Gas Electron Multiplier performance under high intensity X-ray radiation DANNING DI, University of Virginia — Large size Gas Electron Multiplier (GEM) for the Super Bigbite Spectrometer (SBS) in Hall A at Thomas Jefferson National Laboratory (JLab) have been built at Detector Lab of University of Virginia (UVa). The Proton Polarimeter Back Tracker of the SBS consist of 40 GEM modules of size $60 \times 50$ cm$^2$. We report R&D and quality test of the GEM detectors under high intensity X-ray radiation. Expected background rate in experiment is up to about 500 kHz/cm$^2$. Such high background rate requires GEM detectors to have timing resolution of about a few nano seconds and operate stably with high rate activities going on within. X-ray with high rate up to 50 MHz/cm$^2$ and energy up to 50 keV was used to test the performance of GEM detectors in detector lab at UVa. Issues caused by high intensity background and detailed R&D effort to adapt GEM detectors for use in the SBS are described.