DEVELOPMENT OF A THERMAL RADIATION SIMULATOR FOR SYNERGISTIC BLAST AND THERMAL RADIATION TESTING OF FULL SCALE HARDWARE

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This paper addresses the development of the LOX-thermal radiation simulator (TRS). The TRS can be used in shock tubes or on high explosive tests to allow synergistic blast and thermal radiation testing of full scale targets. The TRS was developed for DNA by SAI and will be used by the US and Great Britain on the MILL RACE high explosive test. A program is also underway with the CEG that will permit installation of the TRS in the large shock tube at Gramat.

The TRS that is addressed in the paper produces a thermal pulse that can be wave-shaped. The pulse has a peak flux of 150 cal/cm2-sec and the spectrum of a 35000K black-body radiator. The TRS can be burned at full intensity for periods of ten seconds or less.

The paper describes the design, development, and use of the TRS. Also addressed in the paper are flux measurements and results of target testing which have been conducted during 1980 and 1981. A design variation which will allow implacement of the TRS in large shocktubes is also presented.