Event Data Recorder - Reference Document

An Event Data Recorder (EDR) is a part of the Supplemental Restraint System (SRS) ECU that records data for some types of collision events for future safety research or analysis. The EDR will record data when the vehicle experiences a rapid change in speed that exceeds a specified threshold. The threshold to start recording is above changes in speeds that are considered normal driving use. For example, stopping hard with the brakes would not cause a recording, but hitting a curb may. EDRs were installed on Toyota/Lexus/Scion vehicles because they have the capability to serve several purposes, such as assisting in vehicle development, quality control and/or safety research. An EDR is also helpful in determining the circumstances that caused an airbag to be deployed or not deployed.

EDR Generations

Starting with the 2001 Lexus LS400, EDRs were incorporated into to all Toyota, Lexus and Scion vehicles by 2007. SRS ECUs with EDRs were typically installed at full model change years, which generally occur every 4 to 6 years, depending on the model. The chart below outlines the three generations of EDRs installed on Toyota, Lexus, and Scion vehicles and what each EDR generation is capable of recording.


Note: MY stands for model year

Post-Crash & Pre-Crash data

Post-Crash Data - All vehicles equipped with an EDR will record post-crash data

If an impact occurs that has exceeded the rapid change in speed threshold, the EDR system will begin to record data for varying lengths of time depending on the parameters it is capable of recording. Figure 1 shows a collision 'trigger' and the data sampling rate recorded in the EDR.
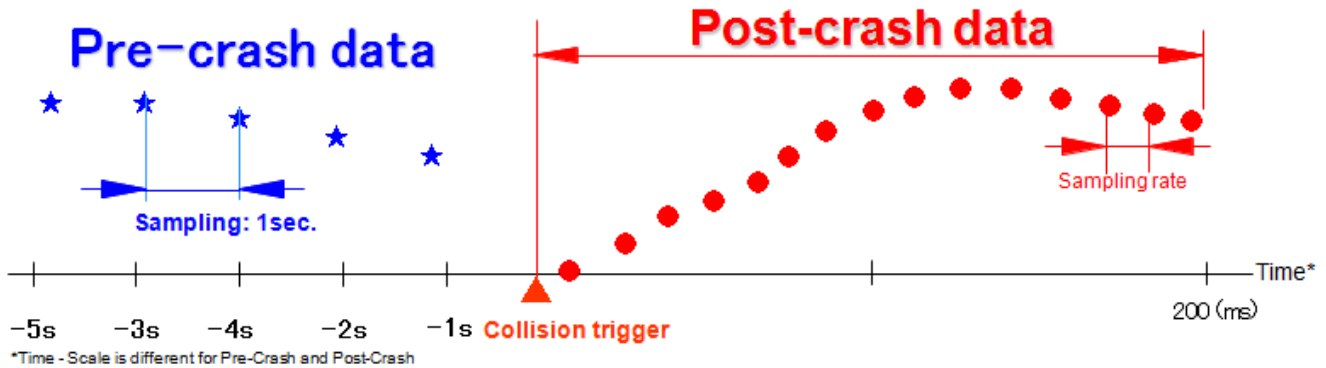
Figure 1
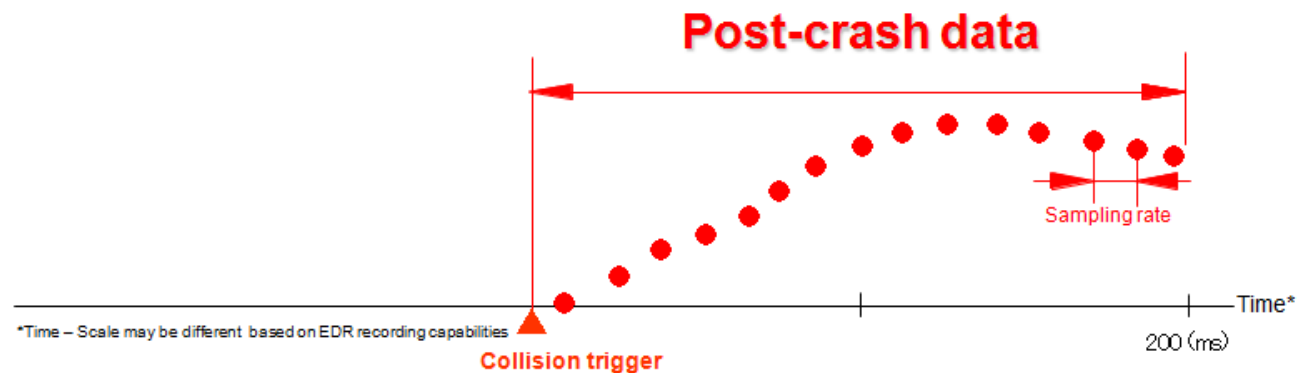
Pre-Crash Data - Not all models have an EDR capable of recording pre-crash data

As explained in the Post-crash section, the EDR System begins recording data when an impact exceeds the rapid change in speed threshold. On certain models, the EDR will also record about 5 seconds of data that took place before the impact. Figure 2 shows the sampling rate of Pre-Crash data is different than Post-Crash data.

Figure 2

Pre-crash data
Post-crash data
Sampling: 1sec.
Sampling rate
−5s   −3s   −4s   −2s   −1s Collision trigger
Time*
200 (ms)
*Time - Scale is different for Pre-Crash and Post-Crash

Post Crash & Pre-Crash Applicability Chart

The chart below provides EDR capability of each model and the corresponding model year (MY) it was built. Vehicles and the corresponding year that have a yellow bar are equipped with EDR that have the ability to record post-crash data only. Vehicles and the corresponding year that have a red bar, are equipped with EDRs capable of pre & post-crash data recording.

Legend: Post-crash data only | Pre- & Post-crash data

	Model Name	2000CY	2001CY	2002CY	2003CY	2004CY	2005CY	2006CY	2007CY	2008CY	2009CY	2010CY
Lexus	LS											
	LS HV											
	GS											
	GS HV											
	SC										End of Production	
	ES											
	LX											
	GX											
	RX											
	RX HV											
	IS											
	IS-F											
	IS-C											
	HS											
	CT											
	LFA											
Toyota	Avalon											
	Camry											
	Camry Solara									End of Production		
	Corolla											
	Echo						End of Production					
	4Runner											
	Land Cruiser											
	RAV4											
	Sienna											
	Prius											
	Highlander											
	Highlander HV											
	Tacoma											
	Tundra											
	SEQUOIA											
	Yaris											
	Yaris Sedan											
	FJ Cruiser											
	Venza											
	Matrix											
SCION	tC											
	xA						End of Production					
	xB											
	xD											

Type A and Type B EDR Reports

There are two types of EDR data displays: Type A and Type B. The type of display depends on the EDR and cannot be switched. The same information is displayed on Type A & Type B, but you will notice a difference in appearance.

Type A – Note: This is just an example report. Your EDR information may look different.

Page 1

Event Data

1. *Investigation date* - image date
2. *Investigator* - image tool operator
3. *Accident date*- collision date (if known)
4. *Vehicle* - vehicle model
5. *Model year* - model year of vehicle
6. *VIN Number*- Vehicle Identification Number of the vehicle

At the time of data retrieval, all of the above information is manually entered into the report by the tool operator. This information is NOT stored or pulled from the EDR.

7. *Tool Version (download)*- software version used in tool when performing EDR image
8. *Tool Version(display)*- software version being used to display EDR image

Data Table

9. *ECU number* - Electronic Control Unit part number
10. *New Page* – most recent recorded page number among frontal pages
11. *Freeze Signal*- an airbag fire signal will 'freeze' data so that it cannot be overwritten
12. *Deployment Time – time from the recording trigger to an airbag fire signal*
13. *Deployment Stage Driver*- level of deployment for multistage airbags
14. *Deployment Stage Passenger – level of deployment for multistage airbags*

Pre & Post Crash Data

READOUT TOOL REPORT

Event Data

INVESTIGATION DATE	06/30/2010
INVESTIGATOR	Me
ACCIDENT DATE	06/30/2010
VEHICLE	GS
MODEL YEAR	2008
VIN NUMBER	68068068068068080
Tool Version(download)	Ver.1.4.1.0
Tool Version(display)	Ver.1.4.1.0

Graph Data [1]

Latest/Frozen	BANK2	[2]
Freeze Signal	Freeze
Record Status	Recorded	[3]

Individual Data

Data Name	Data
Time From Previous Event	5000 ms [4]
Time From Last PreCrash Data	400 ms
Pre-Crash Data Flag	OFF OFF OFF OFF OFF OFF [5] [6]
Shift Position	Others [7]
Seat Position Driver	RW [8]
Belt Switch Status Driver	Belted [9]
Belt Switch Status Passenger	UnBelted [10]
Occupant Detection Passenger	Unoccupied [11]
PAB-Manual Cut OFF(N/A)	(N/A)
Ignition Cycles	0 times [12]
Lamp On Term	0 minutes [13]
Diag Code	00 00 00 00 00 00 00 00 00 00 00 [14]
Event counter	3 [15]
Writing Flag	Finished Writing [16] [17]

Pre-Crash Data

[18] Speed (mph) — 29.8 / 25.0 / 20.0 / 15.0 / 8.7

[19] Engine (rpm) — 2000 / 1750 / 1500 / 1250 / 1000 / 800

[20] Accelerator — FULL / MIDDLE / OFF

[21] Brake — ON / OFF / (s) — -5.0 -4.0 -3.0 -2.0 -1.0 0.0

Post-Crash Data

[22] Vel Chg (mph) — 11.8 / 10.0 / 7.5 / 5.0 / 2.5 / 0.6 — (ms) 0.0 25.0 50.0 75.0 100.0 125.0 150.0

Pre-Crash Data

s	Speed	Engine	Accelerator	Brake	s	Speed	Engine	Accelerator	Brake
-5.0	29.8	800	0.78(OFF)	ON	-0.6	9.9	1200	1.52(MIDDI	ON
-4.0	23.6	800	0.78(OFF)	ON					
-3.0	16.2	800	0.78(OFF)	ON					
-2.0	9.9	800	0.78(OFF)	ON					
-1.0	8.7	2000	1.52(MIDDI	OFF					

Post-Crash Data

ms	Vel Chg	ms	Vel Chg	ms	Vel Chg
10.0	0.6	60.0	4.7	110.0	11.5
20.0	0.6	70.0	7.8	120.0	11.6
30.0	1.8	80.0	9.1	130.0	11.6
40.0	2.6	90.0	10.8	140.0	11.6
50.0	4.2	100.0	11.4	150.0	11.6

Graph Data

1. *Latest/Frozen* –Page of most recent data
2. *Freeze Signal* - an airbag fire signal will 'freeze' data so that it cannot be overwritten
3. *Record Status* - indicates whether data was recorded

Individual Data

4. *Time from Previous Event-* time from the previous event trigger
5. *Time from Last PreCrash Data-* time from last full second record
6. *Pre-crash Data Flag-* indicates if pre-crash information has been recorded or not
7. *Shift Position-* transmission gear setting
8. *Seat Position Driver-* driver's seat position (FW – forward, RW - rearward)
9. *Belt Switch Status Driver-* seat belt usage at time of impact
10. Belt Switch Status *Passenger-* seat belt usage at time of impact
11. *Occupant Detection Passenger-* passenger type as determined by the system
12. *PAB Manual Cut Off (N/A)* – the status of the passenger airbag cutoff switch (if equipped)
13. *Ignition Cycles-* number of ignition cycles after airbag system detected trouble condition
14. *Lamp On term* – time that airbag lamp has been on
15. *Diag Code-* displays airbag diagnostic system trouble code numbers
16. *Event Counter-* the number of events and the order the system has recorded
17. *Writing Flag* – indicates whether all the input data was transferred to the permanent EDR memory

Pre-Crash Data

Pre Crash Data- if the vehicle is equipped with pre-crash capability, four charts are generated
18. S*peed-* indicates the vehicle speed at one second intervals. The last recording is at the time of the impact, between -1.0 and 0 seconds. The maximum recordable speed is between 75 and 78 mph. If the vehicle speed is greater than the maximum recordable speed, the chart will show between 75 and 78 mph.
19. *Engine-* indicates the engine speed in 400 rpm increments and is recorded in the same sequence as the vehicle speed
20. *Accelerator-* indicates the accelerator pedal application. In some models, sensor voltage reading is also recorded
21. *Brake-* indicates whether the brake lamp switch has been activated or not

Post-Crash Data

22. *Vel Chg-* this shows the longitudinal velocity (speed) change of the vehicle from the trigger event. The data is positive for deceleration (such as a frontal crash) and negative for acceleration (such as a rear impact). This data is taken where the airbag center sensor assembly ECU is located. If it is determined that there is the onset of a severe frontal collision, power is routed to the seatbelt pretensioners and the frontal airbags to deploy them. A small triangle indicates when the airbag deployment signal was sent.

Some models may also display the following data (not displayed in this document)

Side Crash Data

1. *B pillar* –there is a sensor located in the pillar near the driver's or front passenger's shoulder, that reacts to lateral (sideways) forces. The data shows the change in speed of the vehicle at that point.
2. *C Pillar –there is a side sensor located* in the pillar near the rear seat that reacts like the B pillar sensor.
3. *Floor sensor-* there is a lateral sensor that is part of the airbag center sensor assembly. It reacts to lateral impacts and analyzes data from the pillar sensors and safing sensor. If it is determined that there is an onset of a severe side impact, power is sent to the side curtain shield airbag and/or the torso bag to deploy them.

Rollover data

1. *Rollover angle-indicates* the sideways angle of the vehicle relative to the horizontal
2. *Rollover rate-*indicates amount of lateral Gs

Type B - Note: This is just an example report. Your EDR report information may look different.

Pre-Crash
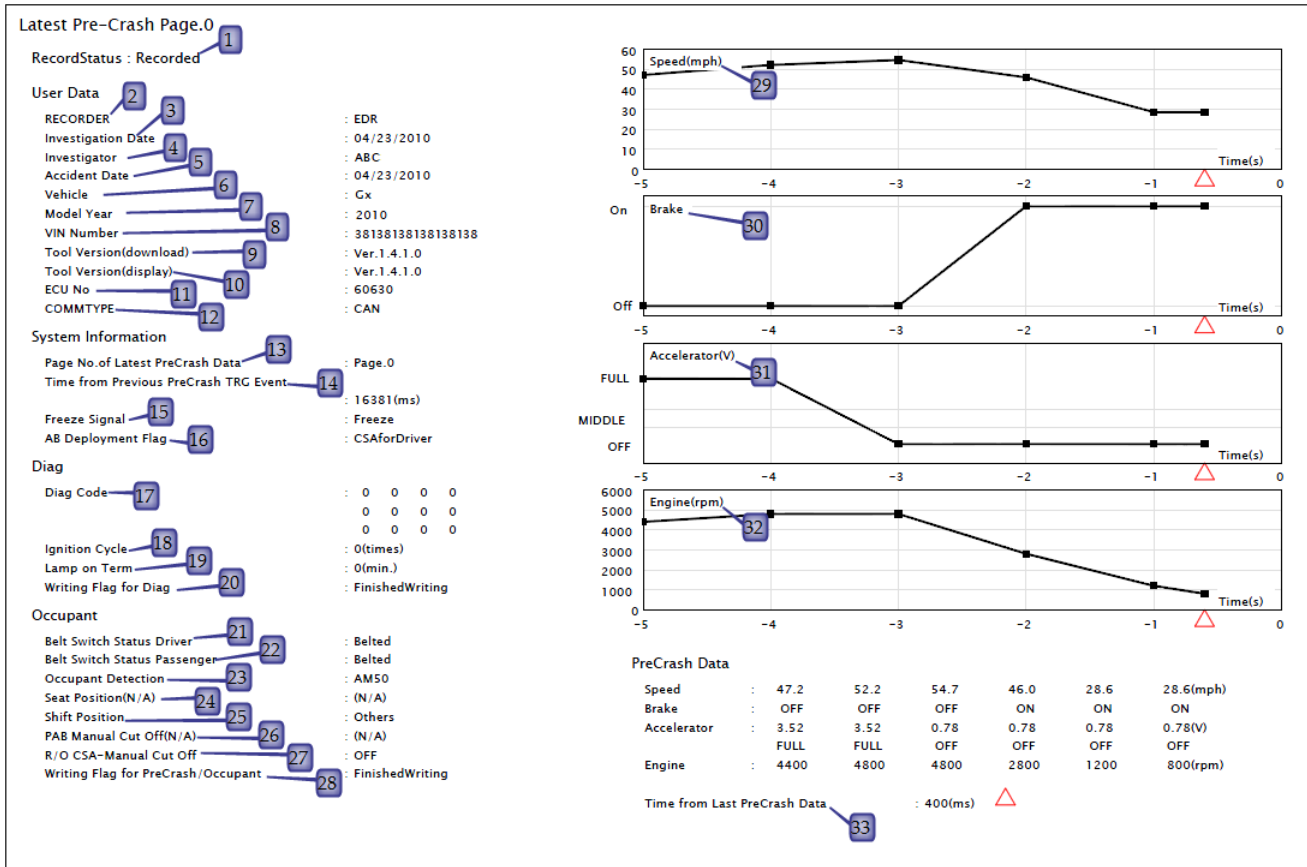
Latest Pre-Crash Page.0
1. *RecordStatus*- Displays if data has been recorded

User Data
2. *RECORDER* – type of recording device
3. *Investigation date*- image date
4. *Investigator* - image tool operator
5. *Accident date*- collision date (if known)
6. *Vehicle*- vehicle model
7. *Model year* - model year of vehicle
8. *VIN Number*- Vehicle Identification Number of the vehicle

At the time of data retrieval, the information for lines 2 through 7 are manually entered into the report by the tool operator. This information is NOT stored or imaged from the EDR.

9. *Tool Version (download)* – software version used in tool when performing EDR image
10. *Tool Version(display)* – software version being used to display EDR image
11. *ECU no* - Electronic Control Unit part number
12. *COMMTYPE* – EDR communication type

System Information
13. *Page No. of Latest PreCrash Data*- Page number of most recent Pre-Crash Data
14. *Time from Previous PreCrash TRG Event*- time from a most recent recording

15. *Freeze Signal-* an airbag fire signal will 'freeze' data so that it cannot be overwritten
16. *AB Deployment Flag-* indicates which airbags have deployed

Diag

17. Di*ag Code-* displays airbag diagnostic system trouble code numbers
18. *Ignition Cycles-* number of ignition cycles after airbag system detected trouble condition
19. *Lamp On term* – indicates time that airbag lamp has been on
20. *Writing Flag for Diag* –indicates whether during the event, diag code data, ignition cycles and lamp on term information was transferred to the permanent EDR memory

Occupant

21. *Belt Switch Status Driver-* seat belt usage at time of impact
22. Belt Switch Status *Passenger-* seat belt usage at time of impact
23. *Occupant Detection -* passenger type as determined by the system
24. *Seat Position(N/A)* – position of the driver's seat at impact
25. *Shift Position-* transmission gear setting
26. *PAB Manual Cut Off (N/A)* – status of the passenger airbag cutoff switch (if equipped)
27. *R/O CSA- Manual Cut Off-* status of the rollover curtain shield airbag manual cutoff switch at impact (if equipped)
28. *Writing Flag for PreCrash/Occupant* – indicates whether the data during the impact was transferred to the permanent EDR memory

PreCrash Data

29. *Speed-* indicates the vehicle speed at one second intervals. The last recording is at the time of the impact, between -1.0 and 0 seconds. The maximum recordable speed is between 75 and 78 mph. If the vehicle speed is greater than the maximum recordable speed, the chart will show between 75 and 78 mph.

30. *Brake-* indicates whether the brake lamp switch has been activated
31. *Accelerator*(V)- indicates the accelerator pedal application. In some models, sensor voltage reading is also recorded
32. *Engine (rpm)-* indicates the engine speed in 400 rpm increments and is recorded in the same sequence as the vehicle speed
33. *Time from Last PreCrash Data-* indicates the time between the last precrash data and event trigger

Note: Some reports may have data in another PreCrash page titled "Next Most Recent Pre-Crash Page.1" This data precedes information from "Latest Pre-Crash Page.0".

Frontal Crash – Post Crash

Frontal Crash Page.0

RecordStatus : Recorded

User Data

RECORDER	: EDR
Investigation Date	: 04/23/2010
Investigator	: ABC
Accident Date	: 04/23/2010
Vehicle	: Gx
Model Year	: 2010
VIN Number	: 38138138138138138
Tool Version(download)	: Ver.1.4.1.0
Tool Version(display)	: Ver.1.4.1.0
ECU No	: 60630
COMMTYPE	: CAN

Frontal Crash Page.0

Max deltaVx — 1	: 0.9(mph)
Writing Flag for Gx — 2	: FinishedWriting
TRG Counter — 3	: 2(times)
Previous Event — 4	: Lateral
Linked PreCrash Data Page No. — 5	: Page.0
Time from PreCrash TRG — 6	: 8(ms)
Frontal AB Deployment Time — 7	: NotFired
Pretensioner Deployment Time — 8	: NotFired
Deployment Stage Driver — 9	: NotFired
Deployment Stage Passenger — 10	: NotFired
Writing Flag for Frontal Crash — 11	: FinishedWriting

Post Crash Data(Vel Chg)

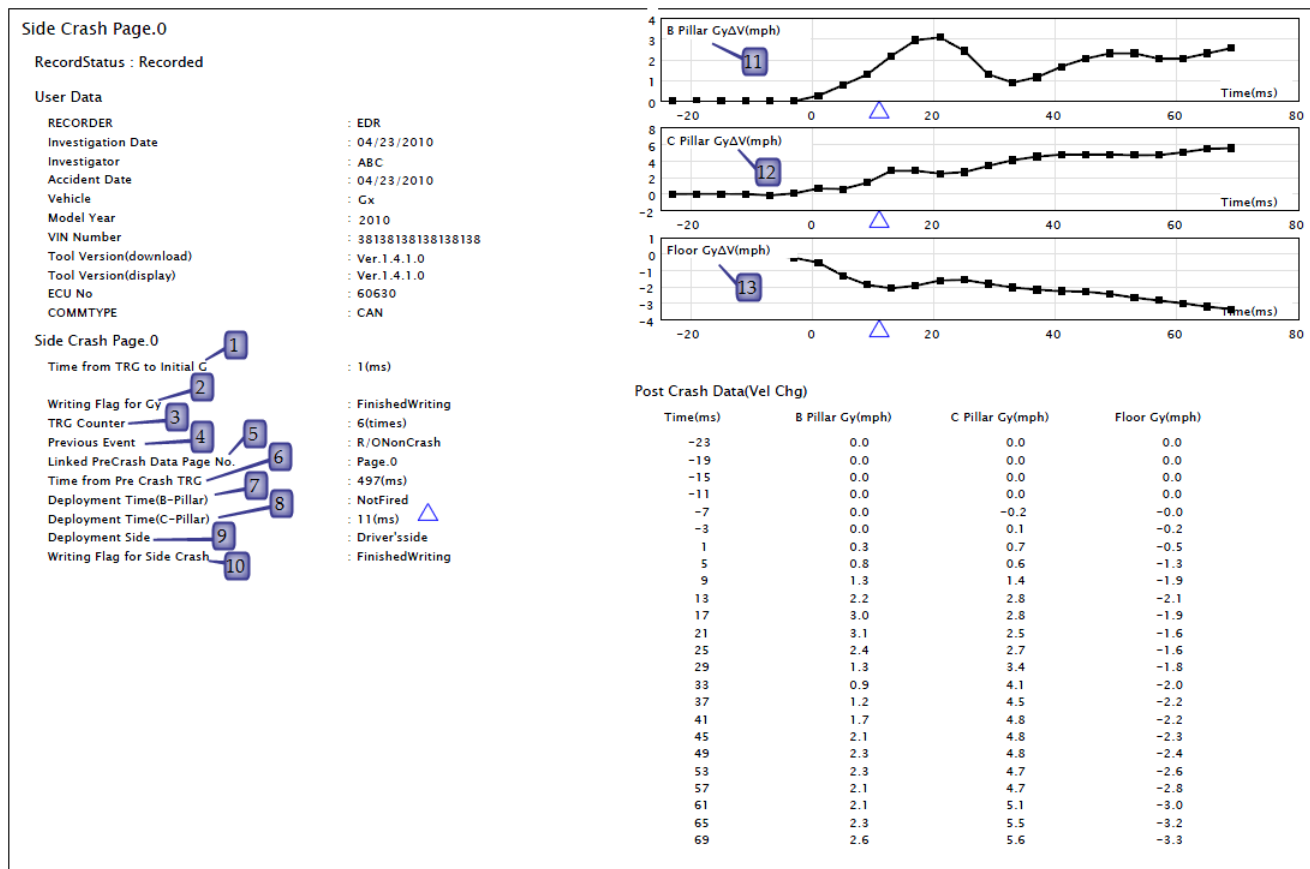| Time(ms)	PostCrash Data(Vel Chg)(mph)
10	0.7
20	0.9
30	0.8
40	0.5
50	0.4
60	0.4
70	0.5
80	0.6
90	0.5
100	0.4
110	0.4
120	0.5
130	0.6
140	0.6
150	0.6
160	0.5
170	0.4
180	0.4
190	0.4
200	0.4

Frontal Crash Page.0

1. *Max deltaVx*- Maximum change in longitudinal speed
2. *Writing Flag for Gx*- indicates whether the data during the impact was transferred to the permanent EDR memory
3. *TRG Counter*- number of EDR event triggers
4. *Previous Event*- type of previous event
5. *Linked PreCrash Data Page No.*- page number of linked data
6. *Time from PreCrash TRG*- amount of time from PreCrash trigger to start of delta V calculation
7. *Frontal AB Deployment Time*- Amount of time from event trigger to airbag deployment
8. *Pretensioner Deployment Time*- amount of time from event trigger to pretensioner deployment
9. *Deployment Stage Driver*- level of deployment for multistage airbags
10. *Deployment Stage Passenger*- level of deployment for multistage airbags
11. *Writing Flag for Frontal Crash*- indicates whether the data during the impact was written to the permanent EDR memory

Frontal Post Crash Data (Vel Chg) Chart

12. *PostCrash Data (Vel Chg) ΔV(mph)*-change in vehicle longitudinal speed in mph over milliseconds

Note: Some reports may have data in a page titled "Frontal Crash Page.1" This data is from a second frontal impact event that was above the EDR threshold.

Side Crash – Post Crash = Only displayed if EDR is capable of recording Side Crash events

Side Crash Page.0

RecordStatus : Recorded

User Data

RECORDER	: EDR
Investigation Date	: 04/23/2010
Investigator	: ABC
Accident Date	: 04/23/2010
Vehicle	: Gx
Model Year	: 2010
VIN Number	: 38138138138138138
Tool Version(download)	: Ver.1.4.1.0
Tool Version(display)	: Ver.1.4.1.0
ECU No	: 60630
COMMTYPE	: CAN

Side Crash Page.0

Time from TRG to Initial G	: 1(ms)
Writing Flag for Gy	: FinishedWriting
TRG Counter	: 6(times)
Previous Event	: R/ONonCrash
Linked PreCrash Data Page No.	: Page.0
Time from Pre Crash TRG	: 497(ms)
Deployment Time(B-Pillar)	: NotFired
Deployment Time(C-Pillar)	: 11(ms)
Deployment Side	: Driver'sside
Writing Flag for Side Crash	: FinishedWriting

Post Crash Data(Vel Chg)

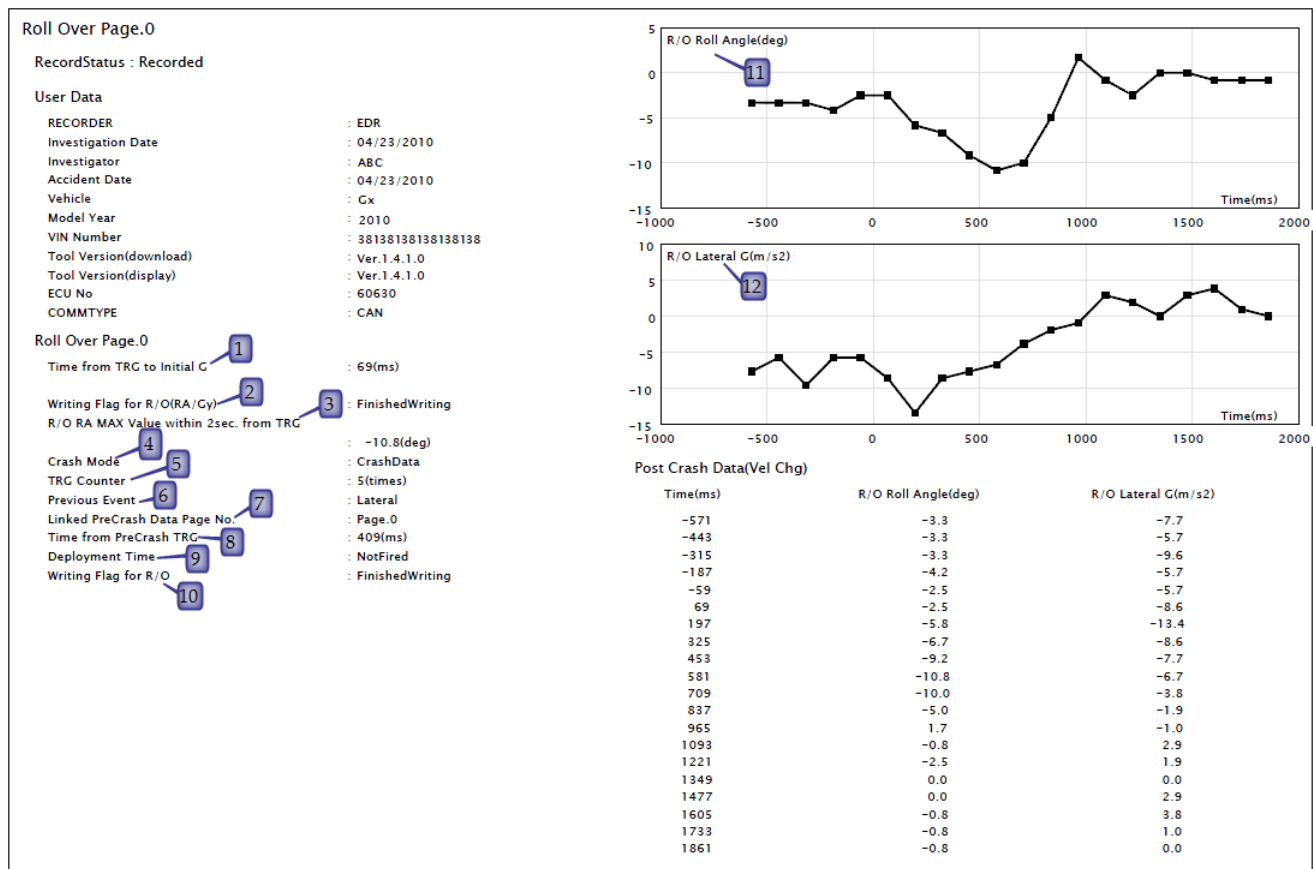| Time(ms)	B Pillar Gy(mph)	C Pillar Gy(mph)	Floor Gy(mph)
−23	0.0	0.0	0.0
−19	0.0	0.0	0.0
−15	0.0	0.0	0.0
−11	0.0	0.0	0.0
−7	0.0	−0.2	−0.0
−3	0.0	0.1	−0.2
1	0.3	0.7	−0.5
5	0.8	0.6	−1.3
9	1.3	1.4	−1.9
13	2.2	2.8	−2.1
17	3.0	2.8	−1.9
21	3.1	2.5	−1.6
25	2.4	2.7	−1.6
29	1.3	3.4	−1.8
33	0.9	4.1	−2.0
37	1.2	4.5	−2.2
41	1.7	4.8	−2.2
45	2.1	4.8	−2.3
49	2.3	4.8	−2.4
53	2.3	4.7	−2.6
57	2.1	4.7	−2.8
61	2.1	5.1	−3.0
65	2.3	5.5	−3.2
69	2.6	5.6	−3.3

Side Crash Page.0-

1. *Time from TRG to Initial G-* Elapsed time from event trigger to the next sample
2. *Writing Flag for Gy-* indicates whether the data during the impact was transferred to the permanent EDR memory
3. *TRG Counter-* number of EDR event triggers
4. *Previous Event-* type of previous event
5. *Linked PreCrash Data Page No.-* page number of linked data
6. *Time from Pre Crash TRG-* amount of time from Pre Crash trigger
7. *Deployment Time(B-Pilar)-* indicates when airbag was deployed after event trigger
8. *Deployment Time(C-Pilar)-* indicates when airbag was deployed after event trigger
9. *Deployment Side-* indicates which side of vehicle was impacted
10. *Writing Flag for Side Crash-* indicates whether the data during the impact was written to the permanent EDR memory

Side Post Crash Data Chart

11. *B Pillar Gy ΔV(mph)-* change in vehicle lateral speed in mph
12. *C Pillar GyΔ(mph)-* change in vehicle lateral speed in mph
13. *Floor GyΔV(mph)-* change in vehicle lateral speed in mph

Note: Some reports may have data in a page titled "Side Crash Page.1" This data is from a second side impact event that was above the EDR threshold.

Roll Over – Post Crash = Only displayed if EDR is capable of recording Roll Over events

Roll Over Page.0

RecordStatus : Recorded

User Data

RECORDER	: EDR
Investigation Date	: 04/23/2010
Investigator	: ABC
Accident Date	: 04/23/2010
Vehicle	: Gx
Model Year	: 2010
VIN Number	: 38138138138138138
Tool Version(download)	: Ver.1.4.1.0
Tool Version(display)	: Ver.1.4.1.0
ECU No	: 60630
COMMTYPE	: CAN

Roll Over Page.0

Time from TRG to Initial G	: 69(ms)
Writing Flag for R/O(RA/Gy)	: FinishedWriting
R/O RA MAX Value within 2sec. from TRG	: −10.8(deg)
Crash Mode	: CrashData
TRG Counter	: 5(times)
Previous Event	: Lateral
Linked PreCrash Data Page No.	: Page.0
Time from PreCrash TRG	: 409(ms)
Deployment Time	: NotFired
Writing Flag for R/O	: FinishedWriting

Post Crash Data(Vel Chg)

Time(ms)	R/O Roll Angle(deg)	R/O Lateral G(m/s2)
−571	−3.3	−7.7
−443	−3.3	−5.7
−315	−3.3	−9.6
−187	−4.2	−5.7
−59	−2.5	−5.7
69	−2.5	−8.6
197	−5.8	−13.4
325	−6.7	−8.6
453	−9.2	−7.7
581	−10.8	−6.7
709	−10.0	−3.8
837	−5.0	−1.9
965	1.7	−1.0
1093	−0.8	2.9
1221	−2.5	1.9
1349	0.0	0.0
1477	0.0	2.9
1605	−0.8	3.8
1733	−0.8	1.0
1861	−0.8	0.0

Roll Over Page.0

1. *Time from TRG to Initial G*- Elapsed time from event trigger to the next sample
2. *Writing Flag for R/O(RA/Gy)*- indicates whether the data during the impact was written to the permanent EDR memory
3. *R/O RA MAX Value within 2sec. from TRG*- Maximum roll angle within 2 seconds of event trigger
4. *Crash Mode*- The type of roll event
5. *TRG Counter*- number of EDR event triggers
6. *Previous Event*- type of previous event
7. *Linked PreCrash Data Page No.*- page number of linked data
8. *Time from PreCrash TRG*- amount of time from Pre Crash trigger
9. *Deployment Time*- indicates if or when airbag was deployed after the event trigger
10. *Writing Flag for R/O*- indicates whether the data during the impact was written to the permanent EDR memory

Roll Over Post Crash Data Chart

11. *R/O Roll Angle(deg)*- angle of roll measured in degrees
12. *R/O Lateral G(m/s2)*- amount of lateral Gs

Note: Some reports may have data in a page titled "Roll Over Page.1" This data is from a second Roll Over event that was above the EDR threshold.

EDR - Frequently Asked Questions

What is an EDR? An Event Data Recorder (EDR) is part of the Supplemental Restraint System (SRS) ECU that records data for some types of collision events for future safety research or analysis. An event is a change in vehicle speed that is more than typical of everyday use. For example, stopping hard with the brakes would not cause a recording, but hitting a curb may cause the EDR to record an event.

Are EDRs required in cars? They are currently not required.

Is the EDR a black box? No, the EDR is not a black box like on an airplane. It does not record sounds or conversations and does not have the capacity like an airplane blackbox. The EDR is simply part of the Supplemental Restraint System (SRS) ECU that only records certain vehicle data for a short period of time before or during a collision.

What causes the EDR to record? The EDR starts to record when the vehicle experiences a rapid change in speed (like acceleration or deceleration) that exceeds a specified threshold higher than normal use. Hard braking will not cause an EDR to record, because that may be considered normal use. Impacting a curb hard may cause a recording as the vehicle body may change speed much quicker than normal use.

Why were EDRs installed in Toyota/Lexus/Scion vehicles? EDRs have the capability to serve several purposes, such as assisting in vehicle development, quality control or safety research. Airbag deployment occurs very rapidly and it may be difficult to determine exactly what occurred during a collision. Although indirect methods may be used to determine airbag deployment circumstances, an EDR is a more direct method to understand airbag deployment circumstances.

Do all EDRs record the same information? No. Due to different vehicle designs and changes in equipment, the information recorded varies by model and model year.

Were there other recording systems before EDR in Toyota vehicles? Yes, some vehicles in the past had some impact recording capabilities, but these were not considered reliable for field use. There is no current capability to read these predecessors to EDRs.

How accurate is the EDR data? The accuracy of the data from the EDR depends on the collision and the EDR capabilities. Government studies of Toyota EDRs indicate that Toyotas EDRs have similar capabilities to other vehicle manufacturers.

What has Toyota done to validate its EDRs and EDR tools? Toyota has been analyzing data from vehicles since they were first introduced to ensure the reliability of the EDR technology. Toyota performs imaging of our own vehicles as part of crash testing. Toyota also performs EDR imaging from U.S. Government crash testing and investigations, and when requested, in law enforcement investigations.

How does the EDR record information? During a collision, the EDR calculates the delta V based on accelerometer data every 10 milliseconds and puts it into the permanent memory. During the intervals, other data is also placed into memory. If all the data is not transferred into the permanent memory, a writing flag is put on the report. If all data is successfully transferred, the report states 'Finished writing'. In some very severe

impacts, electrical connections or internal EDR components may be damaged, resulting in incomplete data transfer to the permanent memory.

How long is an event stored in the EDR? If the airbags are deployed in a collision, the EDR data is locked and cannot be erased or overwritten. If the airbags have not been deployed in previous EDR events, an event that causes the vehicle to experience a rapid change in speed (example: hitting a curb) that exceeds a specified threshold will overwrite previous EDR events.

Why is a signed consent form required before performing imaging? Various states have privacy regulations that require consent before performing an EDR image.

How is EDR data retrieved and does the retrieval process affect/change the data contained in the EDR? Depending on the vehicle's condition, data can be imaged in one of two ways. The EDR tool is either connected through the vehicles DLC port, or the EDR is removed from the vehicle and the EDR tool is connected directly to the SRS ECU. Neither method alters or erases EDR data during the process. In some rare circumstances such as water immersions- the EDR data may not be able to be imaged using the EDR tool.

What will I receive after the EDR image process has taken place on my vehicle? After the imaging has been completed, the EDR report and other reference documents will be provided.

What is the difference between vehicle speed and delta V? Vehicle speed is how fast the vehicle moves relative to the ground - usually in miles per hour. It is understood that vehicle speed is the straight line speed of the entire vehicle. Delta V is the change in vehicle speed over milliseconds and is usually discussed as longitudinal, lateral or total delta V.

Is there more than one deltaV? In some EDR reports there are longitudinal and lateral delta V data.

When I review the data, the first airbag record looks good, but the other records make no sense. What's going on? Some EDRs contain initial data in the registers. If "RecordStatus" displays "Initial", the information contained on that page is default data from the factory.

Why can't the EDR tool operator just tell the customer what the report says? Crashes can be very complex events. The EDR report is just one piece of information and without knowing other critical crash information, the EDR data could be misinterpreted with the context for the overall crash.

Can the EDR tell me the date and time of collision? No, the EDR does not have a time stamp function.

When will Toyota have a commercially available EDR tool? A commercially available EDR tool for Toyota/Scion/Lexus vehicles will be available before the government requirement date.