

DOITS

Working Group Meeting Hilton Airport Hotel - Amsterdam 2017.06.29

Attendees:

Sergei Kucheiko	Astrata
Sjef van Gool	Astrata
Jan Unander	DOITS
Aleks Opacic	Microlise
Ian Taylor	Microlise
Fredrik Callenryd	Scania
Harry Butcher	Telogis
Uwe Muench	Telogis
Jasper Pauwelussen	TomTom
Arie van der Jagt	Transics
Joep Van Poppel	Transics
Peter Huysmans	Trimble
Tom Debeule	Trimble

Objective with meeting

The meeting had the following action points:

- 1) Discuss and propose process to improve usability of tachograph data. (pages 1-5)
- 2) Discuss and propose action to enable "Handshake" between Truck/Trailer by exchanging VIN numbers over CAN. (pages 5-8)
- 3) Besides discussing these two issues also an action plan for how to address a new challenge was on the agenda and ECO-driving measures for Electrical vehicles was brought up. (page 9)

1) DISCUSS AND PROPOSE PROCESS TO IMPROVE USABILITY OF TACHOGRAPH DATA

The digital tachograph, from 2006 mandatory in new trucks + 3,5 ton, is used to *"enforce the rules on driving times and rest periods and monitor the driving times of professional drivers in order to prevent fatigue, and guarantee fair competition and road safety" (EU)*.

The key user of the data is the driver who needs that to plan his driving to not break the regulations. He has the full responsibility and trust ("carte blanche") and needs to see how much driving time he still has left, when the next rest period is due and how long it should be, to be able to plan his driving.

Drivers log in and identify themselves in a driver change situation by using their "Driver Card", that is a personal identification card. The data stored on the card must be read at least once in a 128 days period and contains speed/ distance as well as driver activities.

Speed data is captured as rpm measured at the gearbox and data is also stored on the tacho head's internal memory.

Rest and driving time is defined with one-minute rule where the major driver activity in each minute classifies how that minute will be counted.

The driver owns the data and privacy regulations apply. The fleet owner can access the data via the truck and a "Company card".

The tacho standard specifies that data is captured once per minute and shall record:

- distance travelled and speed of the vehicle
- time measurement
- position points
- identity of driver 1
- identity of driver 2
- activity of driver
- control, calibration and tacho repair data incl. identity of the workshop
- events and faults

Following functions must be ensured:

- speed and distance measurement
- monitoring driver activities and driving status
- monitoring the insertion and withdrawal of tachograph cards
- recording of drivers manual entries
- calibration
- automatic recording of the position points
- monitoring control activities
- detection and recording of events and faults
- reading from data memory and storing in data memory
- reading from tachograph cards and recording and storing in tachograph cards
- displaying, warning, printing and downloading data to external devices
- time adjustment and measurement
- remote communication
- company locks management
- built-in and self-tests

The new REGULATION (EU) 2016/799, also specifies “recording of the position of the vehicle at certain points during the daily working period of the driver” i.e. a GPS functionality is integrated in the tacho. “

The position of the vehicle will record :

- 1) Starting place of the daily working period
- 2) Every three hours of accumulated driving time
- 3) The ending place of the daily working period

“The vehicle unit includes among other things a processing unit, a data memory, a time measurement function, two smart card interface devices for driver and co-driver, a printer, a display, connectors and facilities for entering the user’s input.”

In the new standard it is also specified “an ITS interface to link the tachograph with other ITS applications”.

The Tacho will be accessed from the **FMS interface** and **Optional** to capture by the truck manufacturers are

- snapshot of speed in km/h (Speed of the vehicle registered by the tachograph)”
- driver identification – the EU standard driver tachograph ID
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Besides Tacho provided data rFMS will also deliver:

- Driver 1 working state change, data was sent due to that driver 1 changed working state
- Driver 2 working state change, data was sent due to that driver 2 changed working state

Tachograph suppliers

Continental, “Conti”, and Stoneridge are the two key suppliers with Conti totally dominating the Tacho market. Conti is active also in the tire business as well as in automotive parts via its acquisition of Siemens VDO.

Conti has a business unit named Infotainment & Connectivity and work closely with companies like IBM to build cloud based platforms to address the future needs from vehicles and have revealed the strategy to offer the "Remote Vehicle Data Platform". Conti is also a major Tier 1 supplier to the automotive industry.

For trucks they offer a consumption measurement and driver-coaching tool supplied by their subsidiary VDO.

Continental can offer a Tacho related smartphone-based application to support drivers with status on tacho data and a message solution for e.g. dispatch information.

There are strong ambitions from Conti to play a wider role within the vehicle segment where trucks and logistics is one area.

Stoneridge seem to be more product-oriented and as a Tier 1 supplier they offer various components to the commercial vehicle. Stoneridge Electronics is perceived to be the source for tacho related products from Stoneridge.

Stoneridge can also offer a Tacho related smartphone-based application to support drivers with status on tacho data.

Options for non-tacho suppliers to support the Transport Industry with more open Tacho data

REGULATION (EU) No 165/2014 state; Priority should be given to the development of applications which help drivers to interpret the data recorded in the tachograph in order to enable them to comply with social legislation.

After Market Fleet Management solution providers as well as truck OEMs do handle the tacho data in three ways:

- 1) Capture and transfer raw data to a third party that analyses and presents the status for the driver
- 2) Capture the data and analyse it them selves, and make the information available for the driver.
- 3) Some OEMs collaborate with Tacho suppliers to get their original calculations and make the information available for the driver.

In case 2 the size of organization and cost is significant to enable analysis and delivery of correct legal data.

To harmonize Tacho data and calculate driving and resting times in one single trusted way would be beneficial for the Logistics Industry as well as for authorities that monitor and effectuate punishment due to infringements.

There are various solutions used by the Logistics companies planners to improve their operations where Fleet Management Solutions is one interface and pure tacho related application another. To simplify for Logistic planners to make decisions the integration of Tacho data into more comprehensive tools would be an advantage.

Trusting Tacho data

Even if using certified tacho data from the two tacho suppliers, the calculations can show minor differences.

A perceived problem is that tacho suppliers do not share information when upgrading their firmware that causes extra concern and work for 3:rd party players to comply with legal requirements.

DOITS EXPRESSED A WISH THAT ALL PLAYERS IN THE FLEET MANAGEMENT SOLUTIONS AREA SHOULD BE ABLE TO USE TACHO SUPPLIERS OWN DATA AND PRESENT THAT AS THE TRUTH. HARMONIZED AND LEGALLY APPROVED.

DOITS -How to use tacho data to improve logistics?

DOITS working group discussed the value of allowing the Logistic companies planning centres to share the same information as the driver gets from the tacho. That would support an optimization of fleet usage and driver capacity.

Use cases - real time Tacho data

Logistic 2PL companies with medium to large fleets find themselves being charged for breaking the driving time regulations, as they do not have instant access to driver status. ***“We get the information too late to act and have to pay.”***

As a consequence they decide to check driver data more often (e.g. weekly) that require an investment in time and is still not updated enough to get full control.

“We would like to have an alert (alarm) in real time to be able to stop and replace drivers”

Besides 2PL companies 3 and 4PL service providers would gain from having the access of drivers real time data and combine this with their own planning for e.g. next day. They would like to have the tacho data but ***“We take on legal responsibility if we know the driver status and do not act and we don't want that. We would like to be informed but not responsible for the data.”***

There are clear benefits for players in the Logistic chain that motivate a more open access to Tacho related data and at the same time increase road safety.

A trigger period for tacho data of 5-10 seconds was proposed by DOITS but the Tacho suppliers deliver the data only once per minute to comply with the regulations. Getting tacho data in “real time” and make it possible to share with planners in the logistic chain would improve the control and opportunity to act on drivers misbehaviour.

There is a standard from “Heavy Truck Electronic Interfaces Working Group” for “Digital Tachograph-Specification for remote company card authentication and remote data downloading” where the process to capture and deliver the tacho data via FMS, is regulated.

In todays vehicles there is basic Tacho data available over CAN like driver status and speed/distance that can be captured by “listening” to the CAN data flow. As Tacho suppliers change in their firmware occasionally and do not inform the market, there is a need to being informed on when these changes are done.

However, a challenge with CAN is that communications over CAN stops if the truck is stopped (ignition off).

There is no real motivation for the Tacho suppliers to inform third party players as they are not responsible for the data that is transported over CAN and might see third party users of tacho data more as competitors than partners.

Tachograph suppliers

Continental “Conti” and Stoneridge are the two key suppliers with Conti dominating the market.

The requirement for position from the tacho has given the tacho suppliers a platform for extended service development.

There is a trend towards making tacho data accessible via WiFi that would improve the efficiency for authorities to identify and punish drivers that violate the regulations as well as for companies to read the data when entering defined areas..

WiFi can also be a potential tool for tacho suppliers to expand their commercial service offerings.

Conti as well as Stoneridge can offer a smartphone-based application to support drivers to see driver card data. Conti has also a messenger solution for e.g. dispatch information.

Conti is more involved in automotive products through their subsidiary VDO that offer fuel consumption measurement and driver coaching tools.

1) ACTION DECISION TAKEN IN DOITS

rFMS

Propose to TF-HDEI Standardisation WG to make a time stamp to working state MANDATORY.

Tacho suppliers

Invite Conti and Stoneridge to a discussion on how to support the Logistics companies to improve their efficiency and ability to meet regulations independent of who is delivering the data and information.

Jan Unander will approach Conti and Stoneridge to find out their interest and try to organize a meeting with the mutual ambition to support the Logistics Industry.

A good start would be that Conti and Stoneridge present their new solutions to keep the third party users updated and make it possible to discuss important issues.

2. DISCUSS AND PROPOSE ACTION TO ENABLE "HANDSHAKE" BETWEEN TRUCK/ TRAILER BY EXCHANGING VIN NUMBERS OVER CAN.

At the last DOITS meeting on April 4:th, a decision was taken to address the task to improve the communication of VIN data between the truck and the trailer. DOITS Working Group have proposed to the European HD Truck Manufacturers to implement the functionality to capture Trailer VIN as well as deliver Truck VIN via CAN and they promised to bring this issue up at their TF-HDEI Standardisation Meeting on June 7:th 2017.

Outcome of the TF-HDEI Standardisation Meeting

DOITS proposal was received positively and the process to implement a function to capture the Trailer VIN over CAN and make it possible to access via rFMS, will be initiated.

Technical challenges

Not all trailer and trucks send their VIN numbers.

As always when introducing new functionalities the already existing park of vehicles is significant in size and to introduce solutions to give new functionalities require complicated retrofitting.

Theoretically it would be possible to make an implementation of the functionality in existing trailers when EBS suppliers upgrade their systems but it seems like this is rare occasion as the systems in these cases are replaced with the same version.

At this stage the focus for DOITS is to work for an implementation of VIN handshake in trailers/ trucks that have the necessary functions. The main target is therefore new trailers and trucks that can factory fit the functionality.

Trailer T-CAN standard (<http://trailercan.org/>) – European Transport Board

"Road vehicles — Interchange of digital information on electrical connections between braking and auxiliary data collection systems on towed vehicles"

In the parameter specification Truck VIN is specified with reference to ISO 11992-2 2013-12-02 FDIS. Also under "Trailer info data" the parameter VIN ASCII Encoded is specified.

ISO 11992-2 : RGE12

This ISO standard includes both Trailer and Truck VIN:

- Trailer info data - 65283 - 2 - Index 1 - 15: ECU Serial number, ASCII Encoded , Index 16 - 32: VIN bytes, ASCII Encoded
- Truck info data - Truck VIN - RGE 12 – 5 and 6 - Index data content

rFMS Standard 2.0

The Truck VIN number is MANDATORY to be aggregated by rFMS and can be requested with the frequency of max 1 minute, as to ISO 3779.

Truck VIN can be accessed both through on-board FMS, rFMS and via Tacho data.

Neither rFMS or FMS ask for Trailer VIN.

Necessary standards are in place!

All parties involved in creating the VIN handshake have standardised and harmonised the way to make it work.

There is a CAN trailer to CAN truck issue as the Trailer Can is not directly connected to the Truck CAN. How to share trailer/ truck data and create a handshake confirmation with VIN numbers?

So how to make it happen?

The parties involved in making the VIN handshake technically available are:

- EBS-suppliers
- Truck Manufacturers
- Trailer manufacturers
- Trailer owners (influencers)

Other users are After Market Fleet Management Solutions providers that want to deliver more customer value through their solutions and services.

EBS Suppliers

Knorr-Bremse (Haldex) and Wabco are the two most important players in this field. Both companies are aware of DOITS and our ambition to improve this functionality. They have announced interest in participating in our discussion.

EBS suppliers have their focus on safety and will not take any risk to challenge this to introduce new functionalities. So they need to be convinced that it is beneficial for them to support by supplying the Trailer VIN in a way that corresponds to agreed standards and can be requested by the truck. How much concern they have to show their customers, the Trailer manufacturers, is not fully understood yet.

As EBS suppliers do not deliver the same solution to all their customers and their customers want to keep their existing solutions, it might be a challenge to in a short time period define one solution for all future trucks/trailers.

When upgrading an EBS system it is not guaranteed that the original trailer VIN will follow the trailer.

The best way to read trailer VIN and transfer it to truck CAN is a technical issue that has to be solved between EBS supplier and truck manufacturer.

Truck manufacturers

They confirm through their TF-HDEI Standardisation Meeting on June 7:th 2017, that the issue is important and are willing to invest in creating the trailer/truck VIN handshake.

Trailer manufacturers

Krone, Schmitz Cargobull dominate the market and have their own telematics systems to deliver position of the trailer, reefer temperatures, EBS status, security information as well as coupling status i.e. what trailers are hitched to a truck.

Trailer manufacturers would strengthen their products functionality if they can get a secure and reliable handshake that confirms the identity of the connected trailer and truck. Trailer manufacturers are of course important, as they are the ones requesting the functionality in their trailers and finally take the cost.

Trailer owners

Strong influencing forces are the large trailer owners i.e. rental companies like TIP, PNO and large fleet owners with their own trailers.

Rental companies will gain from a handshake function as a competitive advantage in their services and also support their asset management process. That applies also for fleet owners that own trailers. They will get same benefits as rental companies plus give them a tool to increase operating efficiency.

Shipping companies.

There are 4 dominating shipping alliances G6, CKYHE, Ocean Three and 2NM. Normally they are responsible for the goods and transportation assets at sea and only until they are unloaded. However,

Shippers start to see land transportation as a part of their responsibility or at least as a competitive advantage to show their customers they have control over the flow of goods.

In the future this target group will become more influential.

ACTION DECISION TAKEN IN DOITS - TRAILER/TRUCK VIN

a) J Unander organise a DOITS meeting with the EBS suppliers participating. This to create a common understanding of the advantages for all parties to create the trailer/truck VIN handshake and find a technical solution on how this will be supported.

Timing September 2017.

b) J Unander start up the dialogue with Trailer manufacturers to inform about the initiative and actions in DOITS. This to create an interest in participating in the process and identify what persons from these companies that should be involved.

COMMERCIAL ELECTRIC VEHICLES – ECO-DRIVING

F. Callenryd brought up the idea to discuss if DOITS is the right format for proposing an ECO-driving tool for fleet owners with electrical commercial vehicles.

This area is not explored yet and the DOITS working group's experience from ECO-driving tools for diesel-powered vehicles, would be of significant value in such an initiative.

Focus would be mainly on Buses and Vans.

There are known initiatives in the UK and Holland and also as projects in the EU.

Examples:

- <https://ec.europa.eu/energy/intelligent/projects/en/projects/actuate>

Action – Electric vehicles – ECO driving

J Unander will search for initiatives already in process and at the next DOITS meeting will the working group decide if to start looking into this issue.