Smart tachograph

Bernardo MARTÍNEZ
Road Transport Unit (DGMOVE)
bernardo.martinez@ec.europa.eu

European Commission

Transport

EU legislation on road transport

Access to the occupation of road transport operator (1071/2009)

Access to the market (1072 and 1073/2009)

Social legislation (561/2006)

Weights and dimensions

Transport of dangerous goods

Transport of livestock

Digital tachograph

- Accurate recording of driving and rest times
- Magnet-resistent motion sensor
- Independent source of information

- Still vulnerable to motion sensor tampering
- Non-secured independent source of information

Motion sensor vulnerability

➢ **Type 1 manipulation**
- ✓ Architecture: the MS is unplugged from the gearbox, placed into an additional device that simulates an electromagnetic field, being this device connected to a 2 nd motion screwed to the gear box and controlled by the driver
- ✓ Evidences left : broken seals, power supply interruption and information in the printouts

➢ **Type 2 manipulation**
- ✓ Architecture: a second MS is connected to the original MS, either directly or through an additional device simulating the electromagnetic field.
- ✓ Evidences left: power supply interruption, motion conflict event and information in the printouts

➢ **Type 3 manipulation: direct manipulation of the electronic circuit of the MS**

Smart tachograph

➢ **Adopted by Regulation 165/2014**

➢ **In all new vehicles registered as from 15 June 2019**

➢ **GNSS module**
  ✓ Automatic recording of the location of the vehicle (cabotage)
  ✓ Second motion sensor

➢ **DSRC module for communication tachograph - control officers**

➢ **New cryptography**

➢ **Enhanced seal**

GNSS signal as a second motion sensor

> ➤ *Enclosed in a secure box*
> ➤ *Signal secured between GNSS receiver and VU*
> ➤ *Authentication of the satellite signal*
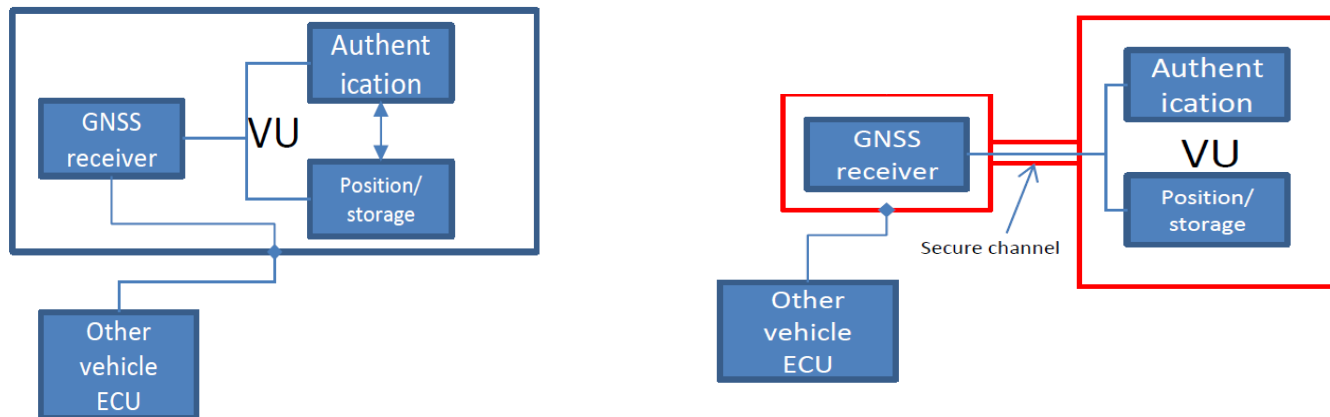
DSRC communication

> ➤ **Transmission of data to enforcers equipment**

> ➤ **Data to be transmitted**

- ✓ Latest security breach attempt
- ✓ Longest power supply interruption
- ✓ Sensor fault
- ✓ Motion data error, vehicle motion conflict
- ✓ Invalid card, card insertion while driving
- ✓ Time adjustment data
- ✓ Calibration data
- ✓ Vehicle registration number
- ✓ Speed

- ✓ Weights and dimensions

ITS interface

- ➢ **Optional**
- ➢ **Bluetooth**
- ➢ **Requires authorization from the driver**
- ➢ **Possible services**

  - ✓ User-friendly interface with the tachograph
  - ✓ Fleet management
  - ✓ On-road services

Advantages of smart tachograph

- ➤ **Enhanced security against tampering**

- ➤ **Targeted checks**

- ➤ **Extended scope**

  - ✓ **Cabotage**
  - ✓ **Weights and dimensions**

- ➤ **Open to additional services**

EU legislation on road transport

Access to the occupation of road transport operator (1071/2009)

Access to the market (1072 and 1073/2009)

Social legislation (561/2006)

Weights and dimensions

Kg

Transport of dangerous goods

FLAMMABLE GAS 2

Posted workers Directive

Transport of livestock

Thank you