Validation of UTSim2, a New Ultrasonic Simulation Package

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The Center for NDE (CNDE) at Iowa State University has a long history of developing physics models for NDE and packaging these models into simulation tools which make the modeling capabilities accessible to CNDE’s industrial sponsors. Recent work at CNDE has led to the development of a new ultrasonic simulation package, UTSim2, which aims to continue this tradition of supporting industrial application of CNDE models. In order to meet this goal, UTSim2 has been designed as an extensible software package which can support previously-developed physics models as well as future models yet to be developed. Initial work has focused on the implementation of a Gauss-Hermite beam model, a paraxial approximation, which is implemented as part of the Thompson-Gray measurement model [1]. This poster will present validation results and include comparisons against both previously-validated model output and newly-performed experiments.

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Figure 1. Comparison of experimental B-scan (left) and simulated B-scan (right) for an aluminum demonstration block (top, centered).

References: