

Abstract Submitted  
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**Ghost fringe removal techniques using Lissajous data presentation**<sup>1</sup> DAVID ERSKINE, JON EGGERT, PETER CELLIERS, Lawrence Livermore Natl Lab, DAMIEN HICKS, Swinburne Univ. of Technology — Unwanted reflection of laser light from target windows can produce an additional component to the VISAR fringe record that can obscure and complicate the true signal. Accurately removing this so-called ghost component is essential for achieving high accuracy EOS measurements, especially when the true signal is only weakly reflected from the shock front. Independent of the choice of algorithm for processing the raw data into a complex fringe signal, we have found it beneficial to plot this signal as a Lissajous and seek the true center of this curve, since the ghost contribution is solved by a translation in the complex plane that recenters the Lissajous. For continuous velocity histories, we find that plotting the fringe visibility vs nonfringing intensity and optimizing linearity is a valuable tool for determining the proper ghost offsets. For discontinuous velocity histories, we have developed equations which relate the results of two VISARs having different velocity per fringe proportionalities to find the true Lissajous center.

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