**The present generation war game****requires precision engagement with agility. Embedded systems of Aerospace vehicle like Seekers/Sensors are used to provide the necessary Guidance in the terminal phase. Seeker based guidance can shape the latax demand within the capability of the Aerospace vehicle for a precision impact in the terminal phase. In addition, the autonomous guidance of Passive Imaging Infrared (IIR) seeker is less susceptible to external counter measures. Thorough performance evaluation of IIR Seekers and Guidance schemes is very essential for the effectiveness of the mission. For terminal engagement, Aerospace vehicle dynamics and accuracy are the prime factors which can be met by appropriate homing guidance design. Latest advances in seeker/sensor technology for locating target need to be integrated with the guidance system for steering and stabilizing the guided vehicle. Hardware-in-loop Simulation (HILS) of IIR Seekers integrated with the Real Time Six Degrees of Freedom plant & target model helps in evaluation of Aerospace vehicle embedded system design. Establishing the HILS test-bed with seeker & target along with Dynamic Motion Simulators and other sub systems is a major challenge . Various tests and the detailed procedures adopted to evaluate the Embedded systems of Aerospace vehicle in HILS is explained in this paper. The delay issues associated with the HILS runs also discussed at the end.**