

I. **Proposal to introduce requirements for the use of LED substitute light sources in the new Regulation for “Light signalling devices”**

Based upon GRE-77-05

Paragraph 2.1.2., amend to read:

“2.1.2. *“Lamps of different type”* means lamps, which differ in such essential respects as:

- a) the trade name or mark:
 - (i) lamps bearing the same trade name or mark but produced by different manufacturers are considered as being of different types;
 - (ii) lamps produced by the same manufacturer differing only by the trade name or mark are considered as being of the same type.
- b) the characteristics of the optical system (levels of intensity, light distribution angles, , inclusion or elimination of components capable of altering the optical effects by reflection, refraction, absorption and/or deformation during operation, etc.).
- c) the category or categories of light source(s) used and/or the specific identification code (s) of the light source module(s).
- d) the category of the lamp, if any;
- e) the variable intensity control, if any;
- f) the sequential activation of light sources, if any.

Nevertheless, direction indicators capable of being activated in different modes (sequential or not) without any modification of the optical characteristics of the lamp do not constitute “Direction indicators of different types”.

A change of the colour of the light source or the colour of any filter does not constitute a change of type.

The use of LED substitute light source(s) does not constitute a change of type. However paragraph 4.7.7. applies.”

Paragraph 3.1.2.2., amend to read:

“3.1.2.2. a brief technical description stating in particular, with the exception of lamps with non-replaceable light sources:

- a) the category or categories of filament light source(s) prescribed; this filament light source category shall be one of those contained in UN Regulation No. 37;
- b) the category or categories of LED light source(s) prescribed; this LED light source category shall be one of those contained in UN Regulation No. 128;
- c) the light source module specific identification code;

In the case where, at the discretion of the applicant, the lamp also has to be approved with the LED substitute light source(s) according to Regulation No. 128, this shall be specified in the description.”

Paragraph 3.3.4.3., amend to read:

- “3.3.4.3. With the exception of lamps with non-replaceable light sources, bear a clearly legible and indelible marking indicating:
- (a) the category or categories of light source(s) prescribed; **in the case where the lamp has been approved for LED substitute light source(s), also the category or categories of the LED substitute light source(s);** and/or
 - (b) the light source module specific identification code; **and**
 - (c) **in the case of lamps with colour filters(s) using LED substitute light source(s), the marking(s) “G” placed after the LED substitute light source category marking(s) separated by a space (in each case).”**

Insert a new paragraph 3.5.4., to read:

“3.5.4. Testing with LED substitute light sources is exempted from conformity of production control.”

Insert a new paragraph 4.7.7., to read:

“4.7.7. In the case where the lamp, at the discretion of the applicant, also has to be approved with LED substitute light source(s), all measurements, photometric and colorimetric, shall be repeated using the LED substitute light source(s) prescribed.”

Annex 1, item 9, amend to read:

“...

Number, category **or categories** and kind of light source(s): ^{3/}

....

^{3/} **Indicate LED substitute light source(s) explicitly, if any”**

II. Justification

The use of LED substitute light sources in lamps and on vehicles for which such a kind of light sources was not foreseen during the original design of the lamp/vehicle needs to be verified to guarantee the correct operation of both the lamp and the vehicle.

For these reasons, in parallel to the introduction in UN Regulation No. 128 and in Light sources Resolution [R.E. 5] of the LED substitute light sources, amendments to the Regulation for the type approval of lamps and for the type approval of vehicles for their lamp installation are necessary.

Due to the scheduled progress of the Simplification of Lamp Regulations (SLR) program, the changes to be introduced in the various lamp Regulations (No. 4, 6, 7, etc.) could not be presented to the GRE in time before they were “frozen”. Consequently the changes contained in the present document have been prepared to be directly introduced in the new Regulation for “Light signalling devices (lamps)”

The main changes proposed for the signal lamp Regulation(s) are:

- Use of LED substitute light source(s) is allowed and does not constitute a change of the lamp type. However lamp performances shall be tested during type approval also with the LED substitute light source. Approval of the lamp using filament light source(s) is a prerequisite for approval of the lamp using LED substitute light source(s).

- COP testing of the lamp is required with an (etalon) filament light source only, because the LED substitute is the counterpart light source of the filament light source, resulting in equivalent photometrical lamp performance. The quality i.e. the equivalence to the filament light source, is controlled in R128.
- Use of LED substitute light sources is at the discretion of the applicant, who shall declare this use, if any, to the Approval Authorities at the time of application for the first lamp approval or subsequent extension of approval issued for the version using the LED substitute light source.
- The use of LED substitute light source(s) in a certain lamp type shall be indicated on the lamp by marking of the LED substitute light source category; in addition to the marking of the filament light source of which the LED substitute light source is the counterpart.

This marking on the lamp will be used for checking the allowance for use of lamps with LED substitute light sources in application of the Regulation on lamps installation on vehicle.

- In case a lamp with colour filter(s) is approved for using LED substitute light source(s) this lamp shall be marked "G" to indicate that this lamp shall be equipped with LED substitute light source(s) marked "G" for colour and luminous intensity quality reasons.
- The indication of both the filament light source and of its LED counterpart light source, if any, shall be explicitly provided in the communication form.
