Data for Road Safety Consortium

Self-Declaration for Unprotected Accident Area Warning Data

Document Version Control

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1.0	06/09/2023	Group C	First Issue
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Introduction

The mission of the European Data for Road Safety is to improve road safety by maximizing the reach of safety-related traffic information powered by safety data generated by vehicles and infrastructure

The consortium consists of National Road Authorities (NRA), Vehicle Manufacturers and data providers.

The consortium members have signed a MULTI PARTY AGREEMENT to share data on a reciprocal basis to comply with the EU Directive 886/2013, which gives the following 8 data categories:

Unprotected accident area	Exceptional weather conditions
Animal, people, obstacles, debris on the road (broken - down vehicle)	Short - term road works
Temporary slippery road	Wrong - way driver
Reduced visibility	Unmanaged blockage of a road

The purpose of this self-declaration is to give publishers of the Unprotected Accident Area Warning data guidance about expected quality levels and label their data as such. Consumers of the data can then easily perceive the expected quality level.

Definitions

Event – Anomaly that has material impact on traffic. Attributes include timeliness and location (including start and end point and lane position). Start point for safety, end point for ADAS functions, lane position to help with exact position on carriageway.

Message – Single object that creates, updates or terminates an event.

Use Case Definition

"Unprotected accident area" means the area where an accident has occurred and which has not yet been secured by the competent authority."

- (EC Delegated Regulation No 886/2013)

The following events are considered to be "Unprotected Accident Area":

Unprotected accident area(s)

Accident involving bus

Accident

Accident involving lorry

(Safety related message sets – Selection of DATEX II Situations, DENM TPEG2-TEC Causes and TMC Events for EC high level Categories)

Note: Even after the unprotected accident area changed to a protected accident area, the relevancy of the event does not change.

Quality Level

For each provided message the DATEX II field "probabilityOfOccurence" should be used including one of the two parameters:

Level A:

Certain – Accident area with a high confidence level. Can be used directly for informing the end user.

Level B:

Probable – Probable – Accident area with a lower confidence level. Can be used as supporting data.

Triggering Conditions

Vehicle triggered events

Triggering conditions

Reporting an unprotected accident area event in a message, one or more of the following triggering conditions should be fulfilled:

a. An eCall has been triggered manually by an occupant of the vehicle by the eCall button and the vehicle becomes stationary within 15 s. If the vehicle is already stationary, the condition is fulfilled immediately

b. Same as condition a), but additionally the manually triggered eCall is confirmed to be an accident by a vehicle manufacturer handled call center

c. A low-severity crash is detected without the activation of an irreversible   occupant restraint system (e.g. high-voltage battery cut-off, door unlock) and the vehicle becomes stationary within 15 s. If the vehicle is already stationary, the condition is fulfilled immediately

d. A pedestrian collision is detected with the activation of at least one irreversible pedestrian-protection system (e.g. pop-up bonnet, outside airbag) and the vehicle becomes stationary within 15 s. If the vehicle is already stationary, the condition is fulfilled immediately

e. A high-severity crash is detected with the activation of at least one irreversible occupant-restraint system (e.g. pyrotechnic belt-tightener, airbag), and/or triggering of an automatic eCall.

Quality Level mapping

Level A:	Level B:
Certain – Triggering condition **b)**, **c)**, **d)** or **e)** is fulfilled.	**Probable** – Only triggering condition **a)** is fulfilled.

Traffic management triggered events

Triggering Conditions

Road Authorities direct sources, crowd sourced or other third-party data that a Road Authority processes to use in their traffic management data including but not limited to the following:

a. Camera data
b. User reported incidents
    a. Somebody (not authorized) reports incident via phone, app, etc.
    b. Roadside Emergency Telephones
c. Maintenance Suppliers
d. Emergency Services (police, fire ambulance etc.)
e. Patrol Vehicles

Quality Level mapping

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Level A:

Certain – Triggering condition **a), d), e)** fulfilled.

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Level B:

Probable – If only triggering condition **b)** or **c)** alone is fulfilled. Combined with other data sources, those triggering conditions might be considered as Level A quality.

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Traffic management generated warnings are assumed to be Level A at all times, unless otherwise specified.

Quality Attributes

Whenever an event related to an unprotected accident area is detected, indicated by the triggering conditions listed above, the following quality attributes should apply:

- Maximum delay between detecting and publishing it aim to be
  - less than 60 seconds (Level A or Level B)
- Location of the event should have a maximum offset of
  - 25m (Level A)
  - 1km (Level B)
- Published event should include the affected lanes and if hard shoulder is affected as well

These figures are subject to continues review

Termination Conditions

Whenever an event related to an Accident Area is terminated, indicated by a complete removal of all items, the following termination criteria should apply:

- Maximum delay from detection until termination message is published
  - Less than 60s (Level A)
  - Up to 180s (Level B)

Updates

Whenever an event related to Accident Area is updated (defined as a situational change e.g. location), the following update criteria should apply:

- Maximum delay from detecting the change until update message is published
  - Less than 60s (Level A)
  - Up to 180s (Level B)

Message parameters

Every published message requires the following message parameters:

- Locations of unprotected accident area events should be published as openLR line strings or openLR point along line
- Timestamps should follow the common DATEX II standard
- "probabilityOfOccurence" parameter should be always populated (following section 4)
- "Validity" parameters can be used to communicate the expected update/termination time of the event

References

TISA, DFRS, DATEXII, C2CC (2021), "Safety related message sets – Selection of DATEX II Situations, DENM and TPEG2-TEC Causes and TMC Events for EC high level Categories", ITSTF20001 v1.5

https://tisa.org/wp-content/uploads/ITSTF20001_SafetyrelatedMessage-Sets-DATEXII_DENM_