

Abstract Submitted
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Characterization of PBX 9502 Dead Zones via Spectrally Encoded Imaging TERRY SALYER, Los Alamos National Laboratory — The characterization of dead zones is essential for tailoring the explosive performance of TATB-based main charges to precision applications. Such dead zones occur predominantly near boosted initiation systems, where the detonation wave struggles to diffract in a non-steady propagation regime. The principal suite of tests for characterizing dead zones has traditionally included some form of wavefront breakout measurement in the vicinity of the dead zone, along with a separate radiographic examination of its dynamic evolution. Breakout measurements in the shadow of the dead zone unfortunately lack direct observation, and radiography resolution is typically limited with regard to both space and time. To converge the benefits of these tests, the dead zone cutback (DZC) test was designed to make simultaneous wavefront breakout measurements at multiple dead zone cutback locations in a single shot. The test combines the precision and economy of the standard breakout tests with the direct measurement attributes of radiography. The newly developed diagnostic based on Spectrally Encoded Imaging (SEI) enables this test, and results are in agreement with those from similar proton radiography (pRad) experiments.

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