

## **The performance of automotive systems in conditions other than those tested in the framework of type-approval or self-certification**

### **1. General context**

1. The latest "emission case" (revealed in September 2015) related to the use of defeat devices through a software manipulation, highlighted the fact that automotive systems might not perform as expected by the general public, or in other conditions than those described in testing procedures. The use of defeat device is prohibited by UN Regulation No. 83, but no test is performed at the type-approval stage.
2. This case also showed limits of existing approval tests with an increasing use of software in vehicles.

### **2. State of play**

3. In the general context described above, this issue was discussed at the last session of GRRF, following a discussion on Tyre Pressure Monitoring Systems (TPMS) and IWVTA when removing the provisions related to TPMS from Regulation No. 64 and creating a separate Regulation on TPMS.
4. A proposal was adopted to clarify more specifically that TPMS should not only work (i.e. detect under inflation) in the limited conditions corresponding to those tested but in all the expected driving conditions for the vehicle, which makes the Regulation more robust. GRRF had a discussion on these general obligations for manufacturers in UN Regulations for which no procedure or criteria are given in the Regulation to verify the compliance with these general provisions. GRRF noted that some Type Approval Authorities, bearing in mind the above-mentioned "emission case", had thoughts about ways to deal with the situation created by these general provisions with no associated test procedure.
5. Meanwhile, the situation with the requirements related to overall vehicle performance exists for quite a long time. The reference can be made, for example, to para. 5.1.4. of UN Regulation No. 79 stating: "The steering equipment shall be designed, constructed and fitted in such a way that it is capable of withstanding the stresses arising during normal operation of the vehicle, or combination of vehicles. ...". This provision obliges vehicle manufacturers to ensure reliability of steering systems for the entire lifecycle. Such kind of the "general case" provisions cannot be verified by means of certification tests performed by the technical services.
6. The expert from the Russian Federation expressed his understanding that a failure to meet the "general case" provisions leading to the relevant failure of a steering system may become the subject of legal proceedings if that had resulted in damage to a vehicle user, so that the objective of such "general case" provisions stays out the type approval process.

### **3. Request for guidance**

7. GRRF agreed that the discussion was not specifically related to TPMS. It is actually related to all Regulations. The Regulations on pollutant emissions prohibit defeat devices. Regulation No. 51 (Noise) contains Additional Sound Emissions Provisions ("off cycle" test outside of the test procedure ("cycle") in Annex III). Regulations Nos. 13, 13-H and 79 request to assess Complex Electronic systems with no associated test. Should a similar path

be followed for other regulations? This issue will be increasingly relevant with the development of automated vehicles.

8. GRRF agreed with the proposal of the expert from the Russian Federation that WP.29 may wish to react on this general discussion and provide clarifications on the intentions for establishment of the “general case” requirements in UN Regulations. WP.29 may also wish to provide a general guidance to the GRs in the manner how the objectives of the “general case” requirements shall be reached.

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