Abstract Submitted for the DNP10 Meeting of The American Physical Society

**BrilLanCe**<sup>TM</sup> detector characterization below  $E_{\gamma} = 15.5 \text{ MeV}^1$ N. BROWN, M.W. AHMED, S.S. HENSHAW, B.A. PERDUE, S. STAVE, H.R. WELLER, Duke U/ TUNL, C. SUN, Y.K. WU, DFELL, P.P. MARTEL, A. TEY-MURAZYAN, UMass, A. OWENS, F. QUARATI, ESA/ESTEC — Lanthanumhalide crystals represent a major step in finding a room temperature photon detector having high efficiency and good timing and energy resolution over a wide range of energies. These detectors are presently being marketed under the tradename of BrilLanCe<sup>TM</sup>. We have studied the preformance of these detectors between 2.5 and 15.5 MeV using  $\gamma$ -ray beams produced by the HI $\gamma$ S facility. Gaussian fits to the BrilLanCe<sup>TM</sup> detector spectra were corrected for the beam energy spread to obtain the detector resolution. A 10.16 cm (diameter)x 15.24 cm(long) LaCl<sub>3</sub>(Ce) detector and a 7.62 cm x 7.62 cm LaBr<sub>3</sub>(Ce) detector are characterized in the present study. The energy resolution of each detector will be reported as a function of incident  $\gamma$ -ray energy from 2.5 to 15.5 MeV. In addition the response of these detectors to thermal neutrons will be described.

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