

In G.1/19 the invention related to a method of testing – by simulation – a modelled environment with respect to pedestrian crowd movement. The Enlarged Board answered the questions of law referred to it as follows:

A computer-implemented simulation of a technical system or process that is claimed as such can, for the purpose of assessing inventive step, solve a technical problem by producing a technical effect going beyond the simulations implementation on a computer.

For that assessment it is not a sufficient condition that the simulation is based, in whole or in part, on technical principles underlying the simulated system or process.

The answers to the first and second questions are no different if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design.

When considering the existing case law on simulations, the Enlarged Board agreed with the findings of T.1227/05 and T.625/11 if they were understood as being that the claimed simulation processes in those particular cases possessed an intrinsically technical function. It also did not see a need to require a direct link with (external) physical reality in every case. However, it held that there were rather strict limits for the consideration of potential or merely calculated technical effects according to the COMVIK approach (T.641/00). The approach of T.1227/05, that the simulation constituted an adequately defined technical purpose for a numerical simulation method if it was functionally limited to that purpose should not be taken as a generally applicable criterion of the COMVIK approach for computer-implemented simulations, since the findings of T.1227/05 were based on specific circumstances which did not apply in general. In the Enlarged Board's opinion, the COMVIK approach was suitable for the assessment of computer-implemented simulations. Like any other computer-implemented inventions, numerical simulations may be patentable if an inventive step can be based on features contributing to the technical character of the claimed simulation method. In the opinion of the Enlarged Board, when the COMVIK approach is applied to simulations, the underlying models form boundaries, which may be technical or non-technical. In terms of the simulation itself, these boundaries were not technical. However, they may contribute to technicality if, for example, they were a reason for adapting the computer or its functioning, or if they formed the basis for a further technical use of the outcomes of the simulation (e.g. a use having an impact on physical reality). In order to avoid patent protection being granted to non-patentable subject-matter, such further use had to be at least implicitly specified in the claim. The same applied to any adaptations of the computer or its functioning. The same considerations applied to simulations claimed as part of a design process. A design process was normally a cognitive exercise. However, the Enlarged Board found that it certainly could not be ruled out that in future cases there may be steps within a design process involving simulations which did contribute to the technical character of the invention.

On question one, the Enlarged Board concluded that no group of computer-implemented inventions could be a priori excluded from patent protection. The COMVIK approach required an assessment of the technical contribution of the individual features of computer-