

## **Sub-Scale In-Room Weapon Tests\***

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### **Introduction**

For the last several years, the Defense Threat Reduction Agency has relied upon intermediate scale tests to validate physical models in planning and assessment tools and also, to reduce the risks in operational demonstration tests. Four intermediate scale tests were designed and conducted to develop and validate internal blast and damage models. These scaled tests also provided valuable data that will reduce the technical risks during future operational demonstrations. The four tests compared the detonations of two different scaled weapons with different case thickness at two different in-room locations. The room design for these experiments was a sub-scale model of a typical plant bay. Included in the tests were diesel and water-filled and empty tanks. The weapon locations consisted of detonations at mid-height in the room and with the weapon half-buried in the floor of the room. In-room airblast, quasi-static pressure and temperature measurements were taken for each test. In addition, the in-room damage was carefully documented photographically. This paper will describe these sub-scale tests and provide the instrumentation and damage documentation results. Comparisons with a three-dimensional (3-D) finite difference airblast calculation will also be presented.