

loss or retrievable with EDR data extraction tools.

X-direction means in the direction of the vehicle X-axis, which is parallel to the vehicle's longitudinal centerline. The X-direction is positive in the direction of forward vehicle travel.

Y-direction means in the direction of the vehicle Y-axis, which is perpendicular to its X-axis and in the same horizontal plane as that axis. The Y-direction is positive from left to right, from the perspective of the driver when seated in the vehicle facing the direction of forward vehicle travel.

Z-direction means in the direction of the vehicle Z-axis, which is perpendicular to the X- and Y-axes. The Z-direction is positive in a downward direction.

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§ 563.6 Requirements for vehicles.

Each vehicle equipped with an EDR must meet the requirements specified in § 563.7 for data elements, § 563.8 for data format, § 563.9 for data capture, § 563.10 for crash test performance and survivability, and § 563.11 for information in owner's manual.

§ 563.7 Data elements.

(a) *Data elements required for all vehicles.* Each vehicle equipped with an EDR must record all of the data elements listed in Table I, during the interval/time and at the sample rate specified in that table.

TABLE I.—DATA ELEMENTS REQUIRED FOR ALL VEHICLES EQUIPPED WITH AN EDR

Data element	Recording interval/time ¹ (relative to time zero)	Data sample rate samples per second
Delta-V, longitudinal	0 to 250 ms	100
Maximum delta-V, longitudinal	0-300 ms	N.A.
Time, maximum delta-V	0-300 ms	N.A.
Speed, vehicle indicated	-5.0 to 0 sec	2
Engine throttle, % full (or accelerator pedal, % full)	-5.0 to 0 sec	2
Service brake, on/off	-5.0 to 0 sec	2
Ignition cycle, crash	-1.0 sec	N.A.
Ignition cycle, download	At time of download	N.A.
Safety belt status, driver	-1.0 sec	N.A.
Frontal air bag warning lamp, on/off	-1.0 sec	N.A.
Frontal air bag deployment, time to deploy, in the case of a single stage air bag, or time to first stage deployment, in the case of a multi-stage air bag, driver.	Event	N.A.
Frontal air bag deployment, time to deploy, in the case of a single stage air bag, or time to first stage deployment, in the case of a multi-stage air bag, right front passenger.	Event	N.A.
Multi-event, number of events (1,2)	Event	N.A.
Time from event 1 to 2	As needed	N.A.
Complete file recorded (yes, no)	Following other data	N.A.

¹Pre-crash data and crash data are asynchronous. The sample time accuracy requirement for pre-crash time is -0.1 to 1.0 sec (e.g., T = -1 would need to occur between -1.1 and 0 seconds.)

(b) *Data elements required for vehicles under specified conditions.* Each vehicle equipped with an EDR must record each of the data elements listed in column 1 of Table II for which the vehicle

meets the condition specified in column 2 of that table, during the interval/time and at the sample rate specified in that table.

TABLE II.—DATA ELEMENTS REQUIRED FOR VEHICLES UNDER SPECIFIED CONDITIONS

Data element name	Condition for requirement	Recording interval/time ¹ (relative to time zero)	Data sample rate (per second)
Lateral acceleration	If recorded ²	0-250 ms	500
Longitudinal acceleration	If recorded	0-250 ms	500
Normal acceleration	If recorded	0-250 ms	500
Delta-V, lateral	If recorded	0-250 ms	100
Maximum delta-V, lateral	If recorded	0-300 ms	N.A.
Time maximum delta-V, lateral	If recorded	0-300 ms	N.A.
Time for maximum delta-V, resultant	If recorded	0-300 ms	N.A.
Engine rpm	If recorded	-5.0 to 0 sec	2