## Modelling of an Old HPGe Detector

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**Abstract.** This paper presents a simplified model of an older HPGe detector. The aim of the work was to put together a model corresponding to the new state of the HPGe detector GC3020. The detector has been used for laboratory gamma spectrometry since 2010. Regrettably, the detector efficiency has decreased due the increase of the dead layer thickness. The model presented in this study is intended to be used in the future as the starting point for modelling the actual state of the detector. The detector was modelled using MCNP5 code. The calculated full energy peak efficiencies were compared with efficiencies obtained from detector characterisation process performed by the manufacturer. The first model was fully based on the manufacturer's datasheet. Unfortunately, some parameters were not available in the datasheet. Therefore, the model had to be subsequently modified to achieve a good agreement between the measured and calculated efficiencies. The maximum relative difference between the measured and calculated efficiency is 6.63 %.

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