

# Comments on UNECE R No.141.01




Scenarios regarding proposal for driver-display of “Trailer TPMS not Equipped” in addition to Trailer TPMS Malfunction

elaborated by a small group of TF TPMSTI experts  
(TPMSTI-10-05)

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# Background

- With regards the UNECE Reg. No141, there are a number of scenarios wherein a towing vehicle can be towing a trailer which is **not equipped with TPMS**
  1. towed vehicle is **old** (registered before enforcement of new R141) and is not equipped with TPMS (and is not legally required to have TPMS)
  2. towed vehicle is new and is not equipped with TPMS (but is legally required to have TPMS)
- Currently, within R141 (ECE-TRANS-WP.29-GRBP-2020-20e.pdf), the following section requires that a towing vehicle shall indicate a trailer TPMS malfunction when the connected towed vehicle(s) cannot provide TPMS but it is required to have TPMS.

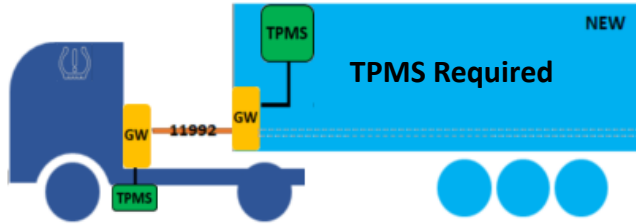
*5.4.3. The malfunction indication warning signal described in paragraph 5.5. shall be illuminated whenever no valid TPMS information is available from a connected towed vehicle, that is required to have TPMS, via any communication interface described in paragraph 5.6.*
- Since there can be scenarios wherein the towing vehicle cannot ascertain whether or not the towed vehicle(s) must have TPMS installed, there is an open question as to what the towing vehicle should display to the driver.
- **Potential Solutions:**
  1. Towing vehicle shall display a trailer TPMS malfunction   
Trailer
  2. Towing vehicle shall display a trailer TPMS malfunction and a notification   
Trailer 

\* NOTE: TPMS-reported malfunctions are not shown in these examples

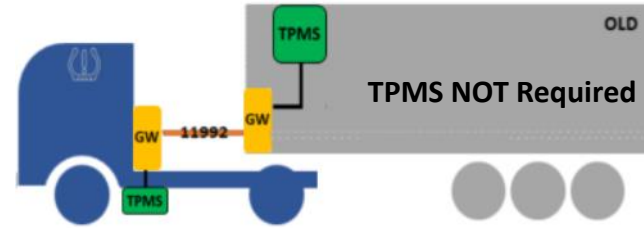
# Without additional Notification

Scenario

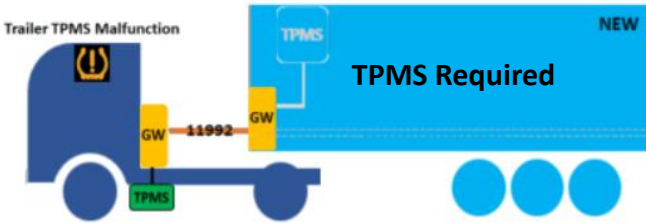
Scenario



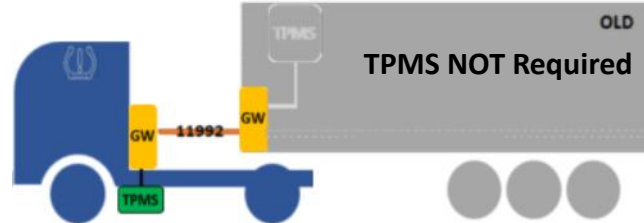
- New Trailer,
- TPMS equipped (+ Required)
- ISO 11992
- Trailer TPMS Malfunction to Driver: **NO**



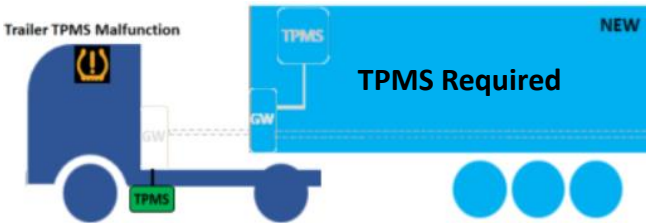
- **OLD** Trailer,
- TPMS equipped
- ISO 11992
- Trailer TPMS Malfunction to Driver: **NO**



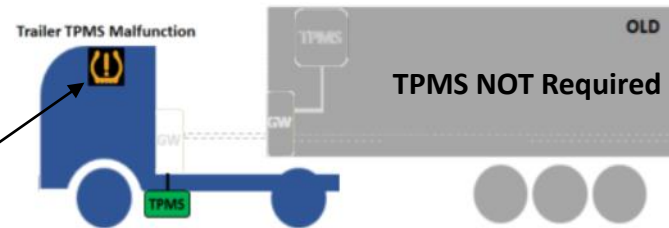
- New Trailer,
- TPMS **Not** equipped (+ Required)
- ISO 11992
- Trailer TPMS Malfunction to Driver: **YES**



- **OLD** Trailer,
- TPMS **Not** equipped
- ISO 11992
- Trailer TPMS Malfunction to Driver: **NO**



- New Trailer,
- TPMS **Not** equipped (+ Required)
- **NO** ISO 11992
- Trailer TPMS Malfunction to Driver: **YES**



- **OLD** Trailer,
- TPMS **Not** equipped,
- **NO** ISO 11992
- Trailer TPMS Malfunction to Driver: **YES**



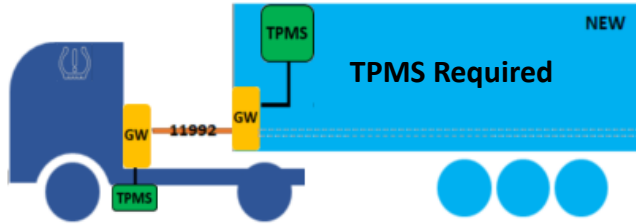
Trailer

\* NOTE: TPMS-reported malfunctions are not shown in these examples

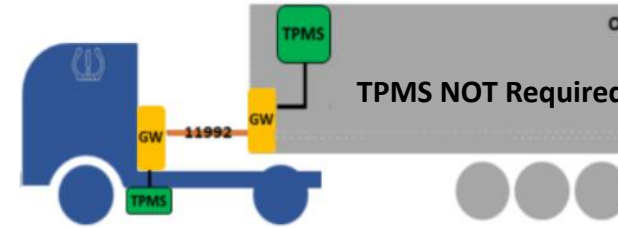
# With additional Notification

Scenario

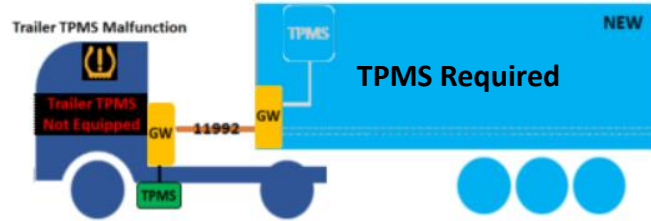
Scenario



- New Trailer,
- TPMS equipped (+ Required)
- ISO 11992
- Trailer TPMS Malfunction to Driver: **NO**
- Trailer Notification to Driver: **NO**

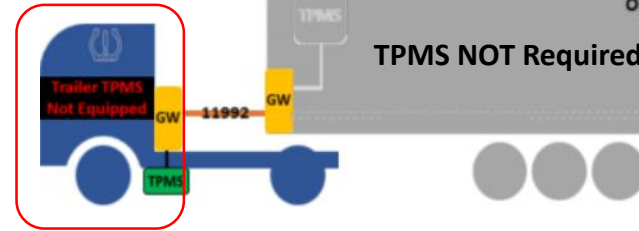


- **OLD** Trailer,
- TPMS equipped
- ISO 11992
- Trailer TPMS Malfunction to Driver: **NO**
- Trailer Notification to Driver: **NO**

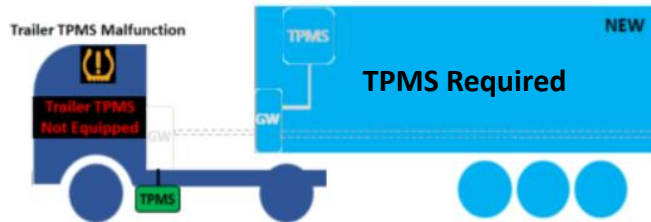


- New Trailer,
- TPMS **Not** equipped (+ Required)
- ISO 11992
- Trailer TPMS Malfunction to Driver: **YES**
- Trailer Notification to Driver: **YES**

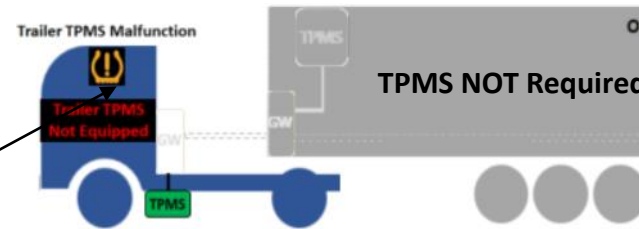
*Driver notified but Trailer TPMS not required*



- **OLD** Trailer,
- TPMS **Not** equipped
- ISO 11992
- Trailer TPMS Malfunction to Driver: **NO**
- Trailer Notification to Driver: **YES**



- New Trailer,
- TPMS **Not** equipped (+ Required)
- **NO** ISO 11992
- Trailer TPMS Malfunction to Driver: **YES**
- Trailer Notification to Driver: **YES**

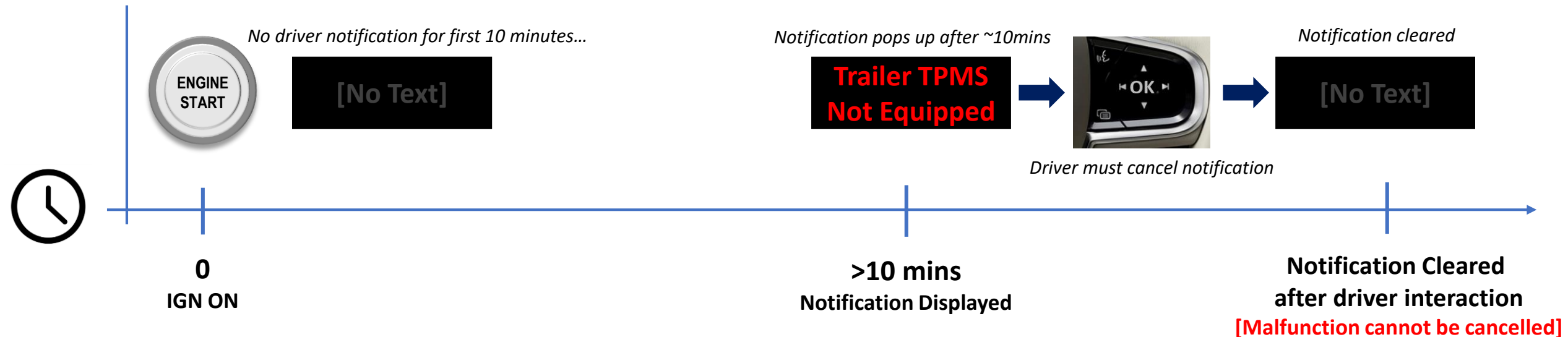


- **OLD** Trailer,
- TPMS **Not** equipped,
- **NO** ISO 11992
- Trailer TPMS Malfunction to Driver: **YES**

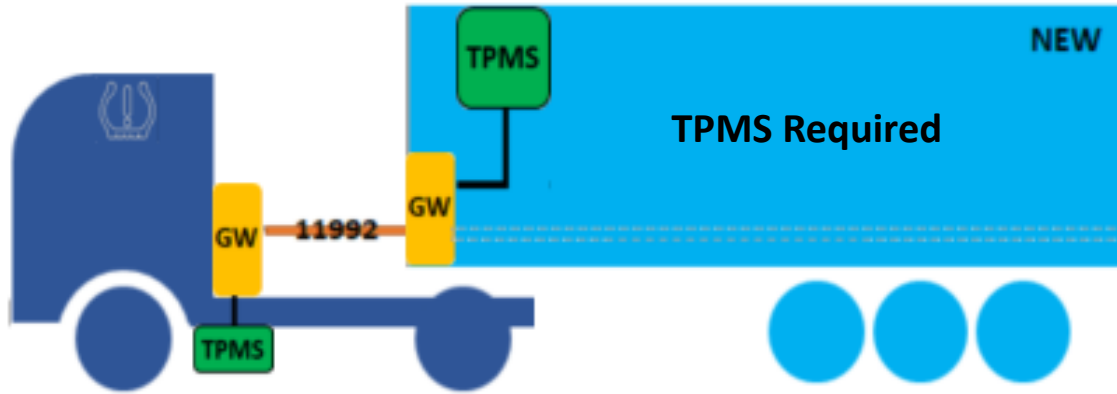


# Additional Notification

- If an additional notification was *mandated*...
  - There would be an additional requirement that all Truck manufacturers would have to implement this additional message display as well as a mechanism to dismiss the message
  - It would need to be understood if this notification would need to be re-displayed:
    - *On every ignition ON event (after 10 minutes)?*
    - *Every time a **different** trailer is connected (truck would need to be able to detect that trailer is different)?*
  - Note that, in case of a notification that “Trailer TPMS is not equipped”, the driver shall **not be able to cancel** the trailer TPMS malfunction.
- *If and additional notification was ‘Optional’...*
  - If something is **truly optional** then it is optional whether or not it’s included in the regulation so it would be better to not include it at all.
  - If Truck OEs want to display an additional message to drivers regarding trailer TPMS then they can choose to do so if they wish

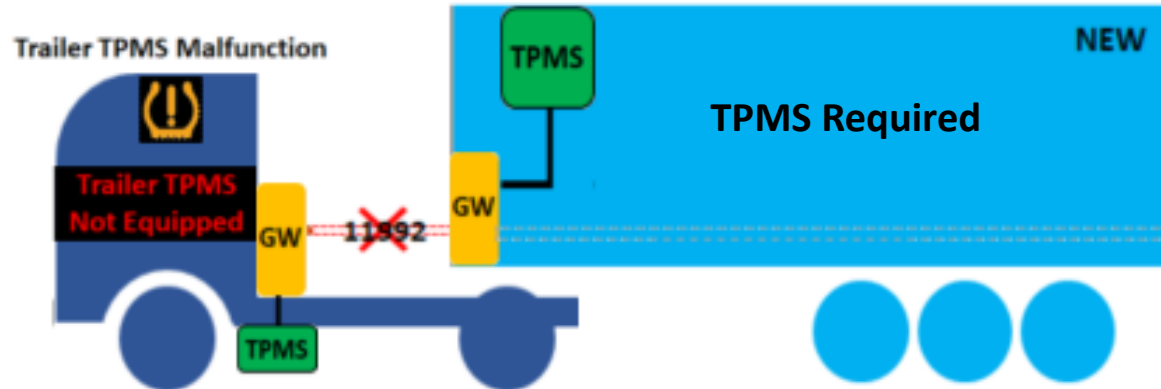


# Further Use-case Scenarios A for new trailer with ISO 11992



## Scenario

- New Trailer,
- TPMS equipped (+ Required)
- ISO 11992
- TPMS is working ok
- **Trailer TPMS Malfunction to Driver: NO**
- **Trailer Notification to Driver: NO**



## Scenario

- New Trailer,
- TPMS equipped (+ Required)
- ISO 11992
- TPMS is working ok but there is a **fault in the ISO 11992 ECL**
- **Trailer TPMS Malfunction to Driver: YES**
- **Trailer Notification to Driver: YES**

- In some scenarios, the truck would inform the driver that the towed trailer is **not equipped with TPMS** but this **would not be true**
- In these scenarios, a Trailer TPMS Malfunction would be appropriate

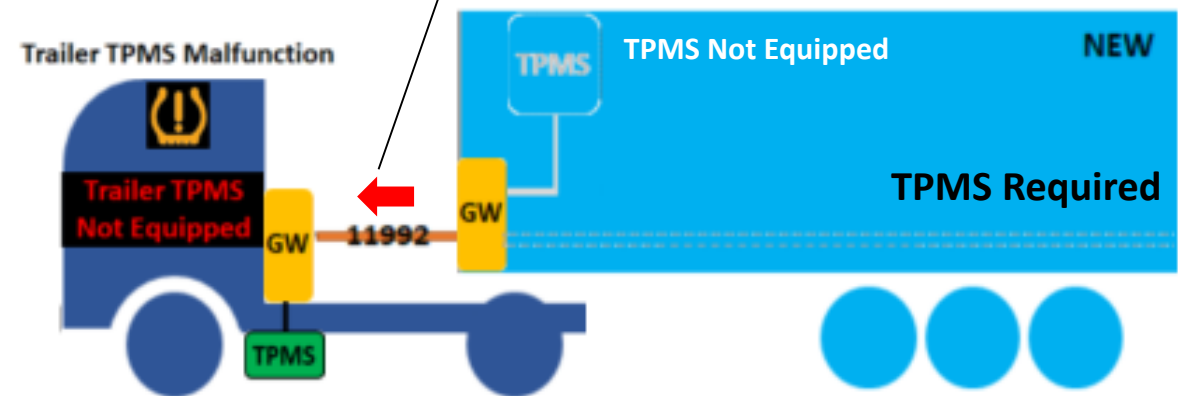
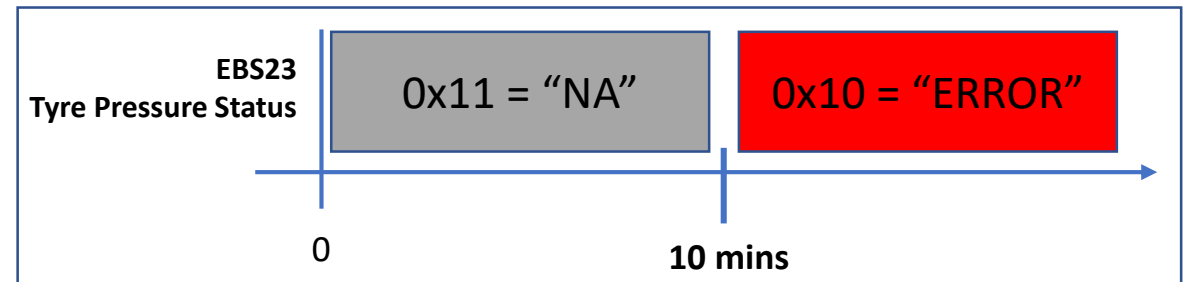
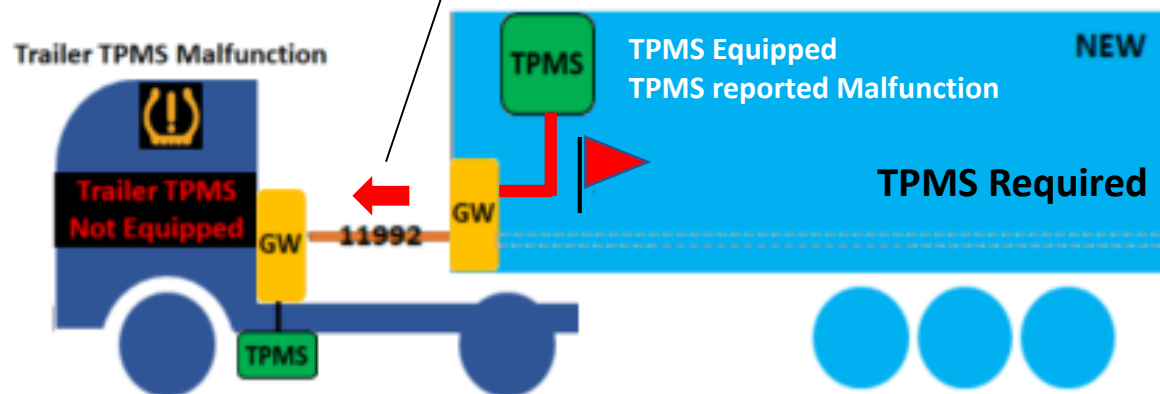
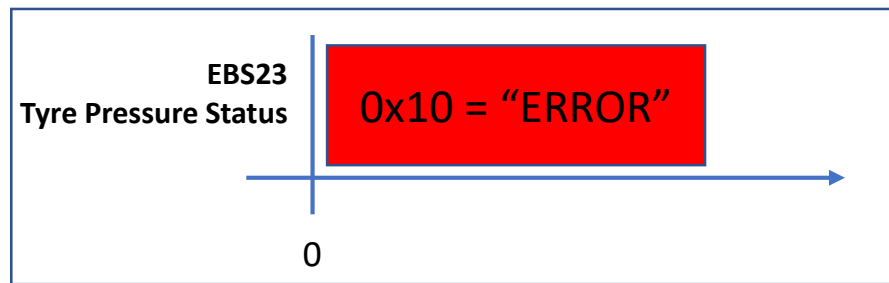
# Further Use-case Scenarios B for new trailer with ISO 11992

Regulation 141 section 5.4.3 states that *“The malfunction indication warning signal...shall be illuminated whenever no valid TPMS information is available from a connected towed vehicle, that is required to have TPMS, via any communication interface”*

The trailer **TPMS malfunction indication** can therefore be raised for scenarios: (a) ‘TPMS fault reported by an equipped Trailer TPMS’ or (b) ‘Trailer TPMS not equipped’

If the truck is also raising a **“trailer TPMS not equipped”** notification by way of trailer TPMS data not available for > 10 minutes then it cannot meaningfully distinguish between a “trailer TPMS-reported malfunction” and “Trailer TPMS-not equipped”

- A Trailer TPMS Malfunction indication in these scenarios would be **appropriate for the situation**.
- An Additional Notification telling the driver that “the trailer is not equipped with TPMS” would be **wrong and misleading**



# General Comments

- There are a number of scenarios where an additional notification would **not provide an added benefit** for the driver e.g. this ‘extra information’ would not be help to diagnose why there is a Trailer TPMS malfunction
- There are scenarios where an additional notification would potentially be **misleading** to a driver e.g.
  - notification that trailer TPMS is not equipped when trailer TPMS **is equipped** and is transmitting a locally-diagnosed malfunction or there is a failure in the communications interface
  - notification that trailer TPMS is not equipped when trailer TPMS is not required by law (old trailer)
- An additional notification (and mechanism to “OK”) would be additional implementation requirements for all truck OEs
- The ISO-11992-based proposal put forward by Stefanie Rech (SAF-Holland) provides an advantageous resolution for trailers (old and new) which are equipped with ISO 11992
  - this is estimated to cover ~ 95% of cases in Europe
  - This proposal enables a towing vehicle to suppress unnecessary driver warnings when a towed trailer with ISO 11992 and without TPMS is connected