

Proposal for Amendment to UN Regulation No. 122 (Heating systems)

The text reproduced below was prepared by the expert from Republic of Korea.

The modifications to the current text of UN Regulation No. 122 are marked in bold for new characters.

I. Proposal

Add a new paragraph 2.10., to read:

“2.10. "Radiation warmer" means a device that is mounted on the surface of the interior of the vehicle and transmits heat to the human body in the way which radiates heat without direct contact with the human body and without an intermediate medium.”

Paragraph 6.2., the specification: General, add a new line, to read:

“6.2. Specifications: General

The requirements for heating systems are that:

- The heated air entering the passenger compartment shall be no more polluted than the air at the point of inlet to the vehicle,
- The driver and passengers, during road use, will not be able to come into contact with part of parts of the vehicle or heated air liable to cause burns,
especially for radiation warmer, it must be turned off immediately if any part of the skin comes into contact with the surface of the radiation warmer,
- The exhaust emissions from combustion heaters are within acceptable limits.

Paragraph 6.1.5., amend to read:

“6.1.5. "Electric heater" means a device using electric energy from an on-board or external source to increase the temperature of the interior of the vehicle. Electrical devices which are installed in addition to the main heating system and whose main function is not to heat the interior of the vehicle are not considered as electric heaters according to this Regulation. For example, electric devices installed in components for the sole purpose of heating that component, **or a device that uses radiant heat to warm the human body, such as radiation warmer,** are not considered as electric heaters according to this Regulation.

II. Justification

1. As part of a plan to respond to climate change such as carbon neutrality, the sales of electric vehicles are gradually increasing. However, such electric vehicles, unlike internal combustion engine vehicles, have the structural problem that requires separate energy consumption to warm the interior of the vehicle since they have no any heating source.
2. Currently, PTC heater or heat pump, which converts electric energy into a heat source to warm the air in the vehicle inside are mainly used as heating systems for electric vehicles. And it inevitably results in AER(All Electric Range)'s reducing sharply.
3. In order to overcome this problem, some automobile manufacturers and research institutes around the world are actively researching the application of radiation warmer as the way to increase heating energy efficiency, and it is shown that they are already achieving the tangible level of result.
4. However, considering the characteristics of the radiant warmer, in order to achieve the best efficiency, the surface temperature of the device must be raised above a certain level and it is not possible to meet the non-metallic materials limit temperature mentioned in Annex 5 of this regulation.

Therefore, it proposes to exclude the radiation warmer, which clearly helpful in increasing the AER of electric vehicle, from the category of the electric heater and to add the new safety requirement that it must be turned off immediately if there is contact with the skin.

5. Lastly, in addition to continuous efforts to improve the performance of electric vehicles, which are environmentally friendly vehicles, it is expected that this regulation can be quickly amended to maximize energy efficiency by applying new technologies such as radiation warmer.
