1014-78-770 **Natalie A Cartwright*** (ncartwri@cems.uvm.edu), 16 Colchester Ave, Math Dept. UVM, Burlington, VT 05401, and **Kurt E. Oughstun**, College of Engineering and Mathematics, University of Vermont, Burlington, VT 05401. *Ultra-wideband Pulse Propagation: The Signal Contribution.*

One of the few analytic methods available to study the dynamical evolution of an ultra-wideband electromagnetic pulse through dispersive media is the technique of asymptotic expansions of integrals. The propagated pulse is expressed as a complex integral and asymptotic expansion techniques are then used to find a closed-form approximation to the field. Olver's Method (Olver, *SIAM Rev.*, **12**,228–247,1970) is used when the material exhibits both phase distortion and loss, and is thus the preferred method to be used when examining dispersive pulse propagation. However, direct application of Olver's Method may not produce a uniform approximation to the propagated field as in the case presented here of a step function modulated pulse traveling through a single-resonance Lorentz dielectric. In this case, three uniform asymptotic approximation techniques are required which result in continuous approximations for the three components of the propagated field: the two precursors and the main signal. Here an asymptotic technique that accounts for two, first-order saddle points within the vicinity of a simple pole is presented. This technique is a modification of earlier work by Felsen (Felsen, *IEEE Trans. Anten. Prop.*, **11**, 469-484, 1963). (Received September 23, 2005)