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The CLAS12 Forward Tagger Calorimeter[1] ROBERT BEHARY, Duquesne University, FATIHA BENMOKHTAR, Duquense University, RAFFAELLA DE VITA , MARCO BATTAGLIERI, INFN Genova — Lead tungstate ($PbWO_4$) crystals have been extensively studied and used in high energy physics calorimetry including the Forward Tagger Calorimeter in Hall B at Jefferson Lab. This detector consists of a matrix of 1.5x1.5x20 cm^3 crystals arranged around the beamline to detect electrons and photons scattered at small angles. Due to the proximity to the beamline, the calorimeter is exposed to high radiation dose from electromagnetic background during data taking and can suffer from progressive degradation of the crystal light transmission. This can be monitored using the LED system that is part of the calorimeter equipment and is designed to inject a known amount of light in each crystal. The effects of radiation damage as a function of the crystal distance from the beamline have been studied analyzing the response to LEDs and cosmic rays, confirming the expected behavior as well as the spontaneous recovery due to thermal annealing when exposure to radiation is suspended.

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