

Trolley buses: Applicability of UN Regulation No. 10 (Electromagnetic compatibility)

1. At GRE-74 session, GRE decided, based on OICA proposal, to create a dedicated task-force (TF) that would tackle the electromagnetic compatibility (EMC) proposals and issues related to Regulation No. 10 (see item 24. of the report).
2. Among other EMC proposals, the top priority of TF was to deal with EMC of trolley buses, based on previous documents proposed by Belgium (GRE/2014/41) and Russia (GRE-74-12).
3. TF EMC had its first meeting on January, 27th 2016 and had deemed necessary to clarify the operating modes of trolley buses and also, depending on these modes, to indicate which regulations or standards should be used. TF EMC had then come up with a text and a flow diagram to better address the trolley buses case. The text explains that trolley bus could operate depending on whether they are connected to the overhead contact line (OCL) or not.
4. As stated in UN Regulation No. 107, trolley buses are dual-mode vehicles. They can operate either: (a) in trolley mode, when connected to the OCL, or (b) in bus mode when not connected to the OCL. When not connected to the OCL, they can also be (c) in charging mode, where they are stationary and plugged into the power grid for battery charging. When the trolley bus operates in mode (a), the railway standard for EMC should be used (IEC 62236-3-1). Whereas, when the trolley bus operates in mode (b) or (c), UN Regulation No. 10 should be used.
5. In addition to this clarification, TF has commented during its 1st meeting that the document Mutual Resolution No. 2 (M.R.2) of the 1958 and the 1998 Agreements (WP.29/1121), containing Vehicle Propulsion System Definitions (VPSD), item 44., should be amended in the direction of the proposed clarification.
6. Figure 1 below is the flow diagram that summarizes the different operating conditions and which regulation/standard should be used accordingly. The clarification text and the flow diagram can be inserted in any UN Regulations that may benefit from it.
7. Also, beyond pure EMC constraints, TF has identified that in case of a trolley bus equipped with a Diesel engine as an internal mean of propulsion (instead of a battery), when operating in bus mode (not connected to OCL), then other UN Regulations will be concerned. For instance, UN Regulations Nos. 100 (electrical safety), 51 (Noise), 89 (speed limitation of devices), 49 (Emissions) or R13 (Brakes) could be impacted.
8. These two last items, namely which UN Regulations have to be amended with such flow diagram (item 6.), and also how to handle other constraints (item 7.), have driven TF to seek advice to WP.29 in order to get guidance on how to proceed further with the treatment of trolley buses in the frame of UN Regulations. The topic would then be addressed, via an informal document, to June 2016 WP.29 session.

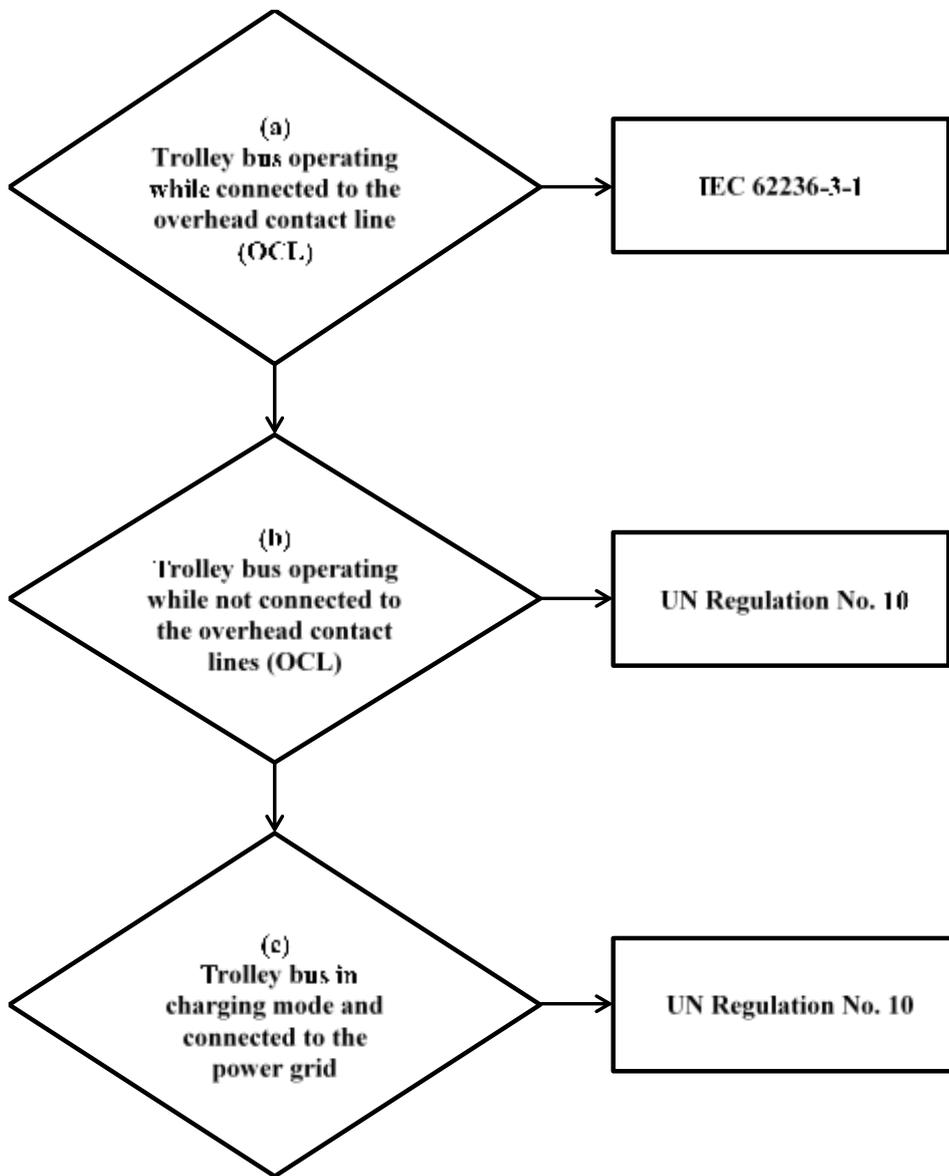


Figure 1: Trolley bus operating modes and regulation/standard to be used

