

# **REGULATORY FRAMEWORK STATE OF THE ART REGARDING BRAKING SYSTEMS FOR HIGHLY AUTOMATED VEHICLES IN EUROPE AND USA**

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KEYWORDS – Regulatory framework, brakes, legislation, UNECE, European Commission

## **ABSTRACT**

Research and /or Engineering Questions/Objective: *(max. 100 words)*

Due to the forthcoming deployment of autonomous vehicles, there is an increasing need to start adapting the current regulations to the future braking systems. In some cases, the technologies presented by these systems will be out of the current regulatory framework scope and new regulations will need to be created.

One of the main obstacles that many manufacturers face when they develop new prototypes is the unawareness or, perhaps, the lack of knowledge regarding the regulatory framework of braking systems and their components.

The main idea is to know which are the main topics and issues under discussion, the proposals that might come out in order to develop a correct type-approval procedure and, finally, the different strategies of the stakeholders involved at short and long term.

Methodology: *(max. 150 words)*

This paper reviews the work that is being done at the discussion groups of the UNECE and other related groups belonging to the European Commission focused on brakes and their systems always taking into account automated driving new technologies.

This analysis will be accompanied by the study of the regulatory framework at the United States in order to have a broader view of the overall situation.

Results: *(max. 150 words)*

This analysis will identify the existing gaps in current European regulatory framework. The output obtained from the analysis of the US regulatory framework will also be compared to the European situation and recommendations/guidelines will be proposed.

Limitations of this study: *(max. 100 words)*

This is a research paper based on the regulatory framework available today. All the recommendations that will be given are proposals that in any case have to be seen as mandatory.

What does the paper offer that is new in the field in comparison to other works of the author: *(max. 100 words)*

This paper provides to the reader a complete understanding of the current regulatory framework and its limitations related to automated driving technologies and brake components. Furthermore, all the expertise and know-how of IDIADA in terms of Type-Approval of vehicles and components will be the base for this paper.

Conclusion: *(max. 100 words)*

An overall view of the entire regulatory framework related to automated driving technologies and brake components will be given. As a result of this analysis, gaps will be identified and thus recommendations will be given based on other regulatory framework worldwide and current work done in the working groups.