Vehicle Attachment – ISP CDR Report

Rochester, IN

HWY19MH003

(26 pages)

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/Frame Number	3TMCZ5AN4HM█████
User	S/Trp. Jeremy J. Perez
Case Number	18ISPC012359
EDR Data Imaging Date	10/30/2018
Crash Date	10/30/2018
Filename	3TMCZ5AN4HM█████_ACM 2017 TOYOTA TACOMA 18ISPC012359.CDRX
Saved on	Tuesday, October 30 2018 at 16:32:23
Imaged with CDR version	Crash Data Retrieval Tool 17.4
Imaged with Software Licensed to (Company Name)	Indiana State Police - Indianapolis
Reported with CDR version	Crash Data Retrieval Tool 17.4
Reported with Software Licensed to (Company Name)	Indiana State Police - Indianapolis
EDR Device Type	Airbag Control Module
Event(s) recovered	Front/Rear (1), Rollover (2)

Comments

DLC
Vehicle Power
Tire Size: 265/70/R16
Recommended Tire Size: 265/70/R16
287 DLC Cable

Data Limitations

CDR Record Information:

- Due to limitations of the data recorded by the airbag ECU, such as the resolution, data range, sampling interval, time period of the recording, and the items recorded, the information provided by this data may not be sufficient to capture the entire crash.
- Pre-Crash data is recorded in discrete intervals. Due to different refresh rates within the vehicle's electronics, the data recorded may not be synchronous to each other.
- Airbag ECU data should be used in conjunction with other physical evidence obtained from the vehicle and the surrounding circumstances.
- If any of the front passenger seat airbags, side airbags, or Curtain Shield Airbags have deployed, data will not be overwritten or deleted by the airbag ECU following that event. If none of the airbags have deployed, the data of that event may be overwritten by a following event even if other airbags (pretensioner, rear seat airbag, etc.) have deployed.
- If power supply to the airbag ECU is lost during an event, all or part of the data may not be recorded.
- "Diagnostic Trouble Codes" are information about faults when a recording trigger is established. Various diagnostic trouble codes could be set and recorded due to component or system damage during an accident.
- The airbag ECU records only diagnostic information related to the airbag system. It does not record diagnostic information related to other vehicle systems.
- The TaSCAN, Global Tech Stream, or Intelligent Tester II devices (or any other Toyota genuine diagnostic tool) can be used to obtain detailed information on the diagnostic trouble codes from the airbag system, as well as diagnostic information from other systems. However, in some cases, the diagnostic trouble codes of the airbag system recorded by the airbag ECU when the event occurred may not match the diagnostic trouble codes read out when the diagnostic tool is used.

General Information:

- The data recording specifications of Toyota's airbag ECUs are divided into the following categories. The specifications for 12EDR or later are designed to be compatible with NHTSA's 49CFR Part 563 rule.
  - 00EDR / 02EDR / 04EDR / 06EDR / 10EDR / 12EDR / 13EDR / 15EDR / 17EDR
- The airbag ECU records data for all or some of the following accident types: frontal crash, rear crash , side crash, and rollover events. Depending on the installed airbag ECU, data for side crash and/or rollover events may not be recorded.
- This airbag ECU records record pre-crash data and post-crash data.
  - If a single event occurs independently, the data for that event is recorded on a one-to-one basis.
  - If multiple events occur successively (within a period of approximately 500ms), the establishment of the recording trigger for the first event is defined as the "pre-crash recording trigger". Pre-crash data for the first event and post-crash data for each successive event is then recorded.
- The airbag ECU has two recording pages (memory maps) to store pre-crash data. Additionally, to store post-crash data, the airbag ECU has two recording pages for each accident type: two pages for frontal and rear crash, two pages for a side crash, and two pages for rollover event.
- The data recorded by the airbag ECU includes correlating information between each previously occurring event (i.e., information that clarifies the collision event sequence. This correlation information consists of the following items.

- Time from Previous Pre-Crash TRG
- Linked Pre-Crash Page
- Time from Pre-Crash TRG
- TRG Count
- Previous Crash Type
- In frontal and rear collision events, the first point where a longitudinal cumulative delta-V of over 0.8 km/h (0.5 mph) is reached is regarded as time zero for the recorded data. In side impact collision and rollover events, the point in time at which the recording trigger is established is regarded as time zero for the recorded data.
- The recording trigger judgment threshold value differs depending on the collision type (i.e., frontal crash, rear crash, side crash, or rollover event).
- Some of the data recorded by the airbag ECU is transmitted to the airbag ECU from various vehicle control modules by the vehicle's Controller Area Network (CAN).
- In some cases, the airbag ECU part number printed on the ECU label may not match the airbag ECU part number that the CDR tool reports. The part number retrieved by the CDR tool should be considered as the official ECU part number.
- In frontal and rear collision events, the record time varies depending on the period during which a longitudinal cumulative delta-V of over 0.8 km/h (0.5 mph) is reached, and time series data is recorded for up to 250 ms. The record time described above is indicated as "Length of Delta-V". "Delta-V, Longitudinal" outside the record time is indicated by area shaded in the table, and not indicated in the graph.

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.

Data Element Name	Positive Sign Notation Indicates
Maximum Delta-V, Longitudinal	Forward
Delta-V, Longitudinal	Forward
Lateral Acceleration for Frontal/Rear Crash, Floor Sensor	Left to Right
Lateral Acceleration, Side Satellite Sensor 1	Left to Right
Lateral Acceleration, Side Satellite Sensor 2	Left to Right
Lateral Acceleration, Side Satellite Sensor 3	Left to Right
Lateral Acceleration, Side Satellite Sensor 4	Left to Right
Lateral Acceleration for Side Crash, Floor Sensor	Left to Right
Roll Angle Peak	Clockwise Rotation
Roll Angle at the Time of TRG	Clockwise Rotation
Roll Rate	Clockwise Rotation
Lateral Acceleration for Rollover, Floor Sensor	Left to Right
Longitudinal Acceleration , VSC Sensor	Forward
Yaw Rate	Left Turn
Steering Input	Left Turn

Data Definitions:
1)
- The "ON" setting for the "Freeze Signal" indicates a state in which the non-volatile memory can not be overwritten or deleted by the airbag ECU. After "Freeze Signal" has been turned ON, subsequent events will not be recorded.
- "Recording Status" indicates a state in which all recorded event data has been written into the non-volatile memory, or a state in which this process was interrupted and not fully written into the non-volatile memory. If "Recording Status" is "Incomplete", recorded event data may not be valid.
- If the "Occupant Size Classification, Front Passenger" displays "Child" or "Not Occupied", "Side Air Bag Deployment, Time to Deploy" and "Pretensioner Deployment, Time to Fire" may indicate a time even if deployment did not occur on the for following part no's:
  - 89170-07280, 35400, 35410, 35470, 42660, 0R120, 0R080, 0R081, 0R150
- "Engine RPM" indicates the number of engine revolutions, not the number of motor revolutions. The recorded value has an upper limit of 12,800 rpm. Resolution is 100 rpm and the value is rounded down and recorded. For example, if the actual engine speed is 799 rpm, the recorded value will be 700 rpm.
- If the electric vehicle is using a calculated/virtual engine RPM for drivetrain control, "Engine RPM" may be recorded, but should not be used during data analysis.
- The upper limit for the recorded "Vehicle Speed" value is 200 km/h (125mph). Resolution is 1km/h (0.6mph) and the value is rounded down and recorded. The accuracy of the "Vehicle Speed" value can be affected by various factors. These include, but not limited, to the following.
  - Significant changes in the tire's rolling radius
  - Wheel lock and wheel slip
- "Accelerator Pedal" has two recording specifications. Both the recorded value increases as the driver depresses the accelerator.
  - Percentage of accelerator pedal depressed (recorded as 0-100(%)).
  - Output voltage of accelerator pedal module (recorded as 0-5(V)).
- If M/T transmission vehicle of some limited model, "Shift Position" may display "Drive" regardless of the actual shift position.
- Depending on the type of occupant sensor installed in the vehicle, one of the following three recording formats for "Occupant Size Classification, Front Passenger" will be utilized.
  - Occupied / Not Occupied
  - AM50 / AF05 / Child / Not Occupied
  - AM50 / AF05 / Child or Not Occupied
- "Cruise Control Status" indicates whether the cruise control system is actuated or not. OFF indicates that the cruise control system is not actuated, but can also indicates that the vehicle is not equipped with the system.
- "Air Bag Warning Lamp, On/Off", "Ignition Cycle, Crash", "Seat Track Position Switch, Foremost, Status, Driver", "Occupant Size Classification, Front Passenger", "Safety Belt Status, Driver", "Safety Belt Status, Front Passenger", "Frontal Air Bag Suppression Switch Status, Front

Passenger", and "RSCA Disable Switch" indicate the state approximately 1 second before time zero. They may not always indicate the state at the moment of collision.

- The upper and lower limits for the recorded value of "Motor RPM" is 17,500 rpm and -7,500 rpm respectively. Resolution is 100 rpm and the value is rounded down and recorded.
- "Brake Oil Pressure" has an upper limit of 12.14 Mpa. In the case of the vehicle that has not VSC system, "0 Mpa" or "Invalid" may be displayed.
- "Longitudinal Acceleration , VSC Sensor" has upper and lower limits for the recorded value of 8.973 m/s^2 and -8.973 m/s^2 respectively. This acceleration sensor does not sense collisions.
- "Sequential Shift Range" displaying "Undetermined" indicates the shift range is undetermined or was not being used.
- Some vehicles will not be equipped with all "Drive Mode" types indicated in the "Drive Mode" table. If some or all drive modes are not applicable to vehicle, "OFF" or "Invalid" may be displayed. The item in the "Drive Mode" table may not match the name of switch or indicator that equipped the vehicle.
- The upper and lower limits for the recorded value of "Steering Input" is 375 deg and -375 deg respectively. Resolution is 1.5 deg and the value is rounded down and recorded.
- Resolution of the "Air Bag Warning Lamp ON Time Since DTC was Set" is 15 minutes, and the value is rounded down and recorded.
- "Delta-V, Longitudinal" indicates the change in forward speed after time zero. This does not refer to vehicle speed, and it does not include the change in speed during the period from the start of the actual collision to establishment of the time zero.
- "Location of Side Satellite Sensor" shows the outline of a typical sensor position. Sensory location can be confirmed using the repair manual.
- "Time from Previous Pre-Crash TRG" indicates the time between the establishment of an event's pre-crash recording trigger to the establishment of a more recent event's pre-crash recording trigger. The upper limit for the recorded value is 16,381 milliseconds. In the event of establishment of the first pre-crash recording trigger after the ignition is switched ON, the upper limit value(max value) is recorded.
- "TRG Count" indicates a calculated value of the number of times recording triggers have been established for all crash types. The sequence in which each event occurred can be verified from the "TRG Count". The smaller the "TRG Count" value, the older the data. The upper limit for the recorded value is 65,533 times. When more than one event reaches the upper limit, the actual "TRG Count" may be greater than what is displayed for that event.
- "Linked Pre-Crash Page" is used to link 'paged' pre-crash data with 'paged' post-crash data. When old pre-crash data is overwritten by new pre-crash data, the "Linked Pre-Crash Page" value may record a page number that is not actually linked.
- Resolution of the "Time from Pre-Crash to TRG" is 50 [ms], and the value is rounded up and recorded.
- "Roll Angle at the Time of TRG" and "Roll Angle Peak" do not represent the actual roll angle of the vehicle. These values are used internally by the airbag ECU for sensing a rollover.

05013_ToyotaS00std_r026

System Status at Time of Retrieval

ECU Part Number	89170-04671
EDR Generation	13EDR
Complete File Recorded	Yes
Freeze Signal	ON
Freeze Signal Factor	Front Airbag Deployment
Diagnostic Trouble Codes Exist	No
Ignition Cycle ,Download (times)	3204
Multi-event, number of events (times)	1
Time from event 1 to 2 (s)	5.0 or greater
Time from Previous Pre Crash TRG (msec)	16381 or greater
Latest Pre-Crash Page	0
Contains Unlinked Pre-Crash Data	No

Event Record Summary at Retrieval

Events Recorded	TRG Count	Crash Type	Time (msec)	Pre-Crash & DTC Data Recording Status	Event & Crash Pulse Data Recording Status
Most Recent Event	5	Front/Rear Crash	0	Complete (Page 0)	Complete (Front/Rear Page 0)
1st Prior Event	4	Rollover	-16381 or greater	Complete (Page 1)	Complete (Rollover Page 1)
2nd Prior Event	3	Rollover	N/A	N/A	Complete (Rollover Page 0)

System Status at Event (Most Recent Event, TRG 5)

Recording Status, Front/Rear Crash Info.	Complete
Crash Type	Front/Rear Crash
TRG Count (times)	5
Previous Crash Type	No Event
Time from Pre-Crash TRG (msec)	0
Linked Pre-Crash Page	0
Frontal Airbag Deployment, Time to 1st Stage Deployment, Driver (msec)	53
Frontal Airbag Deployment, Time to 1st Stage Deployment, Front Passenger (msec)	No
Pretensioner Deployment, Time to Fire, Driver (msec)	53
Pretensioner Deployment, Time to Fire, Front Passenger (msec)	No
Frontal Airbag Deployment, Time to 2nd Stage, Driver (msec)	No
Frontal Airbag Deployment, Time to 2nd Stage, Front Passenger (msec)	N/A
Active Head Restraint, Time to Deploy, Driver (msec)	SNA
Active Head Restraint, Time to Deploy, Front Passenger (msec)	SNA
Side Curtain Airbag Deployment, Time to Deploy, Driver (msec)	103
Side Curtain Airbag Deployment, Time to Deploy, Passenger (msec)	53
Side Airbag Deployment, Time to Deploy, Driver (msec)	53
Side Airbag Deployment, Time to Deploy, Passenger (msec)	53
Rear Window Airbag Deployment, Time to Deploy (msec)	SNA

Longitudinal/Lateral Crash Pulse (Most Recent Event, TRG 5 - table 1 of 2)

Recording Status, Time Series Data	Complete
Time from Time Zero to TRG (msec)	53.0
Length of Delta-V (msec)	140
Max. Longitudinal Delta-V (MPH [km/h])	-5.6 [-9.0]
Time, Maximum Delta-V, Longitudinal (msec)	142.0
Power Supply Status at Max. Delta-V	ON
Clipping Time of Longitudinal Delta-V (msec)	No
Clipping Time of Lateral Acceleration, Floor Sensor (msec)	No

Longitudinal Delta-V
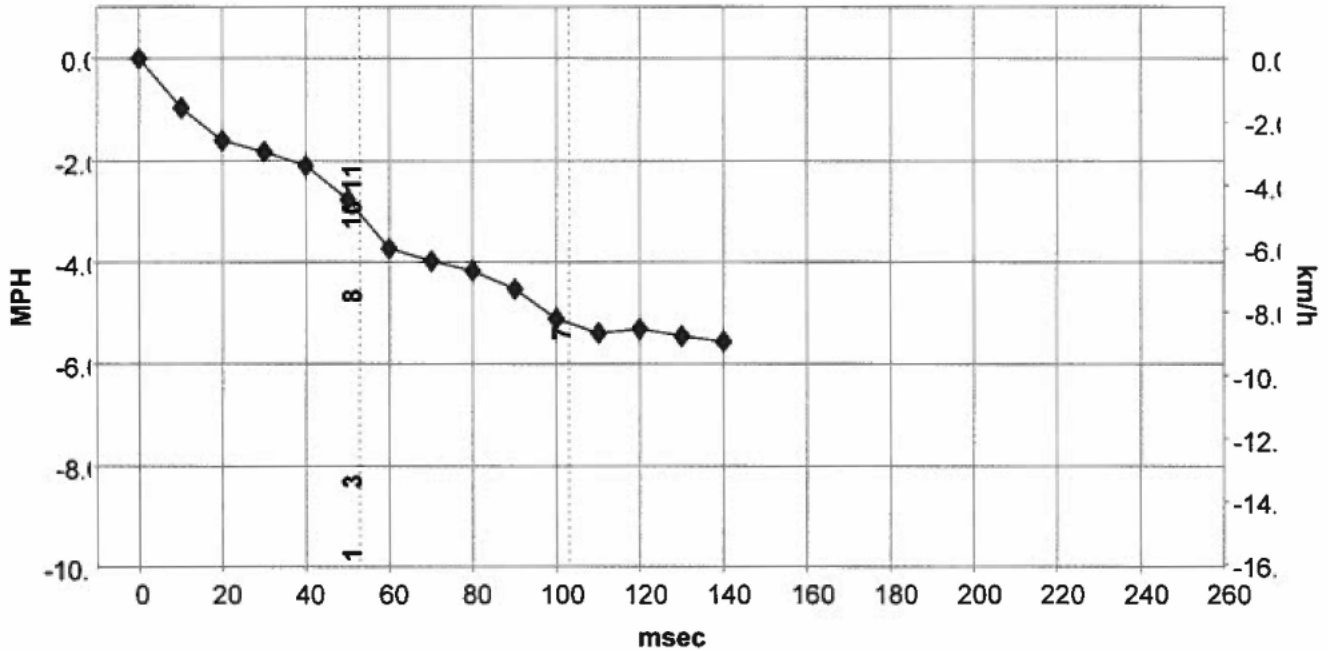
Deployment Time Marker Key

1	Driver Airbag Deployment Time
2	Passenger Airbag Deployment Time
3	Driver/Passenger Pretensioner
4	Driver 2nd Stage Airbag Deployment Time
5	Passenger 2nd Stage Airbag Deployment
6	Driver/Passenger AHR
7	Driver CSA
8	Passenger CSA
9	Rear Window Airbag Deployment Time
10	Driver SAB
11	Passenger SAB

Lateral Acceleration for frontal/rear crash, Floor Sensor
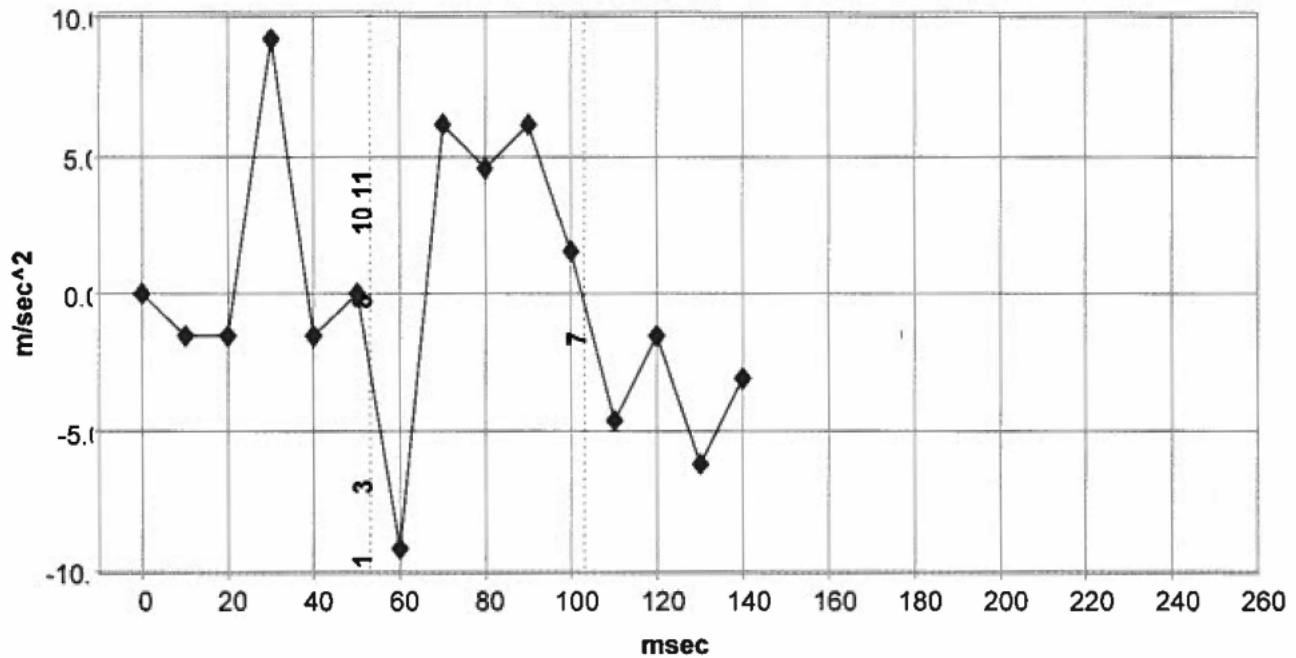
Deployment Time Marker Key

1	Driver Airbag Deployment Time
2	Passenger Airbag Deployment Time
3	Driver/Passenger Pretensioner
4	Driver 2nd Stage Airbag Deployment Time
5	Passenger 2nd Stage Airbag Deployment
6	Driver/Passenger AHR
7	Driver CSA
8	Passenger CSA
9	Rear Window Airbag Deployment Time
10	Driver SAB
11	Passenger SAB

Longitudinal/Lateral Crash Pulse (Most Recent Event, TRG 5 - table 2 of 2)

Time (msec)	Longitudinal Delta-V (MPH [km/h])	Lateral Acceleration for Frontal/Rear Crash, Floor Sensor (m/sec^2)	Power Supply Status
0	0.0 [0.0]	0.0	ON
10	-1.0 [-1.6]	-1.5	ON
20	-1.6 [-2.6]	-1.5	ON
30	-1.8 [-2.9]	9.2	ON
40	-2.1 [-3.4]	-1.5	ON
50	-2.8 [-4.4]	0.0	ON
60	-3.7 [-6.0]	-9.2	ON
70	-4.0 [-6.4]	6.1	ON
80	-4.2 [-6.7]	4.6	ON
90	-4.5 [-7.3]	6.1	ON
100	-5.1 [-8.2]	1.5	ON
110	-5.4 [-8.7]	-4.6	ON
120	-5.3 [-8.6]	-1.5	ON
130	-5.4 [-8.8]	-6.1	ON
140	-5.5 [-8.9]	-3.1	ON
150	0.0 [0.0]	0.0	ON
160	0.0 [0.0]	0.0	ON
170	0.0 [0.0]	0.0	ON
180	0.0 [0.0]	0.0	ON
190	0.0 [0.0]	0.0	ON
200	0.0 [0.0]	0.0	ON
210	0.0 [0.0]	0.0	ON
220	0.0 [0.0]	0.0	ON
230	0.0 [0.0]	0.0	ON
240	0.0 [0.0]	0.0	ON
250	0.0 [0.0]	0.0	ON

DTCs Present at Time of Event (Most Recent Event, TRG 5)

Recording Status, Diagnostic	Complete
Ignition Cycle Since DTC was Set (times)	0
Airbag Warning Lamp ON Time Since DTC was Set (min)	0
Diagnostic Trouble Codes	None

Pre-Crash Data, 1 Sample (Most Recent Event, TRG 5)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	300
TRG Count when Pre-crash TRG was Established (times)	5
Safety Belt Status, Driver	ON
Safety Belt Status, Front Passenger	OFF
Occupant Size Classification, Front Passenger	Not Occupied
Frontal Airbag Suppression Switch Status, Front Passenger	SNA
RSCA Disable Switch	SNA
Seat Track Position Switch, Foremost, Status, Driver	Yes
Airbag Warning Lamp, On/Off	OFF
Ignition Cycle ,Crash (times)	3203

Pre-Crash Data, -5 to 0 seconds (Most Recent Event, TRG 5)

Time (sec)	-4.8	-4.3	-3.8	-3.3	-2.8	-2.3	-1.8	-1.3	-0.8	-0.3	0 (TRG)
Vehicle Speed (MPH [km/h])	58.4 [94]	59 [95]	58.4 [94]	58.4 [94]	58.4 [94]	57.8 [93]	57.2 [92]	57.2 [92]	55.9 [90]	48.5 [78]	41 [66]
Accelerator Pedal, % Full (%)	22.0	19.0	19.0	17.0	4.0	5.5	6.5	5.0	0.0	0.0	0.0
Percentage of Engine Throttle (%)	12.0	10.0	10.0	10.0	1.0	0.5	1.5	1.5	0.0	0.0	0.0
Engine RPM (RPM)	1,500	1,500	1,500	1,500	1,500	1,400	1,400	1,400	1,400	1,100	1,000
Motor RPM (RPM)	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid
Service Brake, ON/OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON
Brake Oil Pressure (Mpa)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.47	11.71	9.79
Longitudinal Acceleration, VSC Sensor (m/sec^2)	-0.144	-0.072	0.072	-0.359	-0.431	-0.502	-0.431	-0.574	-3.374	-7.250	Invalid
Yaw Rate (deg/sec)	0.00	0.00	0.00	0.49	0.49	-0.49	0.00	0.49	0.00	-5.86	-3.90
Steering Input (degrees)	3.0	4.5	6.0	7.5	7.5	3.0	9.0	9.0	-3.0	-18.0	-3.0
Shift Position	D	D	D	D	D	D	D	D	D	D	D
Sequential Shift Range	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined
Cruise Control Status	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Drive Mode, PWR	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Drive Mode, ECO	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Drive Mode, Sport	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Drive Mode, Snow	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Drive Mode, EV	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Fuel Injection Quantity (mm3/st)	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid

System Status at Event (1st Prior Event, TRG 4)

Recording Status, Rollover Crash Info.	Complete
Crash Type	Rollover
TRG Count (times)	4
Previous Crash Type	No Event
Time from Pre-Crash TRG (msec)	0
Linked Pre-Crash Page	1
Side Curtain Airbag Deployment, Time to Deploy (msec)	No
Pretensioner Deployment, Time to Fire, Driver (msec)	No
Pretensioner Deployment, Time to Fire, Front Passenger (msec)	No

Rollover Crash Pulse (1st Prior Event, TRG 4 - table 1 of 2)

Recording Status, Time Series Data	Complete
Time from TRG to Next Sample (msec)	22
Roll Angle Peak (degrees)	-4.9
Roll Angle at the Time of TRG (degrees)	-1.4
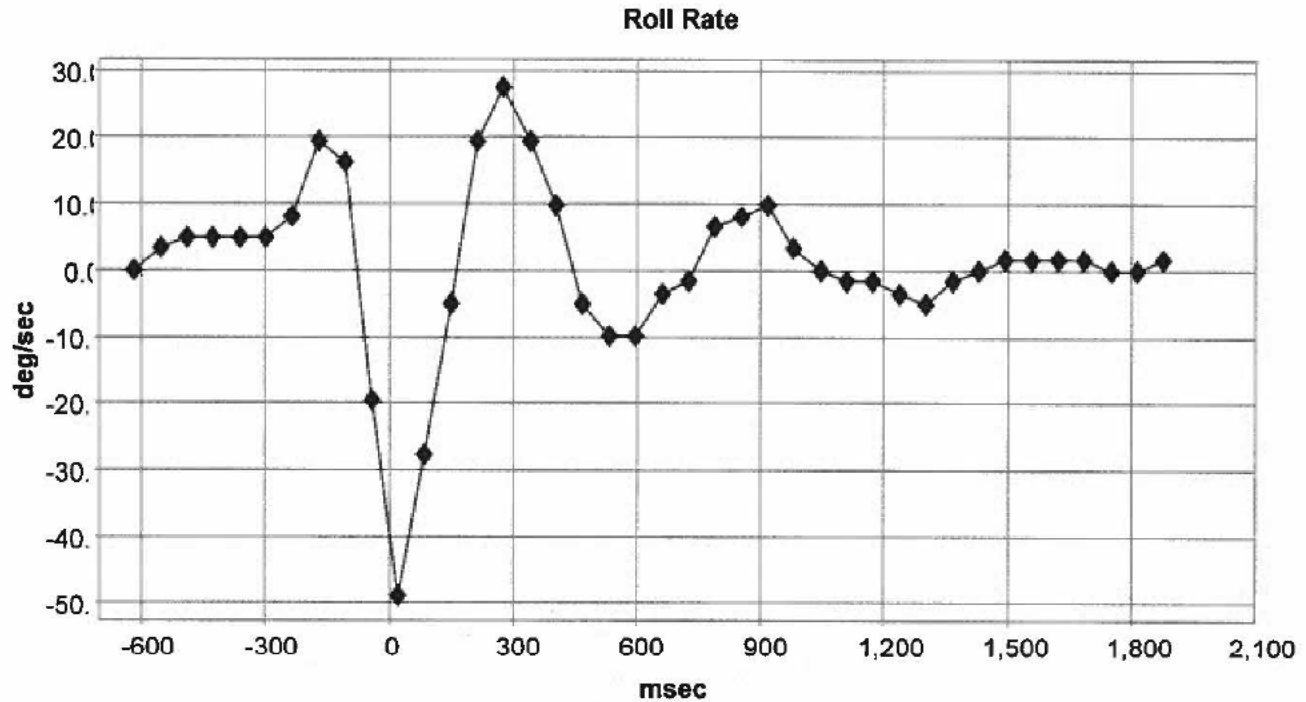
Roll Rate

Deployment Time Marker Key

1	Driver/Passenger CSA
2	Driver/Passenger Pretensioner

Lateral Acceleration for Rollover, Floor Sensor
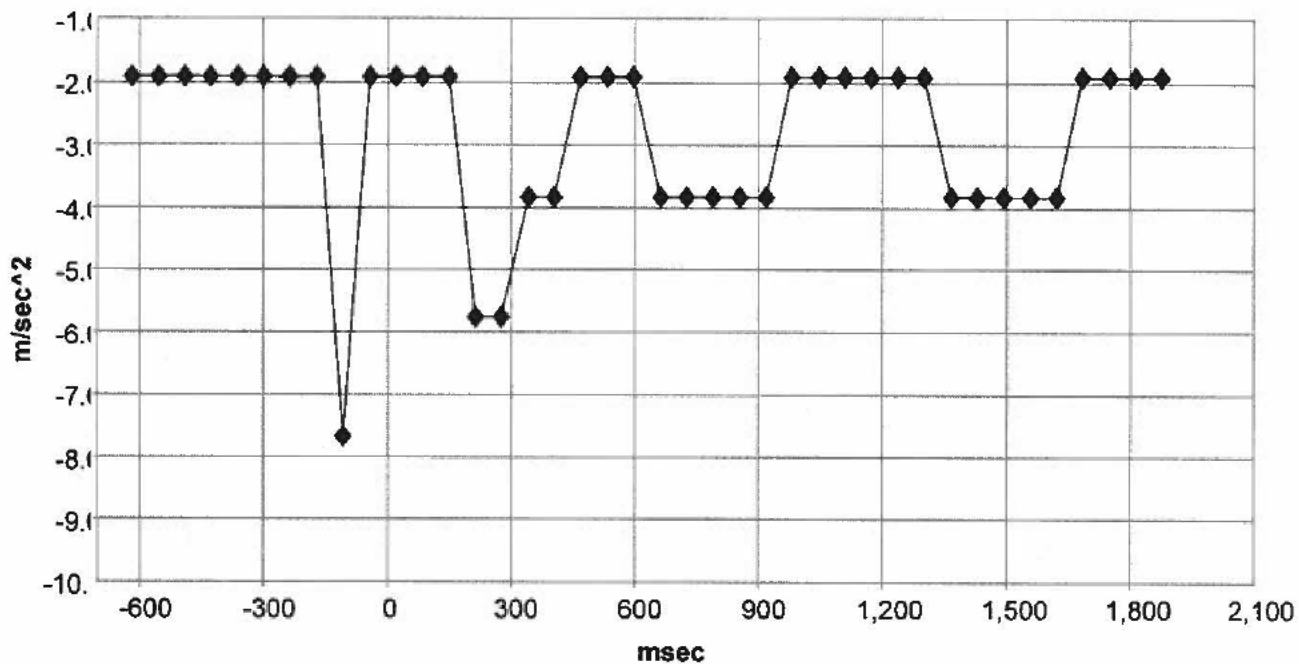
Deployment Time Marker Key

| 1 | Driver/Passenger CSA |
| 2 | Driver/Passenger Pretensioner |

Rollover Crash Pulse (1st Prior Event, TRG 4 - table 2 of 2)

Time (msec)	Roll Rate (deg/sec)	Lateral Acceleration for Rollover, Floor Sensor (m/sec^2)
-618	0.0	-1.9
-554	3.3	-1.9
-490	4.9	-1.9
-426	4.9	-1.9
-362	4.9	-1.9
-298	4.9	-1.9
-234	8.1	-1.9
-170	19.5	-1.9
-106	16.3	-7.7
-42	-19.5	-1.9
22	-48.9	-1.9
86	-27.7	-1.9
150	-4.9	-1.9
214	19.5	-5.7
278	27.7	-5.7
342	19.5	-3.8
406	9.8	-3.8
470	-4.9	-1.9
534	-9.8	-1.9
598	-9.8	-1.9
662	-3.3	-3.8
726	-1.6	-3.8
790	6.5	-3.8
854	8.1	-3.8
918	9.8	-3.8
982	3.3	-1.9
1046	0.0	-1.9
1110	-1.6	-1.9
1174	-1.6	-1.9
1238	-3.3	-1.9
1302	-4.9	-1.9
1366	-1.6	-3.8
1430	0.0	-3.8
1494	1.6	-3.8
1558	1.6	-3.8
1622	1.6	-3.8
1686	1.6	-1.9
1750	0.0	-1.9
1814	0.0	-1.9
1878	1.6	-1.9

DTCs Present at Time of Event (1st Prior Event, TRG 4)

Recording Status, Diagnostic	Complete
Ignition Cycle Since DTC was Set (times)	0
Airbag Warning Lamp ON Time Since DTC was Set (min)	0
Diagnostic Trouble Codes	None

Pre-Crash Data, 1 Sample (1st Prior Event, TRG 4)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	450
TRG Count when Pre-crash TRG was Established (times)	4
Safety Belt Status, Driver	ON
Safety Belt Status, Front Passenger	OFF
Occupant Size Classification, Front Passenger	Not Occupied
Frontal Airbag Suppression Switch Status, Front Passenger	SNA
RSCA Disable Switch	SNA
Seat Track Position Switch, Foremost, Status, Driver	Yes
Airbag Warning Lamp, On/Off	OFF
Ignition Cycle ,Crash (times)	3050

Pre-Crash Data, -5 to 0 seconds (1st Prior Event, TRG 4)

Time (sec)	-4.95	-4.45	-3.95	-3.45	-2.95	-2.45	-1.95	-1.45	-0.95	-0.45	0 (TRG)
Vehicle Speed (MPH [km/h])	6.8 [11]	8.7 [14]	10.6 [17]	11.8 [19]	13 [21]	14.3 [23]	14.9 [24]	15.5 [25]	15.5 [25]	15.5 [25]	15.5 [25]
Accelerator Pedal, % Full (%)	25.0	25.0	23.0	24.0	24.0	19.0	12.0	12.0	4.0	0.0	6.5
Percentage of Engine Throttle (%)	12.0	16.0	15.5	16.5	17.0	10.0	3.5	4.0	0.0	0.0	4.5
Engine RPM (RPM)	1,400	1,700	1,800	1,800	1,600	1,500	1,400	1,500	1,200	1,000	900
Motor RPM (RPM)	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid
Service Brake, ON/OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Brake Oil Pressure (Mpa)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Longitudinal Acceleration, VSC Sensor (m/sec^2)	2.010	1.579	0.144	0.287	0.359	-0.287	-1.077	-0.287	0.000	-0.072	-3.302
Yaw Rate (deg/sec)	1.95	12.69	25.38	31.23	33.67	35.14	30.74	18.06	9.76	0.00	-1.46
Steering Input (degrees)	61.5	214.5	334.5	349.5	349.5	318.0	265.5	156.0	78.0	6.0	-60.0
Shift Position	D	D	D	D	D	D	D	D	D	D	D
Sequential Shift Range	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined
Cruise Control Status	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Drive Mode, PWR	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Drive Mode, ECO	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Drive Mode, Sport	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Drive Mode, Snow	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Drive Mode, EV	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Fuel Injection Quantity (mm3/st)	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid

System Status at Event (2nd Prior Event, TRG 3)

Recording Status, Rollover Crash Info.	Complete
Crash Type	Rollover
TRG Count (times)	3
Previous Crash Type	No Event
Time from Pre-Crash TRG (msec)	0
Linked Pre-Crash Page	0
Side Curtain Airbag Deployment, Time to Deploy (msec)	No
Pretensioner Deployment, Time to Fire, Driver (msec)	No
Pretensioner Deployment, Time to Fire, Front Passenger (msec)	No

Rollover Crash Pulse (2nd Prior Event, TRG 3 - table 1 of 2)

Recording Status, Time Series Data	Complete
Time from TRG to Next Sample (msec)	31
Roll Angle Peak (degrees)	6.0
Roll Angle at the Time of TRG (degrees)	2.6
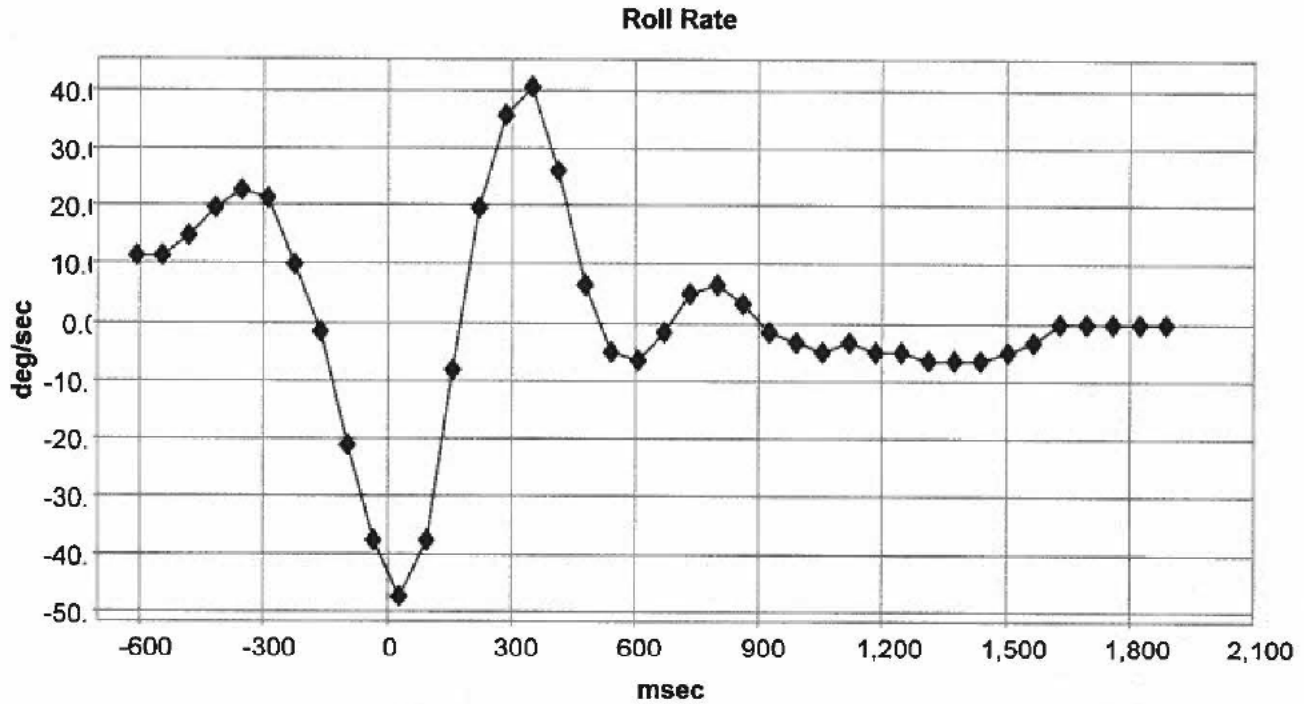
Roll Rate

Deployment Time Marker Key

1	Driver/Passenger CSA
2	Driver/Passenger Pretensioner

Lateral Acceleration for Rollover, Floor Sensor
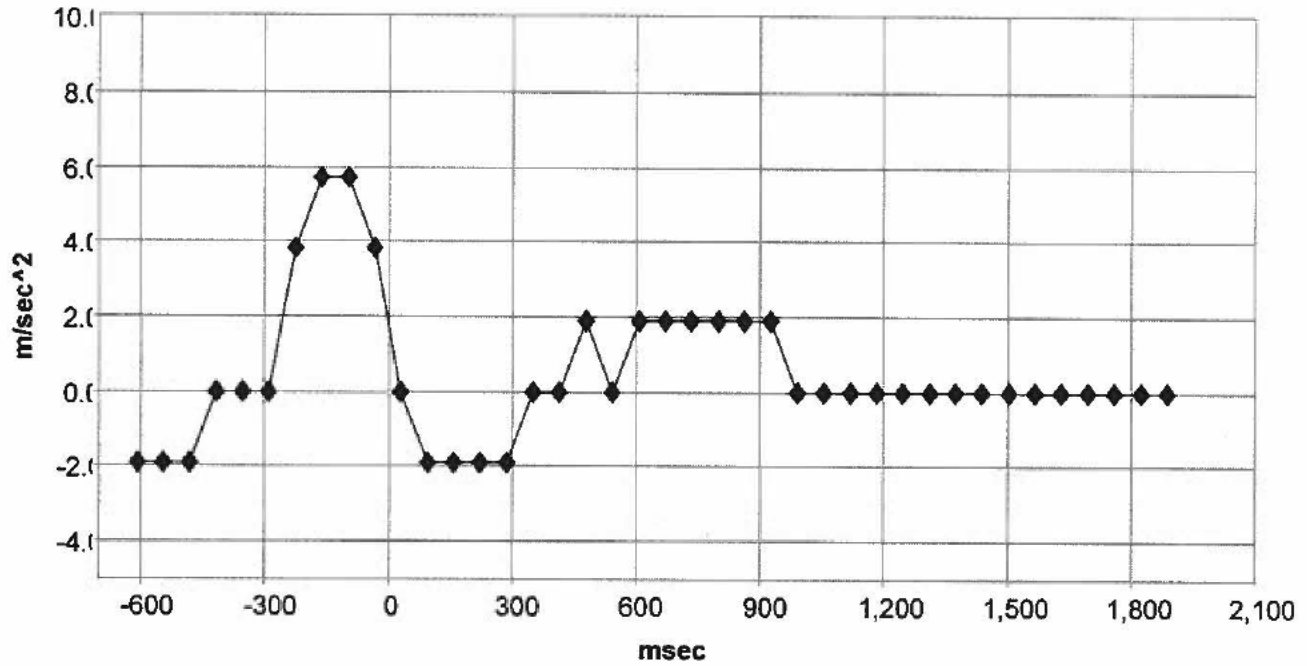
Deployment Time Marker Key

| 1 | Driver/Passenger CSA |
| 2 | Driver/Passenger Pretensioner |

Rollover Crash Pulse (2nd Prior Event, TRG 3 - table 2 of 2)

Time (msec)	Roll Rate (deg/sec)	Lateral Acceleration for Rollover, Floor Sensor (m/sec^2)
-609	11.4	-1.9
-545	11.4	-1.9
-481	14.7	-1.9
-417	19.5	0.0
-353	22.8	0.0
-289	21.2	0.0
-225	9.8	3.8
-161	-1.6	5.7
-97	-21.2	5.7
-33	-37.5	3.8
31	-47.2	0.0
95	-37.5	-1.9
159	-8.1	-1.9
223	19.5	-1.9
287	35.8	-1.9
351	40.7	0.0
415	26.1	0.0
479	6.5	1.9
543	-4.9	0.0
607	-6.5	1.9
671	-1.6	1.9
735	4.9	1.9
799	6.5	1.9
863	3.3	1.9
927	-1.6	1.9
991	-3.3	0.0
1055	-4.9	0.0
1119	-3.3	0.0
1183	-4.9	0.0
1247	-4.9	0.0
1311	-6.5	0.0
1375	-6.5	0.0
1439	-6.5	0.0
1503	-4.9	0.0
1567	-3.3	0.0
1631	0.0	0.0
1695	0.0	0.0
1759	0.0	0.0
1823	0.0	0.0
1887	0.0	0.0

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 system.

```
PIDs        PID    Data
            00     BC 64 00 01
            01     00
            03     30 34 36 37 31 30 30 30 33 38 30 30 30 33 38 30 30 30 34 31 30 30
                   30 34 31 30 30 30 34 37 30 30 30 34 37
            04     02 02 01 01
            05     01
            06     02
            0A     03
            0B     00
            20     80 00 00 01
            21     04 A0
            40     C0 00 E0 01
            41     54 57
            42     45 46 15 08 03
            51     FF
            52     A9
            53     A5
            60     FF FF F0 01
            61     04 05 E8 00 E2 60 28 00 03 C0 03 C0 00 00 00 00 03 C0 03 C0 00 00
                   00 00 1F 40 29 B1 85 5F C8 00 19 00 19 00
            62     A5 01 3F FD 0C 84 00 00 00 00
            63     55 14 0C 83 00 10 FF 00 11 11 11 11 11 10 5E 5F 5E 5E 5E 5D 5C 5C
                   5A 4E 42 2C 26 26 22 08 0B 0D 0A 00 00 00 00 00 54 0F 0F 0F 0F 0F
                   0E 0E 0E 0E 0B 0A 00 00 00 00 00 00 00 05
            64     55 20 0B EA 00 10 FF 00 11 11 11 11 11 10 0B 0E 11 13 15 17 18 19
                   19 19 19 32 32 2E 30 30 26 18 18 08 00 0D 00 00 00 0E 11 12 12 10
                   0F 0E 0F 0C 0A 09 00 00 00 00 00 00 00 04
            65     55 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            66     55 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            67     55 E0 00 00 05 35 35 35 FE FE 55 FD FD 00 67 00 35 00 35 00 35 03
                   FE
            68     00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00
            69     00 6A 0F 00 00 00 2D 00 4B 00 55 00 62 00 81 00 AE 00 B9 00 C3 00
                   D3 00 EF 00 FB 00 F8 00 FE 01 03 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 01 04 01 1C
            6A     00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            6B     00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            6C     00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            6D     00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            6E     00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00 00 00 00 00 00
            6F     55 FF FE E0 00 00 03 55 DF F9 F9 F7 F4 F2 F3 FA 01 0D 17 1D 17 05
                   F4 EA E7 F0 FC 03 04 01 FD FC FE 01 02 03 02 03 03 04 04 04 03 02
                   00 00 00 00 00 FF CF FF 8D
            70     55 FF FE E4 00 00 04 55 D6 00 FE FD FD FD FD FB F4 F6 0C 1E 11 03
                   F4 EF F4 FA 03 06 06 02 01 FC FB FA FE 00 01 01 02 03 01 00 FF FF
                   FF FF 00 00 FF 00 1A 00 5F
            71     FF FF FF 00 00 00 02 03 03 02 00 FF FF FF FF 00 00 01 00 01 01 01
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      01 01 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
72    FF FF FF FF FF FF FF FF FC FF FF FF FF FD FD FE FE FF FF FF FE FE
      FE FE FE FF FF FF FF FF FF FE FE FE FE FE FF FF FF FF
73    00 00 00 00 00 00 00 00 72 F4 CC 00 00 00 00 00 00 00 00 00 00 00
      00 00 00 01 01 FF 00 01 00 F4 F8 FE FF 01 FB FA F9 FA F8 D1 9B 7E
      18 14 14 14 02 01 03 03 00 00 00 00 00 00
74    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      04 1A 34 40 45 48 3F 25 14 00 FD 1C 16 02 04 05 FC F1 FC 00 FF D2
      18 20 1F 21 22 14 07 08 00 00 09 00 00 00
80    00 00 00 01
A0    0C 00 DF 81
A5    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE
      FE FE FE FE FE FE FE FE FE FE FE
A6    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE FE
      FE FE FE FE FE FE FE FE FE FE FE
B4    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      00 00 00 00
B5    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      00 00 00 00
B6    00 01 01 FA 01 00 06 FC FD FC FF 03 01 04 02 00 00 00 00 00 00 00
      00 00 00 00 03 FE
B7    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      00 00 00 00 00 00
B8    00 02 00 03 00 04 00 05 00 05 00 02 00 06 00 06 03 FE 03 F4 03 FE
B9    00 29 00 8F 00 DF 00 E9 00 E9 00 D4 00 B1 00 68 00 34 00 04 03 D8
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