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Charleroi, April 27th 2020

Dear Madam, dear Sir,

Subject: processing of Immediate Level Transition for ETCS onboard

ALSTOM has detected that its current ETCS OBU versions 6.4.x to 6.9.x and 7.0.x in relation with Baseline 3 do not exhaustively cover all possible cases for immediate level transition (LTI).

On that basis, we would like to inform you about the potential behavior that may be encountered.

The ETCS specification foresees that the request for level transition (Packet 41) includes a parameter to define at which distance the transition shall take place (D_LEVELTR). A special value "NOW" is defined in case of immediate transition. For other cases, the D_LEVELTR parameter indicates at which distance the transition shall take place. However, the specification also allows the use of "D_LEVELTR = 0" to indicate an immediate transition. Our ETCS OBU properly executes all requirements associated to immediate level transition when the parameter "NOW" is used, but not if "0" is used.

In that case, if

1. The EVC is operating in mode Shunting, level 0 or NTC, and
2. an immediate level transition order to level 1/2/3 is received, and
3. the D_LEVELTR parameter is set to "0" and not "NOW", and
4. "Danger for Shunting" information (packet 132) is received together with the level transition order, then the "Danger for SH" information is erroneously rejected.

Under such conditions, the drivers might potentially leave a shunting area while still in shunting mode.

We confirm that such behavior can only be observed for the specific combination described above which, to our knowledge, does not correspond to expected engineering rules of ETCS infrastructures. We also confirm that for all infrastructure projects delivered by Alstom the parameter D_LEVELTR is set to "NOW" in case of immediate level transition requests.



From previous similar situations, the proposed mitigation, if needed, has always been allocated to the lineside equipment. In this particular case, it would correspond to the application of the expected engineering rule in trackside equipment (LEU or balise), or operational procedures.

The attached flowchart enables to assess if the potential risk to leave a shunting area while still in shunting mode exists or not.

Should the potential risk be present, our suggestion to avoid any hazard is to adapt the procedure for requesting immediate level transition by using the special reserved value "NOW" for the D_LEVELTR parameter.

We kindly ask you to forward to and clarify the applicability of this issue with all ETCS Infrastructure Managers under your area of responsibility and also for future ETCS installations. Please provide us with the result of the clarification as soon as you can.

We trust we have informed you duly and remain available should further clarification be required.

Yours faithfully,



