saturation of the SRS control unit longitudinal, lateral and/or normal (vertical) accelerometer occurs. The recorded data is the time at which the sensor range is first exceeded.
- The maximum recording capability of Deployment Command Data is 254ms or 255ms depending on vehicle model. A recorded value of 254ms or 255ms may indicate that the recording maximum was exceeded. In this case, the deployment command may have occurred between the recorded time and TEnd.
- Speed, vehicle indicated data is the speed indicated to the driver by the speedometer, not actual vehicle ground speed. Data accuracy can be affected by various factors, including but not limited to the following:
 - Significant changes in tire size from the factory setting
 - Wheel lockup or spin
 - Data latency or filtering and hysteresis within the speedometer module
- Accelerator pedal position, percent full is the ratio of accelerator pedal position compared to the fully depressed position.
- PCM (Powertrain Control Module) derived accelerator pedal position, percent full may differ from the accelerator pedal position, percent full under circumstances such as brake override activation or cruise control system engagement. These circumstances are based on vehicle equipment application and vary by model.
- Steering input angle is recorded in 5 degree increments.
- Side air bag suppression system status, right front passenger is recorded when the vehicle is equipped with the Occupant Position Detection System (OPDS).
- Occupant size classification, right front passenger airbag suppressed data is recorded as yes (suppressed) if the front passenger seat weight sensor system determined the passenger seat was empty or occupied by a child-size occupant.
- EV mode data records the vehicle powertrain status, not a driver selected operation mode. EV mode is recorded as On when the vehicle is moving and the internal combustion engine is not operating. EV mode may be recorded as On or Off when the vehicle is stopped.
- Ignition switch status represents the status of the ignition switch when the T-1 sample is taken prior to the event.
- Time, ignition switch off prior to event is recorded in 1 second increments. This value represents the number of full seconds that have elapsed between the time the ignition switch was turned off and T0, with a maximum of 255 seconds.
- If power to the SRS control unit is lost during an event, all or part of the data may not be recorded.

Roll Rate Data:

- Vehicle roll rate data is recorded separately from the non-deployment and deployment events as described above. Therefore, the T0 for the roll rate data may differ from the T0 for the other data in this report.
- Roll rate recording trigger (T0) is established by whichever of the following occurs first: (1) a rollover algorithm ON judgment (SRS control unit decision to command deployment); or (2) a change in relative roll angle at the SRS control unit equal to or exceeding 30 degrees (roll angle is not measured, but is calculated from the roll rate data); or (3) the rollover algorithm is activated.
- Once a recording trigger has been met, roll rate data is recorded for one rollover event at 10 samples per second from 1 second before to 2 seconds after T0. If a roll angle trigger is satisfied without a rollover algorithm ON judgment, the recorded roll rate data is unlocked and can be over-written by a subsequent rollover event. Roll rate data triggered by or recorded during a rollover algorithm ON judgment is locked into memory and cannot be over-written.
- If roll rate is detected at the SRS control unit during a non-deployment or deployment event but the recording trigger has not been satisfied, no roll rate data will be recorded. A graph of roll rate data will only be present in this report if roll rate data is recorded.

Data Element Sign Convention:

Except as noted below, all data is displayed in SAE J211 sign convention. The following table provides an explanation of the sign notation for data elements that may be included in this CDR report. All directional references to sign notation are from the perspective of the driver when seated in the vehicle facing the direction of forward vehicle travel.

Data element name	Positive sign indicates
Longitudinal Acceleration	Forward direction acceleration
Delta-V, Longitudinal	Forward direction acceleration
Lateral Acceleration	Left to right direction acceleration
Delta-V, Lateral	Left to right direction acceleration
Normal (Vertical) Acceleration	Downward direction acceleration
Vehicle Roll Rate*	Left to right (clockwise) rotation
Steering Input Angle*	Left Turn

*Not SAE J211 sign convention

Data Source:

All recorded data is measured and calculated within the SRS control unit except for the following parameters (if applicable) which are transmitted via the vehicle's communication network to the SRS control unit:

- Speed, vehicle indicated
- Accelerator pedal position, percent full
- Service brake
- ABS activity
- Stability control
- Steering input angle
- Engine RPM
- PCM derived accelerator pedal position, percent full
- EV mode
- Forward Collision Warning
- Collision Mitigation Braking System information
- Lane Keeping Assist System information
- Lane Departure Warning
- Road Departure Mitigation information
- Cruise Control status
- Adaptive Cruise Control status

Depending on vehicle feature content, capability, or conditions described above, the following items may not be recorded. If these items are not recorded, they will not be present in this document.

- EV mode
- Forward Collision Warning
- Collision Mitigation Braking System information
- Lane Keeping Assist System information
- Lane Departure Warning
- Road Departure Mitigation information
- Cruise Control status
- Adaptive Cruise Control status
- Ignition switch status
- Time, ignition switch off prior to event

Hexadecimal Data:

All data that has been specified for imaging is shown in the hexadecimal data section of this report. However, not all of this data is translated by the CDR tool. The SRS control unit may contain additional data that is not retrievable by the CDR tool.

Data Imaging:

If the SRS control unit is imaged outside of the vehicle, ensure that it is not moved, tilted or turned while connected to the CDR tool. Also, after imaging is complete, wait 3 minutes after removing the CDR tool before moving the SRS control unit. Not following this guideline could cause current non-deployment event data to be overwritten and a new event to be recorded. Current fault status could also be altered if the SRS control unit is imaged outside of the vehicle.

04003_HondaSRS_GEN3_r002

System Status at Retrieval

EDR Version	1.5.4.0
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System Status at Event (Event Record 1)

Multi-Event, Number of Events (1, 2)	1
Complete File Recorded (Yes/No)	Yes
Ignition Cycle, Download	164
Maximum Delta-V, Longitudinal (MPH [km/h])	-25 [-41]
Time, Maximum Delta-V, Longitudinal (msec)	107.5
Maximum Delta-V, Lateral (MPH [km/h])	-5 [-8]
Time, Maximum Delta-V, Lateral (msec)	77.5
Time, Maximum Delta-V, Resultant (msec)	107.5
Time, Accelerometer Range Exceeded, Longitudinal (msec)	0
Time, Accelerometer Range Exceeded, Lateral (msec)	0
Time, Accelerometer Range Exceeded, Normal (msec)	14.0

Deployment Command Data (Event Record 1)

Pretensioner Deployment, Time to Fire, Driver (msec)	0
Pretensioner Deployment, Time to Fire, Right Front Passenger (msec)	0
Lap Pretensioner Deployment, Time to Fire, Driver (msec)	0
Lap Pretensioner Deployment, Time to Fire, Right Front Passenger (msec)	0
Frontal Air Bag Deployment, Time to Deploy First Stage, Driver (msec)	7
Frontal Air Bag Deployment, Time to Deploy First Stage, Right Front Passenger (msec)	7
Frontal Air Bag Deployment, Time to 2nd Stage, Right Front Passenger (msec)	27
Knee Air Bag Deployment, Time to Deploy, Driver (msec)	7
Knee Air Bag Deployment, Time to Deploy, Right Front Passenger (msec)	7
Safety Belt Adaptive Load Limiter, Time to Initiation, Right Front Passenger (msec)	0
Side Air Bag Deployment, Time to Deploy, Driver (msec)	0
Side Air Bag Deployment, Time to Deploy, Right Front Passenger (msec)	40
Side Curtain/Tube Air Bag Deployment, Time to Deploy, Driver Side (msec)	0
Side Curtain/Tube Air Bag Deployment, Time to Deploy, Right Side (msec)	40
Frontal Air Bag Deployment, 2nd Stage Disposal, Right Front Passenger (Yes/No)	No

Pre-Crash Data -1 sec (Event Record 1)

Safety Belt Status, Driver	Off
Safety Belt Status, Right Front Passenger	Off
Seat Track Position Switch, Foremost, Status, Driver	No
Occupant Size Classification, Right Front Passenger Airbag Suppressed (Yes/No)	No
Ignition Switch Status (On, Off)	Off
Frontal Air Bag Warning Lamp (On, Off)	Off
Ignition Cycle, Crash	157
Time, Ignition switch off prior to Event (sec)	0

Pre-Crash Data -5 to 0 sec [2 samples/sec] (Event Record 1) - Table 1 of 3

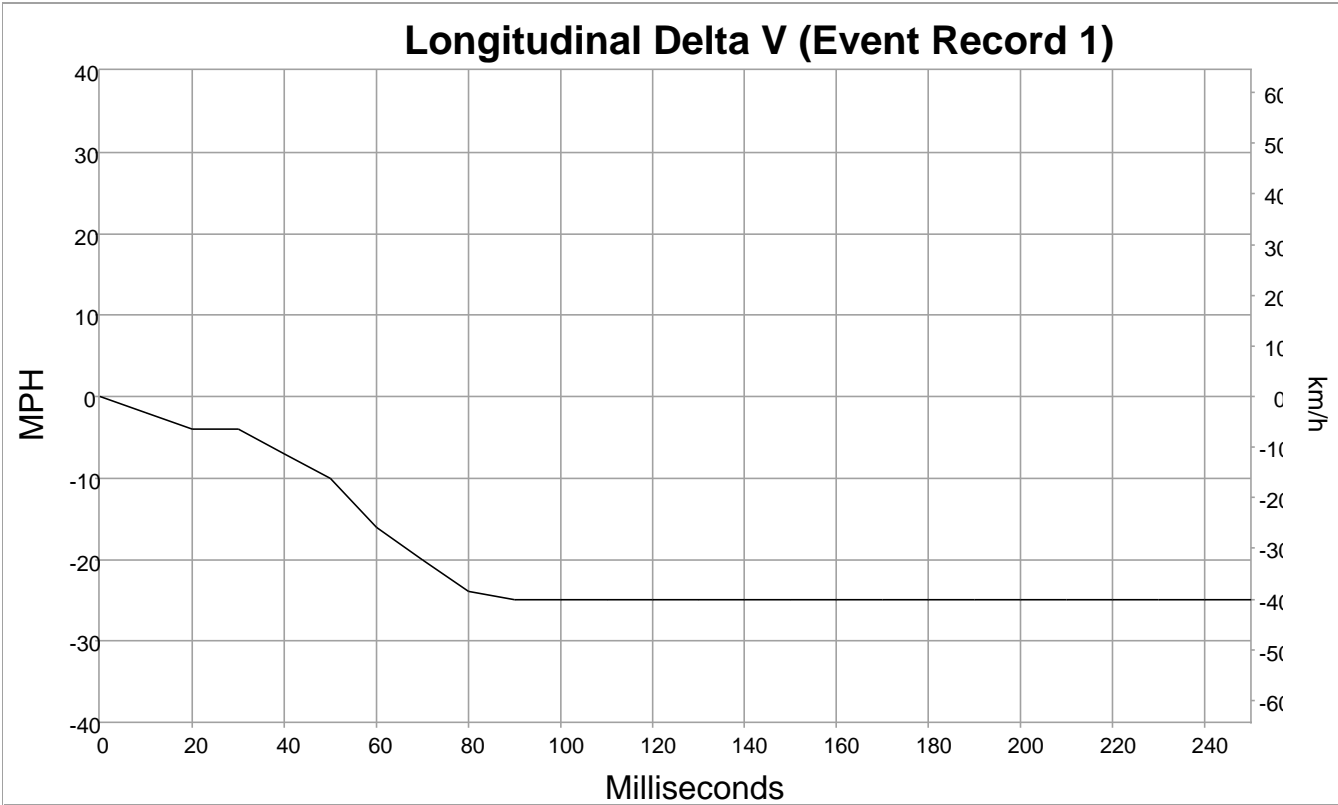
Time Stamp (sec)	Speed, Vehicle Indicated (MPH [km/h])	Accelerator Pedal Position, % full	Service Brake (On, Off)	ABS Activity (On, Off)	Stability Control (On, Off, Engaged)	Steering Input (deg)	Engine RPM
-5.0	25 [40]	0	Off	Off	On Non-Engaged	0	0
-4.5	25 [40]	0	Off	Off	On Non-Engaged	0	0
-4.0	25 [40]	0	Off	Off	On Non-Engaged	0	0
-3.5	25 [40]	0	Off	Off	On Non-Engaged	0	0
-3.0	25 [40]	0	Off	Off	On Non-Engaged	0	0
-2.5	25 [40]	0	Off	Off	On Non-Engaged	0	0
-2.0	25 [40]	0	Off	Off	On Non-Engaged	0	0
-1.5	25 [40]	0	Off	Off	On Non-Engaged	0	0
-1.0	25 [40]	0	Off	Off	On Non-Engaged	0	0
-0.5	25 [40]	0	Off	Off	On Non-Engaged	0	0
0.0	25 [40]	0	Off	Off	On Non-Engaged	0	0

Pre-Crash Data -5 to 0 sec [2 samples/sec] (Event Record 1) - Table 2 of 3

Time Stamp (sec)	PCM Derived Accelerator Pedal Position, % full	Forward Collision Warning (Not Warning/ Warning)	Collision Mitigation Braking System (Not Engaged/ Engaged)	Collision Mitigation Braking System, Forward Collision Warning (On/Off)	Lane Departure Warning (Not Warning/ Warning)	Road Departure Mitigation (Not Engaged/ Engaged)	Road Departure Mitigation, Lane Departure Warning (On/Off)
-5.0	0	Not warning	Not engaged	On	Not warning	Not engaged	On
-4.5	0	Not warning	Not engaged	On	Not warning	Not engaged	On
-4.0	0	Not warning	Not engaged	On	Not warning	Not engaged	On
-3.5	0	Not warning	Not engaged	On	Not warning	Not engaged	On
-3.0	0	Not warning	Not engaged	On	Not warning	Not engaged	On
-2.5	0	Not warning	Not engaged	On	Not warning	Not engaged	On
-2.0	0	Not warning	Not engaged	On	Not warning	Not engaged	On
-1.5	0	Not warning	Not engaged	On	Not warning	Not engaged	On
-1.0	0	Not warning	Not engaged	On	Not warning	Not engaged	On
-0.5	0	Not warning	Not engaged	On	Not warning	Not engaged	On
0.0	0	Not warning	Not engaged	On	Not warning	Not engaged	On

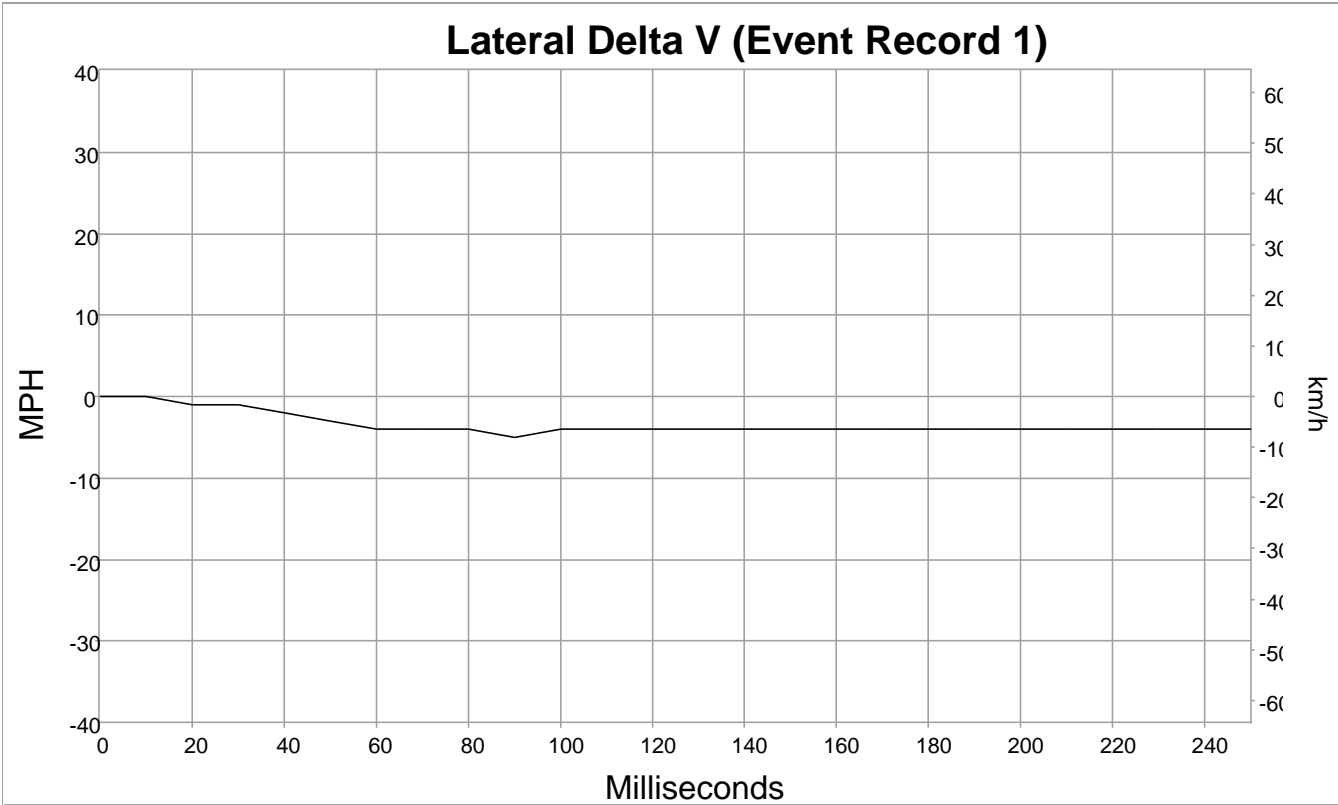
Pre-Crash Data -5 to 0 sec [2 samples/sec] (Event Record 1) - Table 3 of 3

Time Stamp (sec)	Adaptive Cruise Control (Not Engaged/ Engaged)	Adaptive Cruise Control (On/Off)	Lane Keeping Assist (Not Engaged/ Engaged)	Lane Keeping Assist (On/Off)	Cruise Control (Not Engaged/ Engaged)	Cruise Control (On/Off)
-5.0	Not engaged	Off	Not engaged	Off	Not Engaged	Off
-4.5	Not engaged	Off	Not engaged	Off	Not Engaged	Off
-4.0	Not engaged	Off	Not engaged	Off	Not Engaged	Off
-3.5	Not engaged	Off	Not engaged	Off	Not Engaged	Off
-3.0	Not engaged	Off	Not engaged	Off	Not Engaged	Off
-2.5	Not engaged	Off	Not engaged	Off	Not Engaged	Off
-2.0	Not engaged	Off	Not engaged	Off	Not Engaged	Off
-1.5	Not engaged	Off	Not engaged	Off	Not Engaged	Off
-1.0	Not engaged	Off	Not engaged	Off	Not Engaged	Off
-0.5	Not engaged	Off	Not engaged	Off	Not Engaged	Off
0.0	Not engaged	Off	Not engaged	Off	Not Engaged	Off



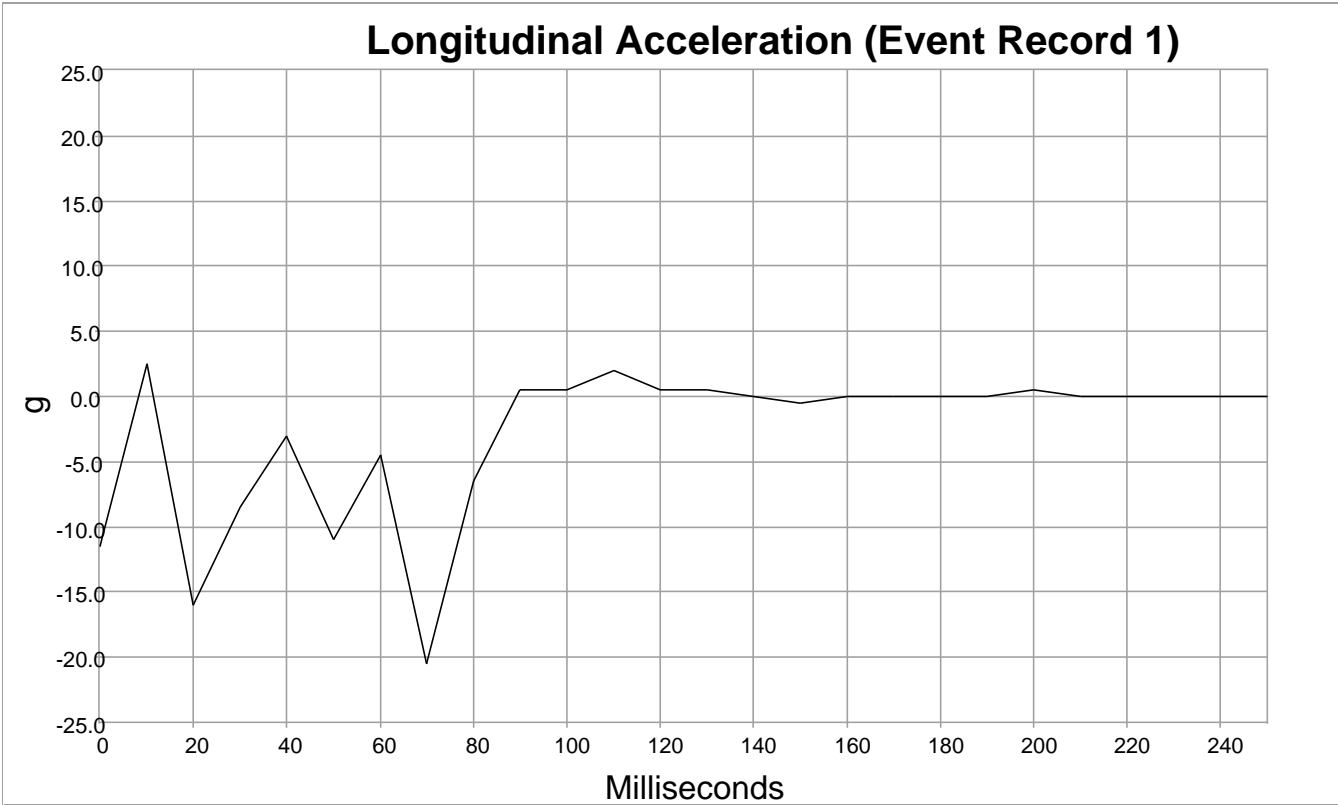
Longitudinal Delta V (Event Record 1)

Time (msec)	MPH [km/h]
0	0 [0]
10	-2 [-4]
20	-4 [-6]
30	-4 [-7]
40	-7 [-11]
50	-10 [-16]
60	-16 [-25]
70	-20 [-32]
80	-24 [-38]
90	-25 [-40]
100	-25 [-41]
110	-25 [-41]
120	-25 [-41]
130	-25 [-41]
140	-25 [-41]
150	-25 [-41]
160	-25 [-41]
170	-25 [-41]
180	-25 [-41]
190	-25 [-41]
200	-25 [-41]
210	-25 [-41]
220	-25 [-41]
230	-25 [-41]
240	-25 [-41]
250	-25 [-41]



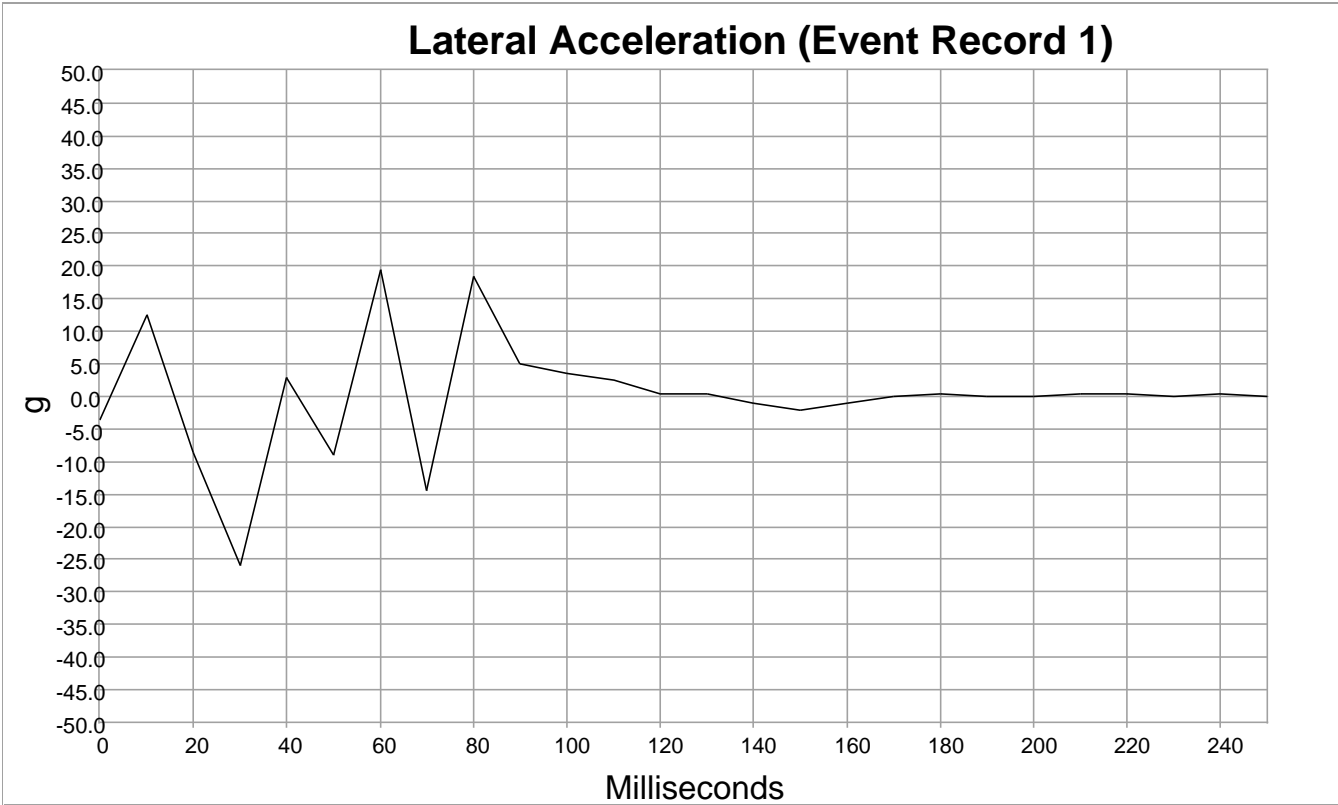
Lateral Delta V (Event Record 1)

Time (msec)	MPH [km/h]
0	0 [0]
10	0 [0]
20	-1 [-1]
30	-1 [-1]
40	-2 [-4]
50	-3 [-5]
60	-4 [-6]
70	-4 [-7]
80	-4 [-7]
90	-5 [-8]
100	-4 [-7]
110	-4 [-7]
120	-4 [-7]
130	-4 [-7]
140	-4 [-7]
150	-4 [-7]
160	-4 [-7]
170	-4 [-7]
180	-4 [-7]
190	-4 [-7]
200	-4 [-6]
210	-4 [-6]
220	-4 [-6]
230	-4 [-6]
240	-4 [-6]
250	-4 [-6]



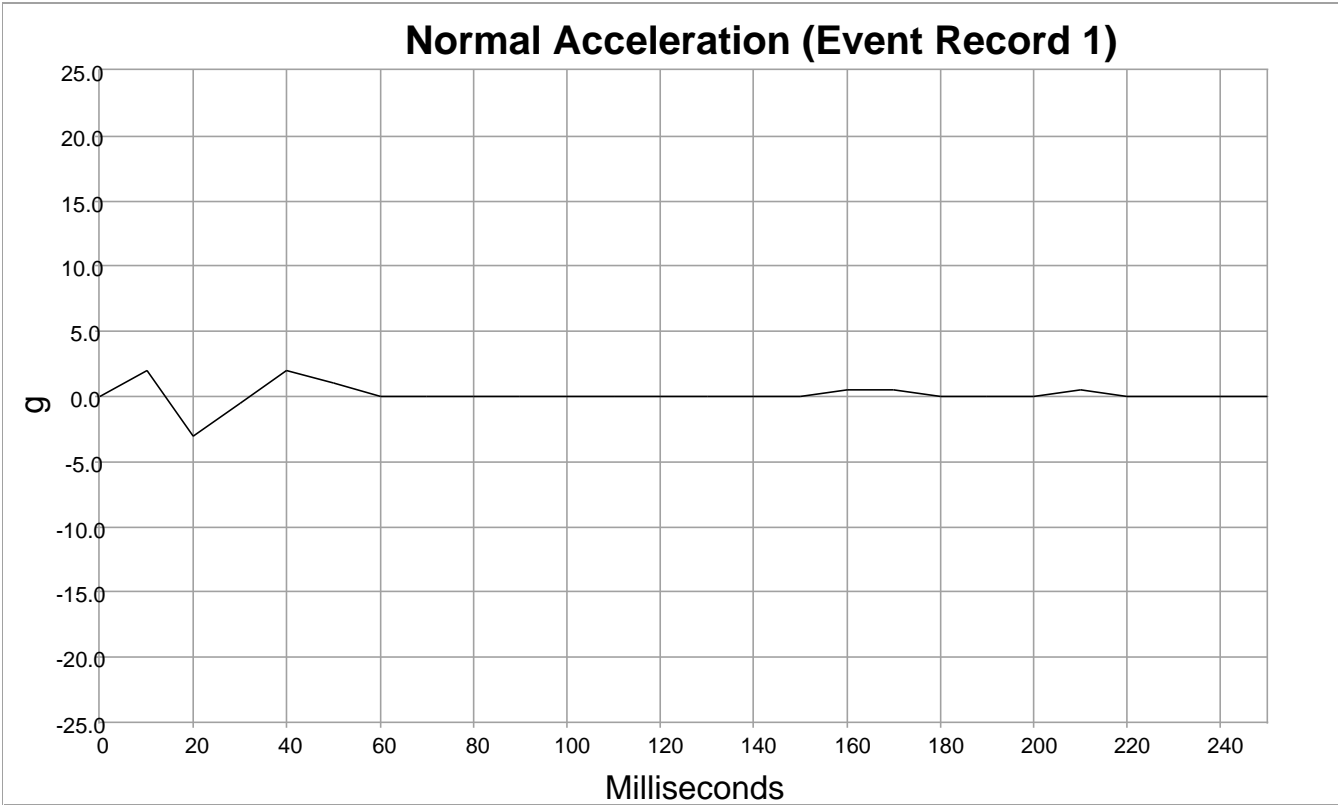
Longitudinal Acceleration (Event Record 1)

Time (msec)	g
0	-11.5
10	2.5
20	-16.0
30	-8.5
40	-3.0
50	-11.0
60	-4.5
70	-20.5
80	-6.5
90	0.5
100	0.5
110	2.0
120	0.5
130	0.5
140	0.0
150	-0.5
160	0.0
170	0.0
180	0.0
190	0.0
200	0.5
210	0.0
220	0.0
230	0.0
240	0.0
250	0.0



Lateral Acceleration (Event Record 1)

Time (msec)	g
0	-3.5
10	12.5
20	-8.5
30	-26.0
40	3.0
50	-9.0
60	19.5
70	-14.5
80	18.5
90	5.0
100	3.5
110	2.5
120	0.5
130	0.5
140	-1.0
150	-2.0
160	-1.0
170	0.0
180	0.5
190	0.0
200	0.0
210	0.5
220	0.5
230	0.0
240	0.5
250	0.0



Normal Acceleration (Event Record 1)

Time (msec)	g
0	0.0
10	2.0
20	-3.0
30	-0.5
40	2.0
50	1.0
60	0.0
70	0.0
80	0.0
90	0.0
100	0.0
110	0.0
120	0.0
130	0.0
140	0.0
150	0.0
160	0.5
170	0.5
180	0.0
190	0.0
200	0.0
210	0.5
220	0.0
230	0.0
240	0.0
250	0.0

Hexadecimal Data

DID #	Data
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\$8021	AA 00 01 00 00 00 00 00 00 00 00 55 00 A4 AA 00
\$8022	AA 01 CC 6E E6 00 00 00 00 00 00 00 00 00 00 00 07 07 00 1B 07 07 00 00 00 28 00 00 00 28 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 AD
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00 00 00 00 00 00 00 00 00 F8 1F 00 2B 00 00 00 A5
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$8004    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
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         FF 65 00 01 34 FE 31 00 00 00 00 00 00 01 37
         06 BB 00 02 C1 03 FA 00 00 00 00 00 00 00 00 7F
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$800F    AA 00 B6 63 99 80 00 00 C0 00 C0 C0 00 00 00 00
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