

## EDR Report

File Information	Value
VIN	5YJSA1E28GFXXXXXX
Retrieval Date	2018/03/13 00:37:38 (UTC)
Retrieval User Comments	Appleguru Test
Retrieval Program Information	Tesla EDR Retrieval Program v17.32.1
EDR Report Information	Tesla EDR Reporting Service v18.10.1
Report Requested By	
Report Date	2018/03/13 00:41:45 (UTC)
Number Of Events	0
Time From Event 1 To 2 (seconds)	N/A
Ignition Cycle At Retrieval	2396

## Model S Data Limitations

### General Data Limitations

This report represents data from a Tesla Event Data Recorder (EDR). The report was generated using EDR data that was uploaded to the Tesla EDR Report Service at <https://edr.tesla.com>. This service is periodically updated using the most current vehicle information available and report users should always ensure that the report was generated by the most recent version of the Report Service.

The Tesla EDR Retrieval Program and Tesla EDR Report Service are designed for vehicles configured for the North American market region only. Report elements found in this report may not have not been validated for vehicles configured for regions outside of North America.

The EDR is part of the vehicle's Restraints Control Module (RCM). When the EDR senses a crash or crash-like event, it may record a short period of data related to vehicle dynamics and safety systems. This recorded data may assist in understanding the crash or crash-like event. EDR data will only be recorded by a Tesla vehicle if the EDR senses a crash or crash-like event; no data is recorded by the EDR under normal driving conditions.

EDR data should only be used as part of a thorough and competent review of the human, vehicle, and environmental information associated with an event. The data recorded by the EDR has limitations including the number of items recorded, the time period of the recording, the data sampling interval, and the data range and resolution. Additionally, EDR data may be limited by sensor capabilities or the availability of 12 V DC power at the RCM. For these and other potential reasons, the EDR data may not capture an entire event, and the data elements captured may not fully represent all aspects of a given event.

Tesla has made all reasonable efforts to include sufficient information in this report's Data Limitations section to clarify terminology and data elements found in this document to assist the end user in understanding the recorded data. Tesla reserves the right to update, change or modify this information.

#### Event Data Recorder

An Event Data Recorder is defined as a device or function in a vehicle that records the vehicle's dynamic time-series data during the time period just prior to a crash event (e.g., vehicle speed vs. time) or during a crash event (e.g., delta-V vs. time), intended for retrieval after the crash event. For the purposes of this definition, the event data do not include audio and video data (49 CFR Part 563).

#### Data Synchronization

Pre-crash and crash data are recorded in discrete intervals and may be asynchronous.

#### Events

The Model S RCM can store up to two events: Event 1 and Event 2. The conditions for triggering the recording of an event differs depending on event type.

#### Time Zero

Time Zero, as indicated throughout the event record, is the point where the restraint control algorithm is activated in any sensing direction.

#### Recording duration

The end of an event is typically the moment at which the cumulative delta-V within a 20ms time period does not change by more than 0.8 km/h or the moment at which the crash detection algorithm of the RCM resets. Some events may lead to the recording of different duration data as provided for by 49 CFR Part 563.

#### Deployment events

A deployment event may be recorded when the RCM commands the deployment of a device (e.g. airbag, pretensioner, or High Voltage (HV) battery disconnect). Deployment events are always locked in memory and are never overwritten. Only the first two deployment events are recorded as in this case the available memory is full and locked.

#### Non-deployment events

A non-deployment event may be recorded when the RCM senses a physical occurrence triggering the recording of an event but does not command the deployment of a device (e.g. airbag, pretensioner, High Voltage (HV) battery disconnect). A non-deployment event is recorded if one of the two event memory locations is available (not locked). Non-deployment events are not locked in memory. A non-deployment event is not overwritten by another non-deployment or deployment event that occurs less than or equal to 5 seconds later (and on the same ignition cycle) unless the available memory is full (in which case the new event overwrites the oldest event). All non-deployment events may be overwritten if a second non-deployment or deployment event occurs greater than 5 seconds later.

#### Data polarity

Where applicable, the data in this report follows the polarity conventions found in SAE J1733 and J211. For example, forward longitudinal acceleration and resultant delta-V are positive and left-to-right lateral acceleration and resultant delta-V are positive. Positive roll angle is rotation about the vehicle's longitudinal axis using the right hand rule (clockwise vehicle roll when viewed from the rear of the vehicle). Positive steering wheel angle is clockwise rotation of the steering wheel (steering to the right from straight).

### Data Element Definitions

#### Number Of Events

The Number Of Events represents the total number of events that are stored in the RCM memory. The maximum number of events that can be recorded is two.

**Time From Event 1 to 2 (seconds)**

The Time From Event 1 to 2 is the amount of time elapsed between the Time Zero of two linked events (if applicable). Linked events must occur within 5 seconds and in the same ignition cycle. Non-linked events will report "N/A" in the Time From Event 1 to 2 value. The value is reported to the nearest 0.1 seconds.

**Vehicle Identification Number (VIN)**

The Vehicle Identification Number (VIN) is stored in the RCM when it is installed at the Tesla Fremont Factory or by Tesla Service. The last 6 digits of the VIN can be anonymized by selecting the "Save without VIN sequence number" option in the Tesla EDR Retrieval Program.

**Retrieval Date**

The Retrieval Date is the calendar date and time when the data was retrieved from the RCM. This date and time is sourced from the computer that was used to retrieve the data. This is not the date and time of an event.

**Retrieval User Comments**

The Retrieval User Comments is an open field that can be used by the Tesla EDR Retrieval operator to record text comments at the time of retrieval.

**Retrieval Program Information**

The Retrieval Program Information is the version number of the Tesla EDR Retrieval Program that was used to retrieve the EDR data from the RCM.

**EDR Report Information**

The EDR Report Information identifies the version of the Tesla EDR Report Service.

**Report Requested By**

Report Requested By is the name of the "My Tesla" user that generated the report using the Tesla EDR Report Service.

**Report Date**

Report Date is the calendar date when the online Tesla EDR Report Service was used to generate the report. The source of this data element is the Tesla server.

**Ignition Cycle At Retrieval**

The Ignition Cycle At Retrieval is the number of times that the RCM had been powered on as reported at the time that the Tesla EDR Retrieval Program was used to retrieve the data from the RCM. The maximum value for ignition cycles is 65,534.

**Maximum Delta-V, Longitudinal/Lateral (km/h)**

The Maximum delta-V, Longitudinal/Lateral is the maximum magnitude of the recorded delta-V during the event from Time Zero to a maximum of 300 ms. The value is reported to the nearest kilometer per hour. The range for Maximum Delta-V is -127 km/h to +127 km/h. The source of the data is the internal calculation (integration) of the sensor data inside of the RCM.

**Time to Maximum Delta-V, Longitudinal/Lateral (ms)**

The Time to Maximum Delta-V, Longitudinal/Lateral is the time from Time Zero to the maximum magnitude of the recorded delta-V during the event. The maximum value is 300 ms and the value is reported to the nearest millisecond.

**Time to Maximum Delta-V, Resultant (ms)**

The Time to Maximum Delta-V, Resultant is the time from Time Zero to the calculated maximum resultant of the longitudinal and lateral delta-V components. The maximum value is 300 ms and the value is reported to the nearest millisecond.

**Ignition Cycle At Event**

The Ignition Cycle At Event is the number of times that the RCM had been powered on as reported at Time Zero. The maximum value for ignition cycles is 65,534.

**Airbag Warning Lamp Status**

Airbag Warning Lamp Status indicates the commanded state of the warning lamp as "on" or "off" within approximately the last second before Time Zero.

**Driver/Passenger Safety Belt Status**

The Driver/Passenger Safety Belt Status is the recorded status of the safety belt at the time of the event. This data element represents the last observed state within approximately the last second before Time Zero.

**Occupant Classification In Front Passenger Seat**

The Occupant Classification data element indicates the detected occupant type in the front passenger seat. Values include: Empty, Child, or Adult.

**Driver Seat Position**

Driver Seat Position indicates the recorded seat track position of the driver seat. The possible values are Rearward and Forward.

**Complete File Recorded**

Complete File Recorded indicates whether or not the complete data set available to the EDR was successfully recorded.

**Deployment Summary**

The Deployment Summary table indicates which of the deployable safety devices (if any) were commanded to deploy by the RCM and at what time (relative to the event Time Zero). The possible values for the status of each device is "Deployment Commanded" or "Deployment Not Commanded". The deployment commanded time is to the nearest millisecond.

## Time Series Data

All time references are based on the event definition of Time Zero.

### Vehicle Speed

Vehicle Speed is calculated and reported by the average of the four wheel speed signals. The minimum value for vehicle speed is 0 km/h and the maximum value is greater than 200 km/h. The resolution of Vehicle Speed is to the nearest kilometer per hour.

### Accelerator Pedal (%)

Accelerator Pedal (%) is the percent of full application of the accelerator pedal. The resolution of Accelerator Pedal (%) is to the nearest percent.

### Rear Motor Speed (rpm)

Rear Motor Speed is the rate of rotation of the rear drive motor. The units of this data element are rotations per minute. The minimum value for Rear Motor Speed is 0 rpm and the maximum value is 17,000 rpm. The resolution of Rear Motor Speed is to the nearest 100 rotations per minute.

### Service Brake

Service Brake indicates the status of the brake pedal as reported by the brake pedal switch. The possible values for Service Brake are "On" (pedal applied) and "Off" (pedal not applied).

### Steering Wheel Angle (deg)

Steering Wheel Angle represents the measured rotational angle of the steering wheel. The range for Steering Wheel Angle is -420 deg to +420 deg. The resolution of steering wheel angle is to the nearest degree.

### Stability Control

Stability Control is the status of the Electronic Stability Control system (ESC). The possible values are "On" (meaning the ESC was enabled but not active), "Off" (meaning the ESC was turned off), and "Engaged" (meaning that the ESC was active).

### ABS Activity

ABS Activity is the status of the Anti-lock Braking System (ABS). The possible values are "On" (meaning the ABS was active) and "Off" (meaning the ABS was not active). Active ABS status does not necessarily indicate that the ABS control unit was actively modulating braking at one or more wheels.

### Longitudinal/Lateral Delta-V data

Longitudinal and Lateral Time Series Delta-V Data indicates the change in velocity of the vehicle. The source of the data is the internal calculation (integration) of the sensor data inside of the RCM. The resolution of delta-V data is to the nearest kilometer per hour and the data is reported every 10 ms after Time Zero. The range for delta-V data is -127 km/h to +127 km/h.

### Longitudinal and Lateral Time Series Acceleration data

Longitudinal and Lateral Time Series Acceleration Data indicates the measured acceleration of the vehicle. The source of the data is the accelerometers located inside the RCM. The resolution of acceleration data is 0.5 g and the data is reported every 2 ms after Time Zero. The range of acceleration data is -63.5 g to +63.5 g.

### Roll Angle

Roll Angle indicates the vehicles roll angle at a specific time before and/or after Time Zero. The source of the data is the internal calculation (integration) of the sensor data inside of the RCM. The measurement starts 1,000 ms before Time Zero and ends when the RCM rollover algorithm resets. The maximum recording time for Roll Angle Data is 1000 ms before and 5,000 ms after Time Zero. The range of roll angle data is -1,270 deg to +1,270 deg. The resolution of roll angle data is to the nearest 10 deg. From -1,000 ms to 1,000 ms, the time between each sample is 10 ms. From 1,000 ms to 5,000 ms the time between each sample is 100 ms.

### Serial Numbers

Serial numbers are the sensor identification numbers that are stored in the RCM. These values are stored when the RCM is powered up (each ignition cycle).

### Hexadecimal Data

The Hexadecimal Data found in this report represents the original, raw data and identifying information retrieved from the RCM accessed to ultimately generate this report. The binary data is represented in hexadecimal format as a matter of convenience. While it represents all the raw data retrieved from the subject RCM not all of that raw data may be used in a given report or application.

## Serial Numbers

Sensor Number	Sensor Type	Serial Number
1	RCM Serial Number	PXXX
2	Left Front Crash Sensor	AXXXXXXXXX
3	Right Front Crash Sensor	AXXXXXXXXX
4	Left Side Impact Crash Sensor (B-Pillar)	AXXXXXXXXX
5	Right Side Impact Crash Sensor (B-Pillar)	AXXXXXXXXX
6	Right Side Impact Crash Sensor (C-Pillar)	AXXXXXXXXX
7	Left Side Impact Crash Sensor (C-Pillar)	AXXXXXXXXX
8	Right Side Door Pressure Sensor	PXXXXXXXX
9	Left Side Door Pressure Sensor	PXXXXXXXX

Hexadecimal Data

F187	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX				
FD02	XX	XX	XX	XX																
FD00	XX	XX	XX	XX	XX	XX	XX	XX												
FD01	XX	XX	XX	XX	XX	XX	XX	XX	XX											
F190	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX				
FD03	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

Disclaimer of Liability

All users and reviewers of Tesla, Inc.'s event data recorder ("EDR") product, EDR reports, and/or any data exported or derived therefrom shall ensure the validity of the source data and the applicability of the Tesla EDR Report Service to that data. Tesla, Inc. and its subsidiaries, directors, officers, employees, and agents (collectively, "Tesla") hereby disclaim all liability for any claims or damages whatsoever arising from or relating in any way to the use of the EDR product, reports, or data, including without limitation for any direct, indirect, consequential, or punitive damages, and any attorneys' fees. By using or reviewing the EDR product, reports, and/or data, you expressly agree to waive any claims against Tesla in accordance with the terms of this paragraph, and to indemnify Tesla against any claims brought by third parties in connection with your use or review of the EDR product, reports, or data.