Annex 1. (From GRSG-119-02 rev 1 – With China comments highlighted and text in green)

**Data elements and format[[1]](#footnote-1)**

Table 1

| *Data element* | *Condition for requirement****[[2]](#footnote-2)*** | *Recording interval/time[[3]](#footnote-3) (relative to time zero)* | *Data sample rate (samples per second)* | *Minimum range* | *Accuracy[[4]](#footnote-4)* | *Resolution* |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| Delta-V, longitudinal | Mandatory **- not required if longitudinal acceleration recorded at ≥500 Hz** **with sufficient range and resolution to calculate delta-v with required accuracy** | 0 to 250 ms or 0 to End of Event Time plus 30 ms, whichever is shorter. | 100 | -100 km/h to + 100 km/h. | ±10% | 1 km/h. |  |
| Maximum delta-V, longitudinal | Mandatory **- not required if longitudinal acceleration recorded at ≥500 Hz** | 0–300 ms or 0 to End of Event Time plus 30 ms, whichever is shorter. | N/A | -100 km/h to + 100 km/h. | ±10% | 1 km/h. |  |
| Time, maximum delta-V, [**Longitudinal**] | Mandatory **- not required if longitudinal acceleration recorded at ≥500 Hz** | 0–300 ms or 0 to End of Event Time plus 30 ms, whichever is shorter. | N/A | 0–300 ms, or 0-End of Event Time plus 30 ms, whichever is shorter. | ±3 ms | 2.5 ms. | Justification: This data element should be aligned with “Delta-V, longitudinal”. |
| Speed, vehicle indicated | Mandatory | -5.0 to 0 sec | 2 | 0 km/h to [~~200~~ **250**] km/h | ±1 km/h | 1 km/h. | Justification: Sometimes the vehicle speed can exceed 200 km/h, this range can cover more scenarios. |
| Engine throttle, % full (or accelerator pedal, % full) | Mandatory | -5.0 to 0 sec | 2 | 0 to 100% | ±5% | 1% |  |
| Service brake, on/off | Mandatory | -5.0 to 0 sec | 2 | On or Off | N/A | On or Off. |  |
| Ignition cycle, crash | Mandatory | -1.0 sec | N/A | 0 to 60,000 | ±1 cycle | 1 cycle. |  |
| Ignition cycle, download | Mandatory | At time of download[[5]](#footnote-5) | N/A | 0 to 60,000 | ±1 cycle | 1 cycle. |  |
| ~~Frontal~~ **A**~~a~~ir bag warning lamp, on/off[[6]](#footnote-6) | Mandatory | -1.0 sec | N/A | On or Off | N/A | On or Off. |  |
| 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. | Mandatory | Event | N/A | 0 to 250 ms | ±2ms | 1 ms. |  |
| 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, front passenger. | Mandatory | Event | N/A | 0 to 250 ms | ±2 ms | 1 ms. |  |
| Multi-event, number of event | [~~Mandatory~~  **Deleted]** | Event | N/A | 1 or 2 | N/A | 1 or 2. | Justification in Annex 1 of TF-Data Elements-06-04 |
| Time from event 1 to 2 | Mandatory | As needed | N/A | 0 to 5.0 sec | **±**0.1 sec | 0.1 sec |  |
| Complete file recorded (yes, no) | Mandatory | Following other data | N/A | Yes or No | N/A | Yes or No. |  |
| Lateral acceleration | If Recorded **~~[[7]](#footnote-7)~~** |  |  |  |  | **[1 g]** | Justification in Annex 2 of TF-Data Elements-06-04 |
| Longitudinal acceleration | If Recorded |  |  |  |  | **[1 g]** | Justification in Annex 2 of TF-Data Elements-06-04 |
| Delta-V, lateral | ~~If recorded~~  **Mandatory - not required if lateral acceleration recorded at ≥500 Hz and with sufficient range and resolution to calculate delta-v with required accuracy** | 0–250 ms or 0 to End of Event Time plus 30 ms, whichever is shorter. | 100 | -100 km/h to + 100 km/h. | ±10% | 1 km/h. |  |
| Maximum delta-V, lateral | ~~If recorded~~  **Mandatory - not required if lateral acceleration recorded at ≥500 Hz** | 0–300 ms or 0 to End of Event Time plus 30 ms, whichever is shorter. | N/A | -100 km/h to + 100 km/h. | ±10% | 1 km/h. |  |
| Time maximum delta-V, lateral | ~~If recorded~~  **Mandatory - not required if lateral acceleration recorded at ≥500 Hz** | 0–300 ms or 0 to End of Event Time plus 30 ms, whichever is shorter. | N/A | 0–300 ms, or 0-End of Event Time plus 30 ms, whichever is shorter. | ±3 ms | 2.5 ms. |  |
| Time for maximum delta-V, resultant. | ~~If recorded~~  **Mandatory - not required if relevant acceleration recorded at ≥500 Hz** | 0–300 ms or 0 to End of Event Time plus 30 ms, whichever is shorter. | N/A | 0–300 ms, or 0-End of Event Time plus 30 ms, whichever is shorter. | ±3 ms | 2.5 ms. |  |
| Engine rpm | ~~If recorded~~  **Mandatory** | -5.0 to 0 sec | 2 | 0 to 10,000 rpm | ±100 rpm[[8]](#footnote-8) | 100 rpm. |  |
| Vehicle roll angle | ~~If recorded~~  **[Mandatory to record either roll angle or roll rate]**  **[Deleted]** | [-1.0 up to 5.0 sec[[9]](#footnote-9)] | [10] | [-1080 deg to + 1080 deg.] | [±10%] | [10 deg.] | Justification:  1. It can be replaced by Vehicle roll rate.  2. The rollover sensor collects the roll rate directly. |
| **Vehicle roll rate** | **[Mandatory to record either roll angle or roll rate]**  **[Mandatory if fitted and used for rollover**  **protect system**  **control**  **algorithm]** |  |  |  |  |  | Justification:  1. Although the roll over sensor is equipped, it is not for roll over protect system controlling.  2. Because lacking of the relevant software function, the roll over sensor is not able to provide information for roll over protect system controlling. |
| ABS activity ~~(engaged, non-engaged).~~ | ~~If recorded~~  **Mandatory** | -5.0 to 0 sec | 2 | ~~On or Off~~  **Faulted, Active, Intervening[[10]](#footnote-10)** | N/A | ~~On or Off~~  **Faulted, Active, Intervening9** |  |
| Stability control ~~(on, off, or engaged).~~ | ~~If recorded~~  **Mandatory** | -5.0 to 0 sec | 2 | ~~On, Off, or Engaged~~  **Faulted, On, Off, Intervening9** | N/A | ~~On, Off, or Engaged~~  **Faulted, On, Off, Intervening9** |  |
| Steering input | ~~If recorded~~  **Mandatory** | -5.0 to 0 sec | 2 | -250 deg CW to + 250 deg CCW. | ±5% | ±1%. |  |
| Safety belt status, front passenger (buckled, not buckled). | ~~If recorded~~  **Mandatory** | -1.0 sec | N/A | ~~On or Off~~  **buckled, not buckled** | N/A | ~~On or Off~~  **buckled, not buckled** |  |
| ~~Frontal~~ **Passenger** air bag suppression ~~switch~~ status, front ~~passenger~~ (~~on, off, or auto~~ **suppressed** **or not suppressed**)  . | ~~If recorded~~  **Mandatory** | -1.0 sec | N/A | ~~On, Off, or Auto~~  **suppressed** **or not suppressed** | N/A | ~~On, Off, or Auto.~~  **suppressed** **or not suppressed** |  |
| Frontal air bag deployment, time to nth stage, driver4. | **Mandatory i**~~I~~f **fitted** ~~equipped~~ with a driver’s frontal air bag with a multi-stage inflator. | Event | N/A | 0 to 250 ms | ±2 ms | 1 ms. |  |
| Frontal air bag deployment, time to nth stage, front passenger[[11]](#footnote-11). | **Mandatory i**~~I~~f **fitted** with a front passenger’s frontal air bag with a multi-stage inflator. | Event | N/A | 0 to 250 ms | ±2 ms | 1 ms. |  |
| ~~Frontal air bag deployment, nth stage disposal, driver, Y/N (whether the nth stage deployment was for occupant restraint or propellant disposal purposes).~~ | ~~If recorded~~ | ~~Event~~ | ~~N/A~~ | ~~Yes or No~~ | ~~N/A~~ | ~~Yes or No.~~ |  |
| ~~Frontal air bag deployment, nth stage disposal, front passenger, Y/N (whether the nth stage deployment was for occupant restraint or propellant disposal purposes).~~ | ~~If recorded~~ | ~~Event~~ | ~~N/A~~ | ~~Yes or No~~ | ~~N/A~~ | ~~Yes or No.~~ |  |
| Side air bag deployment, time to deploy, driver. | **Mandatory** ~~If recorded~~ | Event | N/A | 0 to 250 ms | ±2 ms | 1 ms. |  |
| Side air bag deployment, time to deploy, front passenger. | **Mandatory** ~~If recorded~~ | Event | N/A | 0 to 250 ms | ±2 ms | 1 ms. |  |
| Side curtain/tube air bag deployment, time to deploy, driver side. | **Mandatory** ~~If recorded~~ | Event | N/A | 0 to 250 ms | ±2 ms | 1 ms. |  |
| Side curtain/tube air bag deployment, time to deploy, passenger side. | **Mandatory** ~~If recorded~~ | Event | N/A | 0 to 250 ms | ±2 ms | 1 ms. |  |
| Pretensioner deployment, time to fire, driver. | **Mandatory** ~~If recorded~~ | Event | N/A | 0 to 250 ms | ±2 ms | 1 ms. |  |
| Pretensioner deployment, time to fire, front passenger. | **Mandatory** ~~If recorded~~ | Event | N/A | 0 to 250 ms | ±2 ms | 1 ms. |  |
| Seat track position switch, foremost, status, driver. | ~~If recorded~~  **Mandatory if fitted and used for deployment decision** | -1.0 sec | N/A | Yes or No | N/A | Yes or No. |  |
| Seat track position switch, foremost, status, front passenger. | ~~If recorded~~  **Mandatory if fitted and used for deployment decision** | -1.0 sec | N/A | Yes or No | N/A | Yes or No. |  |
| Occupant size classification, driver **(5th percentile female or larger)** | If recorded | -1.0 sec | N/A | 5th percentile female or larger. | N/A | Yes or No. |  |
| Occupant size classification, front passenger **(6yr old child or smaller)** | If recorded | -1.0 sec | N/A | 6yr old HIII US ATD or Q6 ATD or smaller | N/A | Yes or No. |  |

**Data Elements/Format Under Consideration**

| **Data element name** | **Definition** | **Mandatory / If Recorded** | **Step 1 (inc implementation date)**  **or Step 2** | **Recording interval/time[[12]](#footnote-12) (relative to time zero)** | **Data sample rate (samples per second)** | **Minimum range** | **Accuracy[[13]](#footnote-13)** | **Resolution** | **Justification/Comments** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Normal acceleration  (Part 563) | Normal acceleration means the component of the vector acceleration of a point in the vehicle in the z-direction. The normal acceleration is positive in a downward direction and is zero when the accelerometer is at rest. | **[If recorded]** | **[Step 2]** | Part 563  (0 to 250 ms)  EC (-1.0 up to 5.0 sec)  DE (-1.0 to 250ms) | Part 563  (100)  EC (100) | Part 563  (-5 g to +5 g)  EC (-10g to +10g) | Part 563  (± 10%)  EC (± 10%) | Part 563 (0.5 g)  EC (0.5 g) | Justification:   1. It has little significance for accident identification. 2. In reality, when EDR controller (almost case is airbag controller) has rollover function (with Z acceleration sensor & rollover rate) can detect Z acceleration and record Z. But few vehicles has rollover function specially in China, it’s very few: less than 1 %.   The normal acceleration is rarely used during the accident investigation. |
| Safety belt status, rear passengers | Safety belt status means the feedback from the safety system that is used to determine that an occupant's safety belt (for a rear seat passenger) is fastened or unfastened. | CN – if recorded  Rest - Mandatory | Step 1 (2022) | -1.0 sec | N/A | N/A | N/A | On or Off (fastened or unfastened) per seating position | Justification:   1. In reality, many vehicles in China market does not have the mid of belt status detection function. In case “Mandatory”, it could cause many car OEM have to update the EDR system.   The rear row safety belt reminder is not mandatory in China. |
| Horn | Operating status of the horn. |  | Not Priority – move to step 2 | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On or Off |  |
| Turn Indicator [switch] status | "Turn indicator [switch] status" means a device mounted on a motor vehicle or trailer which, when operated by the driver, signals the latter's intention to change the direction in which the vehicle is proceeding. |  |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | Neutral, Left, Right | US – not support |
| Hazard Indicator Status | Operating status of the hazard indicator. |  | Not priority – move to step 2 | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On or Off |  |
| Main beam | Operating status of the main headlamp beam. |  | Not priority – move to step 2 | -5.0 to 0 relative to time zero | 2 | N/A | N/A | On, Off, or Faulted |  |
| Dip beam | Operating status of the dip headlamp beam. |  | Not priority – move to step 2 | -5.0 to 0 relative to time zero | 2 | N/A | N/A | On, Off, or Faulted |  |
| Advanced adaptive front headlight Status | Operating status of the adaptive front headlamp system. |  | Not priority – move to step 2 | -5.0 to 0 relative to time zero | 2 | N/A | N/A | On, Off, or Faulted |  |
| Brake lights Status | Operating status of the brake lights. |  | Redundant to brake pedal application – not needed – move to step 2 | -5.0 to 0 relative to time zero | 2 | N/A | N/A | On, Off, or Faulted |  |
| Warning Light/ Beacon Light | Operating status of the warning/beacon light |  | Not priority – move to step 2 |  |  |  |  |  |  |
| Tyre Pressure | Tyre pressure, status indicated |  | Not priority – move to step 2 |  |  |  |  |  |  |
| Tyre Pressure Monitoring System (TPMS) Warning Lamp Status | "Tyre Pressure Monitoring System (TPMS)" means a system fitted on a vehicle, able to perform a function to evaluate the inflation pressure of the tyres or the variation of this inflation pressure over time and to transmit corresponding information to the user while the vehicle is running. |  |  | -1.0 second relative to time zero  [CN needs to consider this further] | N/A | N/A | N/A | On, Off |  |
| Parking Brake Status | Status of the parking brake. |  | Not priority – move to step 2 |  |  |  |  |  | Justification:  Parking brake signal has certain value for judging whether the vehicle is affected by parking brake force in accident (especially the vehicle equipped with independent parking brake device). In accident reconstruction, whether the parking brake is working or not will have obvious differences for analyzing the vehicle trajectory. For example, the vehicle was in a stopped state, and it was hit by a rear-end vehicle. The front car slipped out by impact. It is necessary to consider whether the parking brake of the front car was in working state when calculating the speed of the rear car according to the distance. It has obvious influence on the speed of the rear car obtained in analysis. |
| Brake Pedal Position | Indicator of brake pedal position within the range from not depressed to fully-depressed. | **[Mandatory]** |  | -5.0 to 0 relative to time zero | 10 | 0 to 100 % | ± 10 % of the full range | 5 | US has concerns  CN wants this included into step 1  Needs to be considered with brake pressure below  Justification: It is used to judge the driver behavior. It is conducive to accident identification.  See justification contained in TF-Data Elements-06-03 Data element use explanations for brake application elements.docx  EC prefers pre-crash accel as step 1  OICA needs lead-time – wants additional time to further consider |
| Brake [Failure] Warning Indicator Status | The displayed status of the brake [Failure] warning device defined in UNECE Regulation 13H (red light – not yellow light) | **[Mandatory]** |  | -1.0 second relative to time zero | N/A | N/A | N/A | On, Off | US would like crash reconstruction perspective to help consideration of this element  Justification: It is necessary to accident identification.  See justification contained in TF-Data Elements-06-03 Data element use explanations for brake application elements.docx |
| Brake System Internal Pressure | Indicator of applied brake (master cylinder side).    Pressure of the master cylinder |  |  | -5.0 to 0 second relative to time zero | [10] | 0 to 10,000 kPa | ± 10 % | 100 kPa | US has concerns  OICA to make recommendations on brake request elements and format |
| Braking Request Source | Application of the brake system by the driver or vehicle. |  |  | -5.0 to 0 second relative to time zero | [10] | N/A | N/A | Yes or No | OICA to make recommendations on brake request elements and format |
| Gear Position | The operative transmission gear. |  | Move to Step 2 |  |  |  |  |  | Need to identify safety need |
| Gear Selection Status | The driver selected transmission gear (shift lever) position |  | Move to Step 2 |  |  |  |  |  | Need to identify safety need |
| Propulsion Source Torque | Torque value at the propulsion source output shaft. |  | Move to Step 2 | ? | ? | ? | ? | ? | Suggestion to consider as If recorded - still needs format to be developed |
| Ambient Temperature | The estimated exterior ambient air temperature as measured by the vehicle system. |  | Move to Step 2 |  |  |  |  |  | Info on icy road conditions is typically captured by the police records  Consider further – could be a candidate for elimination |
| Front Wiper Status | Operating status of the front wiper system. |  | Move to Step 2 |  |  |  |  |  | See same comments as ambient temperature above |
| ~~Vehicle Identification Number (VIN)~~ | ~~The Vehicle Identification Number (VIN), assigned by the vehicle manufacturer.~~ |  | ~~Delete~~ |  |  |  |  |  | ~~Out of Scope~~ |
| ~~Roll over detection disable switch status~~ | ~~Operating status of the roll over detection disable switch (where permitted)~~ |  | ~~Delete~~ | ~~-5.0 to 0 sec.~~ | ~~2~~ | ~~N/A~~ | ~~N/A~~ | ~~On, Off, Faulted, Engaged~~ |  |
| ~~Yaw Angle~~ | ~~Angle of the vehicle about its Z-axis (relative to initial vehicle orientation) prior to an event.~~ | ~~[Mandatory to record either yaw angle or rate]~~ |  | ~~-5 to 0 seconds relative to time zero~~ | ~~2~~ | ~~-1080 to +1080 dgrees~~ | ~~± 10% of the full range of the sensor~~ | ~~10~~ | ~~Beneficial to record “Yaw Motion”~~  ~~Discuss further whether either angle or rate are “equivalent”~~ |
| Yaw Rate | Change in (yaw) angle over time of the vehicle about its Z-axis prior to an event | [Mandatory to record either yaw angle or rate] |  | -5 to 0 seconds relative to time zero | 2 | -75 to +75 degrees / second | ± 10% of the full range of the sensor | 0.1 | Beneficial to record “Yaw Motion”  OICA to provide additional input/recommendations  EC/China/OICA prefer Yaw rate  Justification:  1. The yaw angle data plays an important role in analyzing the motion process of the vehicle when sideslip occurs in an accident.  2. For example, when a vehicle was driven to an intersection, it was hit by a side-facing vehicle. It was very likely that the vehicle would sideslip after impact. It has great significance to calculate the speed of side-facing vehicle by analyzing the motion process of vehicle sideslip (including yaw angle data).  3. It is the original data collected by sensor directly. |
| Traction Control Status | Operating status of traction control system. | Mandatory if not fitted with ESC | Step 1 – w/lead time required | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | Actively controlling, Faulted, Commanded Off, or On but Not Controlling | Traction Control status may be common with ESC status (same telltale) - in near term may be difficult to separate.  If vehicle not fitted with ESC – then traction control only – if fitted with both – status of telltale should be enough (covers both system activations).  Justification: it is very useful in understanding pre-collision phases and causation.  China supports mandatory if vehicle not fitted with ESC |
| ~~Latitude (GPS)~~ | ~~Latitude of the vehicle at the beginning of an event.~~  ~~Satellite Position Information~~ | **~~[Deleted]~~** |  |  |  |  |  |  | Justification: this data element has been excluded from the scope. |
| ~~Longitude (GPS)~~ | ~~Longitude of the vehicle at the beginning of an event.~~  ~~Satellite Position Information~~ | **~~[Deleted]~~** |  |  |  |  |  |  | Justification: this data element has been excluded from the scope. |
| AEBS status | Operating status of the Advanced Emergency Braking System (AEBS). | Mandatory | Need lead-time  (OICA needs to justify need for lead time requirements) | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | Actively Warning, Actively Engaged, Faulted, Off, Not Active | Justification: It is very useful in understanding pre-collision phases and causation.  CN prefers OEM defined instead of “Driver override” TF noted that China can add in “OEM defined” (for manufacturers to provide additional information) in their national regulation without violating the spirit of harmonization. |
| Emergency Steering Function status | "Emergency Steering Function" means a control function which can automatically detect a potential collision and automatically activate the vehicle steering system for a limited duration, to steer the vehicle with the purpose of avoiding or mitigating a collision, with an obstacle obstructing the path of the subject vehicle or when the obstruction of the subject vehicle’s path is deemed imminent. | Mandatory | Need lead-time  (OICA needs to justify need for lead time requirements) | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | Actively Controlling, Faulted, Commanded Off, On but Not Controlling | CN prefers OEM defined instead of “Driver override” TF noted that China can add in “OEM defined” (for manufacturers to provide additional information) in their national regulation without violating the spirit of harmonization.  CN move to step 2  JP – need to consider possible redundancy  US not support this element as step 1 may consider further as step 2  EC/Germany/UK supports this element – need as step 1 (with lead time to be discussed later) |
| Emergency Call System status | "Accident Emergency Call System" means a system that is activated either automatically via in-vehicle sensors or manually, which carries, by means of public mobile wireless communications networks, a set of crash-related data and establishes an emergency audio channel between the occupants of the vehicle and an answering point. |  |  | Event | N/A | Call triggered, call not triggered, faulted | N/A | Call triggered, call not triggered, faulted | Since it’s a safety system EC needs to record system status  US – redundant and not needed – discuss further in step 2  CN – Not needed to be recorded  JP – Yes – mandate in step 1  UK – Neutral – not most important element for them  Germany – Neutral at this point  NL – Yes – mandate for step 1  EU – GSR – requires this for Step 1 |
| Intelligent Speed Assistance (ISA) Status | Operating status of ISA |  | Move to Step 2 | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | Actively Controlling, Actively Warning, Driver Override, Faulted, Commanded Off, On but Not Controlling or Warning |  |
| Intelligent Speed Assistance (ISA) road speed limit | “Intelligent Speed Assistance (ISA”) means a system that determines the applicable speed limit and aids the driver in not exceeding it by providing feedback or limiting the vehicle speed. |  | Move to Step 2 | -1.1 to 0 second relative to time zero | N/A | 0-130 km/h | N/A | 10 km/h |  |
| Traffic Sign Recognition | Operating status of the traffic sign recognition system |  | Move to Step 2 |  |  |  |  |  | TF believes that this element will not be technically feasible in the near future – possible candidate for step 3 or 4. |
| Cruise Control System | “Cruise Control” is a system that, when manual activated, maintains a driver-selected constant speed without the use of the accelerator pedal, it does not exercise any control over the vehicles braking system. | Mandatory |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | Actively Controlling, Faulted, Commanded Off, On but Not Controlling | Justification:   1. It is very useful in understanding pre-collision phases and causation.   This data elements can provide some necessary information about the Cruise Control System for traffic accident investigation. |
| Adaptive Cruise Control Status (driving automation system level 1) | “Adaptive Cruise Control” (ACC) is a system that, when activated, exercises longitudinal control over the vehicle using sensors and automation, with the purpose of maintaining a set distance relative to other slower moving vehicles in front up to a set speed, set by the driver. | Mandatory |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | Actively Controlling, Faulted, Commanded Off, On but Not Controlling | Justification:   1. It is very useful in understanding pre-collision phases and causation.   This data elements can provide some necessary information about the Adaptive Cruise Control System for traffic accident investigation. |
| Blind Spot Monitoring Status | Operating status of the side blind spot system. |  | Move to step 2 | -5.0 to 0 seconds relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Warning left, Warning right |  |
| Lane Departure Warning Status | "Lane Departure Warning System (LDWS)" means a system to warn the driver of an unintentional drift of the vehicle out of its travel lane. | Mandatory | EC/JP - Step 1 (lead time need)  CN Step 2  OICA step 2 | -5s to 0 relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Warning | CN – not high priority since does not directly intervene – move to step 2  OICA step 2  UK/NL – useful – but not highest priority for step 1  JP – support EC – step 1 with lead time  US flexible – for resolution stick with current industry std’s |
| Lane Keep Assist Status | "Lane Keep Assist" means a function which assists the driver in keeping the vehicle within the chosen lane, by influencing the lateral movement of the vehicle |  | EC - Step 1 (lead time needed) | -5s to 0 relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Warning left/right, Intervention left/right | EC – consider categorizing assisted steering into a three data elements CSF, ESF, ACSF and L2 – will need generic definitions to make appropriate for all CPS.  EC tasked to flesh out this proposal in more detail.  OICA – not comfortable consolidating the different automatic/assisted steering functions into a single data element. More discussion/consideration needed. OICA will provide UN 79 definitions for systems to secretary for circulation to TF  CN need to further consult with their industry |
| Emergency Lane Keeping Status | ‘Emergency lane-keeping system’ means a system that assists the driver in keeping a safe position of the vehicle with respect to the lane or road boundary, at least when a lane departure occurs or is about to occur and a collision might be imminent. |  |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Intervention left/right | See Comments/Tasks in LKA status above |
| Lane Centering Assist | Operating status of the lane centering system. |  |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On, Off, Engaged, Faulted, Driver Override | See Comments/Tasks in LKA status above |
| Forward Collision Warning Status | Operating status of the forward collision warning system. |  |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Warning | EC/CN/NL/UK/JP/US - Will be part of AEBS – if this recorded in AEBS then this data elements is redundant and can be deleted. |
| Emergency Stop Signal Status | Operating status of the Emergency Stop Signal system. | Mandatory | Step 1 | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Warning | OICA - Rules for triggering are not well defined or consistent among Mfrs (not very comparable between mfrs) Would be redundant if pre-crash acceleration recorded.  EC thinks this would be helpful to understand performance of different mfr thresholds. Wants mandatory at this time - but considering OICA position regarding precrash  OICA will send R13H to secretary for distribution to TF to highlight triggering conditions and system definition.  CN needs more information before taking a position. |
| Multi collision brake | Operating status of the multi collision brake system. |  | Move to step 2 | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Warning | OICA – this is a post-crash action and not appropriate for EDR recording (especially if power loss). Prefer to delete.  DE/Weyde – Thinks it could be useful in future if EDR records post-crash info. |
| Rear Cross-traffic Collision Warning Status | Operating status of the rear cross-traffic collision warning system. |  |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Warning |  |
| Reversing Detection System Status | Operating status of the Reversing Detection System. |  |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Warning |  |
| Advanced Driver Distraction Warning Status | Operating status of the Advanced Driver Distraction Warning system. |  |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Warning |  |
| Driver Drowsiness and Attention Warning Status | Operating status of the Driver Drowsiness and Attention Warning system.  Driver model, driver monitoring |  |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | On, Off, Faulted, Warning |  |
| Alcohol Interlock Status | Operating status of the Alcohol Interlock system |  |  | -1.1 to 0 second relative to time zero | N/A | N/A | N/A | Off, Faulted, Pass or Fail |  |
| Parking Assist Status | Operating status of the parking assist system. |  |  |  |  |  |  |  |  |
| Rear AEBS Status | Operating status of the rear automatic emergency braking system. |  |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | Actively Warning, Actively Engaged, Faulted, Off, Not Active, or Driver Override |  |
| Partial Driving Operating Status (driving automation system level 2) | "Driving automation system level 2" means a system that performs the sustained and operational design domain-specific execution of both the lateral and longitudinal vehicle motion control subtasks of the dynamic driving task with the expectation that the driver completes the object and event detection response subtask and supervises the driving automation system. |  |  | -30.0 to 0 second relative to time zero | 2 | N/A | N/A | Off - Not Controlling, On - Actively Controlling, Faulted, Request to Intervene |  |
| ADAS Software version | A means to identify the software version of any given ADAS system  Software Versions  [ECU software part number] |  |  |  |  |  |  |  |  |
| Automated Driving System - Change in Status | Time stamp for a change in status of the automated driving system.  Operating mode of the ADS. |  |  | -30.0 to 0 second relative to time zero | 2 | N/A | N/A | Off - Not Controlling, On - Actively Controlling, Faulted |  |
| Automated Driving System - Transition Demand | Time stamp for a transition demand of the automated driving system. |  |  | -30.0 to 0 second relative to time zero | 2 | N/A | N/A | Driver Not Availiable, Driver Override, System Failure, Planned Event, Unplanned Event |  |
| Automated Driving System - Minimal Risk Maneuver/  Failure Mitigation Strategy Activated | Time stamp for a minimal risk maneuver engagement the automated driving system / Vehicle mode if Dynamic Driving Task (DDT) fallback is not performed. |  |  | -30.0 to 0 second relative to time zero | 2 | N/A | N/A | Yes or No |  |
| Automated Driving System – Override/ADS - Fallback-Ready User Intervention | Time stamp for a driver override of the automated driving system/Flag to indicate if Fallback-Ready User has intervened or not. |  |  | -30.0 to 0 second relative to time zero | 2 | N/A | N/A | Steering Control, Brake Control, Accelerator Control |  |
| Steering Input Requested | The vehicle -system-requested steering input. |  |  | -5.0 to 0 sec. | 2 | -250 deg CW to +250 deg CCW | ±5% | 1% |  |
| Pedestrian protection device deployment Status. | Status of each VRU protection device. Each vehicle VRU protection system device that is reported should be reported independently. |  |  | Event | N/A | N/A | N/A | Yes or No |  |
| Occupant Protection Pressure Sensor | This parameter reflects the feedback from a pressure sensor converted to mbars. In the case of multiple sensor data, this parameter is for sensors 1 to “n” number of sensors. |  |  |  |  |  |  |  |  |
| Occupant Protection Pressure Rate of Change | This parameter is the pressure rate of change relative to rest. |  |  |  |  |  |  |  |  |
| Pedestrian protection device deployment time. | The elapsed time from crash time zero to the deployment command for a VRU secondary safety protection system. |  |  | Event | N/A | 0 to 250 ms | ± 2 ms | 1 ms |  |
| Pedestrian protection device Warning lamp. | The status of an indicator in the instrument panel that provides the information to the driver of the existence of an VRU secondary safety protection system malfunction, when lit. | **Mandatory** |  | -1.1 to 0 relative to time zero | N/A | N/A | N/A | On or Off | Justification: This data element can replace air bag warning lamp, it can contain airbag and others system fault information. |
| Pedestrian protection device System Warning lamp On Time. | The total accumulated amount of time the occupant/pedestrian protection system warning lamp indicator in the instrument panel has been illuminated. |  |  |  |  |  |  |  |  |
| Number of cycles Pedestrian protection device System Warning lamp has been on. | The number of ignition/run cycles the pedestrian protection system warning lamp indicator in the instrument panel  has been illuminated. |  |  |  |  |  |  |  |  |
| Pedestrian Protection Acceleration | The vector acceleration of a point in the vehicle. |  |  |  |  |  |  |  |  |
| Pedestrian Protection Pressure Sensor | This parameter reflects the feedback from a pressure sensor converted to mbars. In the case of multiple sensor data, this parameter is for sensors 1 to “n” number of sensors. |  |  | 0 to +25 ms relative to time zero | 250 | -50 to +150 Mbars | ± 10% within range of the physical sensor | 1 Mbars |  |
| Pedestrian Protection Pressure Rate of Change | This parameter is the pressure rate of change relative to rest. |  |  | 0 to +25 ms relative to time zero | 250 | 0 to 100 % ΔP/Po | ± 10% within range of the physical sensor | 1 |  |
| Occupant protection device Warning lamp. | The status of an indicator in the instrument panel that provides the information to the driver of the existence of an occupant protection system malfunction, when lit. |  |  | -1.1 to 0 relative to time zero | N/A | N/A | N/A | On or Off |  |
| Number of Cycles Occupant Protection System Warning Lamp On Time | The total accumulated amount of time the occupant protection system warning lamp indicator in the instrument panel has been illuminated. |  |  |  |  |  |  |  |  |
| Pedestrian and cyclist collision warning system. | Operating status of the pedestrian and cyclist collision warning system. |  |  |  |  |  |  |  |  |
| Pre-Safe Systems |  |  |  | -1.1 to 0 second relative to time zero | N/A | N/A | N/A | Engaged, Non-engaged, Faulted |  |
| Accident Year | Accident Date - Year  Trigger Source (Sensor/Control unit/Manual), Date, Time | **Deleted** |  |  |  |  |  |  | Justification: this data element has been excluded from the scope. |
| Accident Month | Accident Date - Month  Trigger Source (Sensor/Control unit/Manual), Date, Time | **Deleted** |  |  |  |  |  |  | Justification: this data element has been excluded from the scope. |
| Accident Day | Accident Date - Day  Trigger Source (Sensor/Control unit/Manual), Date, Time | **Deleted** |  |  |  |  |  |  | Justification: this data element has been excluded from the scope. |
| Accident Hour | Accident Time - Hour  Trigger Source (Sensor/Control unit/Manual), Date, Time | **Deleted** |  |  |  |  |  |  | Justification: this data element has been excluded from the scope. |
| Accident Minute | Accident Time - Minute  Trigger Source (Sensor/Control unit/Manual), Date, Time | **Deleted** |  |  |  |  |  |  | Justification: this data element has been excluded from the scope. |
| Accident Second | Accident Time - Second  Trigger Source (Sensor/Control unit/Manual), Date, Time | **Deleted** |  |  |  |  |  |  | Justification: this data element has been excluded from the scope. |
| Download Year | Accident Date - Year  Download Date Time | **Deleted** |  |  |  |  |  |  | Justification: It is unnecessary and the specific download information can be obtained easily. |
| Download Month | Accident Date - Month  Download Date Time | **Deleted** |  |  |  |  |  |  | Justification: It is unnecessary and the specific download information can be obtained easily. |
| Download Day | Accident Date - Day  Download Date Time | **Deleted** |  |  |  |  |  |  | Justification: It is unnecessary and the specific download information can be obtained easily. |
| Download Hour | Accident Time - Hour  Download Date Time | **Deleted** |  |  |  |  |  |  | Justification: It is unnecessary and the specific download information can be obtained easily. |
| Download Minute | Accident Time - Minute | **Deleted** |  |  |  |  |  |  | Justification: It is unnecessary and the specific download information can be obtained easily. |
| Download Second | Accident Time - Second  Download Date Time | **Deleted** |  |  |  |  |  |  | Justification: It is unnecessary and the specific download information can be obtained easily. |
| Highly accurate position Information |  |  |  |  |  |  |  |  |  |
| Images Outside | Images of the environment outside of the vehicle |  |  |  |  |  |  |  |  |
| Surrounding Objects | Identification, classification of surrounding objects. |  |  |  |  |  |  |  |  |
| Other ADAS |  |  |  | -5s to 0 relative to time zero | 2 | N/A | N/A | On, Off, Actively Warning, Actively Engaged, Faulted, Driver Override |  |
| Domain / street type | Identification, classification of road type |  |  |  |  |  |  |  |  |
| Driving Profile Status | Driving profile status |  |  |  |  |  |  |  |  |
| V2X warnings type | Classification of V2X warning. |  |  | -5.0 to 0 second relative to time zero | 2 | N/A | N/A | [warning type] |  |
| V2X warnings time | Time of V2X warning |  |  | Event | N/A | 0 to 250 ms | +/-2 ms | 1 ms |  |
| Door lock | Status of the door locks |  |  |  |  |  |  |  |  |
| List of Error codes of active and passive safety systems | Error codes. |  |  |  |  |  |  |  |  |
| Connected functions | Operating status of the connectivity systems. |  |  |  |  |  |  |  |  |
| Cyber attack | Identification of a cyber attack. |  |  |  |  |  |  |  |  |
| Trigger type | Type of trigger to start EDR recording. |  |  | Event | N/A | N/A | N/A | (list to be decided) |  |
| State of battery charge |  |  |  |  |  |  |  |  |  |
| State of battery health |  |  |  |  |  |  |  |  |  |
| State of battery function |  |  |  |  |  |  |  |  |  |
| Brake override system | Operating status of the brake override system |  |  | -5.0 to 0 sec. | 2 | On or Off | N/A | On or Off |  |
| Clipping flag | **The time at which the acceleration (longitudinal and lateral) captured by EDR reaches the maximum value of the specific sensor range for the first time.** | **Mandatory** | **Step 1** |  |  |  |  |  | Justification: This data element can help to judge the authenticity of the recorded value(delta-V and acceleration). |
| ECU Hardware number | Part number(s) of the ECU(s). | **Mandatory** |  |  |  |  |  |  | Justification: this data element is used to determine the uniqueness of the EDR system and the relationship with the vehicle. |
| ECU(s) Software Number(s) | Software part number(s) of the ECU(s). | **Mandatory** |  |  |  |  |  |  | Justification: this data element is used to determine the uniqueness of the EDR system and the relationship with the vehicle. |
| ECU(s) Serial Number(s) | Serial number of the ECU(s). | **Mandatory** |  |  |  |  |  |  | Justification: this data element is used to determine the uniqueness of the EDR system and the relationship with the vehicle. |
| ECU(s) Power Applied | Value of the voltage applied to (present at) the ECU. |  |  |  |  |  |  |  |  |
| ECU(s) Life Timer at event | ECU(s) cumulative power on time. |  |  |  |  |  |  |  |  |
| ECU(s) Life Timer at imaging | ECU(s) cumulative power on time. |  |  |  |  |  |  |  |  |
| Peripheral Acceleration | The acceleration of a point in the vehicle. The SAE J211-1 sign convention should be used to define orientation of the  accelerometer |  |  |  |  |  |  |  |  |
| Electronic Stop Start | Operating status of the electronic stop start system. |  |  |  |  |  |  |  |  |
| Event Type | Non-deployment indicates that the algorithm wakeup or threshold conditions were achieved but no device was commanded  while Deployment indicates a deployment threshold has been satisfied. |  |  |  |  |  |  |  |  |
| Ignition Button Counter per key cycle | Number of times the ignition button has been depressed per key cycle. |  |  |  |  |  |  |  |  |
| Powertrain Control Module Malfunction Indicator Status (PCM MIL Status) | Status of PCM MIL lamp indicating that fault code(s) are either active or stored in the powertrain control module. |  |  |  |  |  |  |  |  |
| Manifold Absolute Pressure (MAP) | Mean gas absolute static pressure in the engine induction manifold. |  |  |  |  |  |  |  |  |
| Mass Airflow | Measurement of air flow entering the throttle body. |  |  |  |  |  |  |  |  |
| Minutes in Operation at Event | Number of total minutes when the ignition has been in the ON/RUN mode for the current ignition cycle |  |  |  |  |  |  |  |  |
| Sensor Design Range Exceeded, XX | Indicates the point in time at which a sensor first reaches the maximum value of the specified range of that sensor. |  |  |  |  |  |  |  |  |
| Pre-event Synchronization Timer | Time from last pre-crash data sample to time zero. |  |  |  |  |  |  |  |  |
| Vehicle Mileage | Odometer reading of the vehicle at the beginning of the event. |  |  |  |  |  |  |  |  |
| Rollover Restraint System Disabled Indicator Status | The displayed suppression status of the rollover restraint system. |  |  |  |  |  |  |  |  |
| EDR retrieval tool software status | The software version of the EDR retrieval tool. | **Deleted** |  |  |  |  |  |  | Justification: this data element is unnecessary to traffic accident investigation. |
| Soft object collisions |  |  |  |  |  |  |  |  |  |
| ADS Emergency Maneuver | Time points of activation and deactivation |  |  | -30.0 to 0 second relative to time zero | 2 | N/A | N/A | Yes or No |  |
| Safety belt status mid-position front | Safety belt status means the feedback from the safety system that is used to determine that an occupant's safety belt (for mid position front) is fastened or unfastened. |  |  | -1.0 sec | N/A | N/A | N/A | On and Off |  |
| Far side impact airbag | "Far-side impact airbag" means the deployment time of an airbag between driver and passenger, relative to T0. |  |  | Event | N/A | 0 to 250 ms | +/-2 ms | 1 ms |  |
| Belt force limiter | Activation for each seat (inc rear) |  |  |  |  |  |  |  |  |
| Elevation Profile | To understand whether the road elevation profile might have had an influence |  |  |  |  |  |  |  |  |
| High Voltage | If the vehicle gains its primary energy from a high voltage battery – this voltage shall be stored |  |  |  |  |  |  |  |  |
| Suspension settings | Suspension settings |  |  |  |  |  |  |  |  |
| Rotational velocity of each wheel | Rotational velocity of each wheel |  |  |  |  |  |  |  |  |
| Steering output of each wheel | Steering output of each wheel for cases of steering by wire |  |  |  |  |  |  |  |  |
| Key on seconds |  |  |  |  |  |  |  |  |  |
| Vehicle pitch angle | Angle of the vehicle about its Y-axis (relative to initial vehicle orientation) prior to and during an event |  |  |  |  |  |  |  |  |
| Position of the vehicle on the road | [to be defined] |  |  |  |  |  |  |  |  |

**Definitions Under Consideration**

2.x “Adaptive Cruise Control” (ACC) is a system that, when activated, exercises longitudinal control over the vehicle using sensors and automation, with the purpose of maintaining a set distance relative to other slower moving vehicles in front up to a set speed, set by the driver.

2.x “Cruise Control” is a system that, when manual activated, maintains a driver-selected constant speed without the use of the accelerator pedal, it does not exercise any control over the vehicles braking system.

2.x “Intelligent Speed Assistance (ISA”) means a system that determines the applicable speed limit and aids the driver in not exceeding it by providing feedback or limiting the vehicle speed.

2.x "Power On Time" means the cumulative time that the vehicle has been operating since it was last switched on.

2.x Safety belt status means the feedback from the safety system that is used to determine that an occupant's safety belt (for a rear seat passenger) is fastened or unfastened.

2.x "Audible warning device" means a device consisting of one or several sound emission outlets that are excited simultaneously, emitting an acoustic signal which is intended to give audible warning of the presence of a vehicle in a dangerous road traffic situation and which is intentionally operated by a driver;

2.x "Direction indicator" means a device mounted on a motor vehicle or trailer which, when operated by the driver, signals the latter's intention to change the direction in which the vehicle is proceeding.

2.x "Hazard warning signal" means the simultaneous operation of all of a vehicle's direction-indicator lamps to show that the vehicle temporarily constitutes a special danger to other road users.

2.x "Driving-beam (main-beam) headlamp" means the lamp used to illuminate the road over a long distance ahead of the vehicle.

2.x "Passing-beam (dipped-beam) headlamp" means the lamp used to illuminate the road ahead of the vehicle without causing undue dazzle or discomfort to oncoming drivers and other road-users.

2.x "Adaptive front lighting system" (or "system") means a lighting device, providing beams with differing characteristics for automatic adaptation to varying conditions of use of the dipped-beam (passing-beam) and, if it applies, the main-beam (driving-beam) with a minimum functional content, such systems consist of the "system control", one or more "supply and operating device(s)", if any, and the "installation units" of the right and of the left side of the vehicle.

2.x "Stop lamp" means a lamp used to indicate to other road users to the rear of the vehicle that the longitudinal movement of the vehicle is intentionally retarded.

2.x "Tyre Pressure" means the inflation pressure of the tyres while the vehicle is in transit.

2.x "Tyre Pressure Monitoring System (TPMS)" means a system fitted on a vehicle, able to perform a function to evaluate the inflation pressure of the tyres or the variation of this inflation pressure over time and to transmit corresponding information to the user while the vehicle is running.

2.x Brake Pedal Position means an indication of the brake pedal position within the range from not depressed to fully-depressed.

2.x Brake warning indicator status means the displayed status of the brake warning system.

2.x “Roll rate” means the change in angle over time of the vehicle about its X-axis prior to and during an event.

2.x "Roll over detection" means a function that monitors the vehicle's roll around the X-axis and issues a signal when a rollover situation is detected.

2.x “Yaw angle” means the angle of the vehicle about its Z-axis (relative to initial vehicle orientation) prior to an event.

2.x “Yaw rate” means the change in angle of the vehicle about its Z-axis prior to an event.

2.x A "traction control device" means a system that selectively retards a vehicle's wheel speed to mitigate a loss of traction.

2.x "Advanced Emergency Braking System (AEBS)" means a system which can automatically detect an imminent forward collision and activate the vehicle braking system to decelerate the vehicle with the purpose of avoiding or mitigating a collision.

2.x "Steering Assist Function" means a control function which can automatically detect a potential collision and automatically activate the vehicle steering system for a limited duration, to steer the vehicle with the purpose of avoiding or mitigating a collision, with an obstacle obstructing the path of the subject vehicle or when the obstruction of the subject vehicle’s path is deemed imminent.

2.x "Emergency Call System" means a system that is activated either automatically via in-vehicle sensors or manually, which carries, by means of public mobile wireless communications networks, a set of crash-related data and establishes an emergency audio channel between the occupants of the vehicle and an answering point.

2.x "ISA speed limit" means the means the applicable speed limit as obtained by the speed limit determination system of the ISA system.

2.x "Blind Spot Monitoring System" means a system to aid the driver to perform safe lane changes by informing of the presence of adjacent vehicles.

2.x "Lane Departure Warning System (LDWS)" means a system to warn the driver of an unintentional drift of the vehicle out of its travel lane.

2.x "Lane Keep Assist" means a function which assists the driver in keeping the vehicle within the chosen lane, by influencing the lateral movement of the vehicle.

2.x ‘Emergency lane-keeping system’ means a system that assists the driver in keeping a safe position of the vehicle with respect to the lane or road boundary, at least when a lane departure occurs or is about to occur and a collision might be imminent.

2.x "Lane Centering Assist" means a function which is initiated/activated by the driver and which keeps the vehicle within its lane by influencing the lateral movement of the vehicle for extended periods without further driver command/confirmation.

2.x "Forward Collision Warning" means a function, which may be part of an AEBS system, and that warns the driver when a potential forward collision is detected.

2.x ‘Emergency stop signal’ means a light-signalling function to indicate to other road users to the rear of the vehicle that a high retardation force is being applied to the vehicle relative to the prevailing road conditions.

2.x A "Multi-collision brake" is a device that reduces the speed of the vehicle following a collision to mitigate the severity of any subsequent collisions.

2.x "Rear Cross-traffic Collision Warning" means a system to make the driver aware of vehicles approaching to cross behind the vehicle when reversing.

2.x ‘Advanced driver distraction warning’ means a system that helps the driver to pay attention to the traffic situation and that warns the driver when he or she is distracted.

2.x ‘Driver drowsiness and attention warning’ means a system that assesses the driver’s alertness through vehicle systems analysis and warns the driver if needed.

2.x "Alcohol Interlock" means a device that immobilises the vehicle unless a breath sample of the driver indicates an alcohol level legal for driving.

2.x "Rear Advanced Emergency Braking System (AEBS)" means a system which can automatically detect an imminent rearward collision and activate the vehicle braking system to decelerate the vehicle with the purpose of avoiding or mitigating a collision.

2.x "Driving automation system level 2" means a system that performs the sustained and operational design domain-specific execution of both the lateral and longitudinal vehicle motion control subtasks of the dynamic driving task with the expectation that the driver completes the object and event detection response subtask and supervises the driving automation system.

2.x "Automated Driving System" means a system that performs the sustained and operational design domain-specific execution of the entire dynamic driving task with or without a fallback-ready user.

2.x “ADS Transition demand” is a logical and intuitive procedure to transfer the Dynamic Driving Task (DDT) from the system (automated control) to the human driver (manual control). This request is given from the system to the human driver.

2.x “ADS Minimum Risk Manoeuvre” means a procedure aimed at minimising risks in traffic, which is automatically performed by the system after a transition demand without driver response or in the case of a severe ADS or vehicle failure.

2.x “ADS override” by the driver means a situation when the driver provides an input to a control which has priority over the longitudinal or lateral control of the system, while the system is still active.

2.x "ADS steering input requested" means the ADS-requested steering input.

2.x "Torque applied at the steering wheel" means the torque between the steering wheel and the steering column.

2.x Deployment status of the VRU secondary safety protection system.

2.x “Occupant/Pedestrian protection device deployment time” means the elapsed time from crash time zero to the deployment command for a VRU secondary safety protection system.

2.x Pedestrian protection device Warning lamp means the status of an indicator in the instrument panel that provides the information to the driver of the existence of an VRU secondary safety protection system malfunction, when lit.

2.x Occupant protection device Warning lamp means the status of an indicator in the instrument panel that provides the information to the driver of the existence of an occupant protection system malfunction, when lit.

2.x A "Pre-Safe System" is a function that makes reversible adjustments to the vehicle or occupant seating position to prepare for an imminent collision.

2.x "Other ADAS" means any additional Advanced Driver Assistance System (ADAS) that is not specifically defined on the list of 'EDR Data Elements'.

2.x "V2X warnings type" means the type of a warning received by an in-vehicle system over the air from another vehicle or an infrastructure unit.

2.x "V2X warnings time" means the time relative to T0 when the V2X warning was received by the in-vehicle system.

2.x "Trigger type" identifies which trigger threshold was exceeded to trigger the recording of data.

2.x A "brake override system" means a system that prevents the unintended application of the accelerator and brake simultaneously.

2.x "Sensor Design Range Exceeded" means the time relative to T0 when a sensor first reaches the maximum value of the specified range of that sensor.

2.x "EDR retrieval tool software version" means the software part number for the data retrieval tool at the time of data retrieval.

2.x “ADS Emergency Manoeuvre” is a manoeuvre performed by the system in case of an event in which the vehicle is at imminent collision risk and has the purpose of avoiding or mitigating a collision.

2.x Safety belt status means the feedback from the safety system that is used to determine that an occupant's safety belt (for mid position front) is fastened or unfastened.

2.x "Far-side impact airbag" means the deployment time of an airbag between driver and passenger, relative to T0.

2.x “Vehicle Pitch Angle” means the angle of the vehicle about its Y-axis (relative to initial vehicle orientation) prior to and during an event.

1. **Format requirements specified below are minimum requirements and manufacturers can exceed them.** [↑](#footnote-ref-1)
2. **“Mandatory” is subject to the conditions detailed in Section 1.** [↑](#footnote-ref-2)
3. Pre-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.) [↑](#footnote-ref-3)
4. Accuracy requirement only applies within the range of the physical sensor. If measurements captured by a sensor exceed the design range of the sensor, the reported element shall indicate when the measurement first exceeded the design range of the sensor. [↑](#footnote-ref-4)
5. The ignition cycle at the time of download is not required to be recorded at the time of the crash, but shall be reported during the download process. [↑](#footnote-ref-5)
6. The frontal air bag warning lamp is the readiness indicator specified in national air bag requirements, and may also illuminate to indicate a malfunction in another part of the deployable restraint system. [↑](#footnote-ref-6)
7. ~~"If recorded" means if the data is recorded in non-volatile memory for the purpose of subsequent downloading.~~  [↑](#footnote-ref-7)
8. [These elements do not need to meet the accuracy and resolution requirements in specified crash tests.] [↑](#footnote-ref-8)
9. "vehicle roll angle" may be recorded in any time duration; -1.0 sec to 5.0 sec is suggested. [↑](#footnote-ref-9)
10. **Manufacturers can include other system states** [↑](#footnote-ref-10)
11. List this element n - 1 times, once for each stage of a multi-stage air bag system. [↑](#footnote-ref-11)
12. Pre-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.) [↑](#footnote-ref-12)
13. Accuracy requirement only applies within the range of the physical sensor. If measurements captured by a sensor exceed the design range of the sensor, the reported element shall indicate when the measurement first exceeded the design range of the sensor. [↑](#footnote-ref-13)