Motivation
for introduction of approved LED Substitute light sources LED Retrofit light sources

_input by the experts of IEC_
Justification
see also GRE/2017/21

Market

• An increasing number of (non approved) LED “retrofit” light sources is present in shops or available via internet
• There is no (adequate) market surveillance
• Internet sales is difficult to block

=> so it happens !!
Justification
see also GRE/2017/21

Market

Example:
C5W “ LED retrofits”

www.ebay.co.uk/
2018-02-02: 6,797 results for “C5W LED”
www.amazon.de/
2018-02-02: 1-16 von mehr als 10,000 Ergebnissen oder Vorschlägen für "c5w led"
www.amazon.fr/
2018-02-02: 1-16 sur 793 résultats pour "c5w led"
www.bol.com/nl/
2018-02-02: 109 resultaten voor C5W LED
www.ebay.nl
2018-02-02: 210 resultaten voor C5W LED
Automotive LED “retrofits”

All of these product examples do NOT fulfill the photometric equivalence criteria !!
Justification
see also GRE/2017/21

Market
• The public is not aware that non-approved LED “retrofits” in vehicles
  • may bear a safety risk
  • are not allowed
  • may cause vehicle issues and related cost
• There is no legal instrument to
  • discriminate the good from the bad
  • allow legal and well performing LED retrofits

=> Consumers have no legal access to this new technology
=> Manufacturers applying the law have no access to an active market
Justification
see also GRE/2017/21

Energy consumption and lifetime

• The public is
  • stimulated by governments to use sustainable lighting solutions like LEDs
  • used to LED retrofits in general lighting applications

• Studies show*
  • Too many vehicles with failing light sources -> safety issue
  • Long-life LED technology is seen as option to increase traffic safety

* NEW; ADAC study published December 2017
Justification
see also GRE/2017/21

Outcome GTB LED retrofit feasibility study

• Equivalent photometric performance was defined
• Additional requirements were defined
• Electrical and software configurations of vehicles (in use) were not standardized (for this purpose)
  • A positive list might overcome this, but
  • The details of “a positive list” could not be solved by GTB
• The use of LED retrofits is subject to national law
• However
  • The light sources should be approved
  • National solutions should be avoided
Justification
see also GRE/2017/21

**GTB changed approach**

- **Stopped** the LED retrofit feasibility study
- Continued with **LED substitutes**
- Approval according to UN regulations
  - Light sources
  - Lamps
  - Installation on the vehicles
But there is more....

• By allowing the use of **LED substitutes** in new lamps and vehicles
  • Standardised LED light sources can serve the **main stream** vehicles
  • Can serve a quicker **penetration** of LED light sources in the market
  • Also other stakeholders can benefit
  • **But the issues in the market are not addressed**

• The **specification** of the LED substitutes
  • Should not **block** a proper retrofit solution
  • Again, this would **not resolve the issues in the market**

➤ **LED Substitutes and LED retrofits are both necessary to serve new and existing vehicles**
LED substitutes – LED retrofits

Difference?

TFSR-01-04e

2.1.1.3.1. “LED substitute light source” means a LED light source of a category which has a counterpart light source category producing light by another light generating technology.”

xxx “LED retrofit light source” means a LED substitute light source used in lamps originally only approved for its counterpart filament light source category

➢ LED substitute light source is the same as a LED retrofit light source

➢ The only difference is its application
Holistic approach

Safe LED solution

Substitute application
- Type approval of - lamp - vehicle
- OEM (GTB proposal)

Retrofit application
- No additional measures nor approval needed
- Plug-and-play by consumer
- Professional installation only

Blocked application
- Possibly modification and local approval needed
- Vehicle specific:
  a) Variable intensity control
  b) Above HL, FF
  c) Interfering with failure detection or OBD

More a performance issue than a safety issue

R128 LED Substitute Light Source