METHODS FOR SHOCK ANALYSIS AND VIDEO WALL SURVIVABILITY ASSESSMENT DUE TO IN-STRUCTURE SHOCK

Teng Sheng Peh[1], Karen Oi Yin Chong[1], Chor Boon Ng[1], Aline Guo[1]

[1]*Defence Science and Technology Agency, 1 Depot Road, Singapore 109679*

Key words: (up to 5 keywords)
In-structure shock, shock response spectrum, equipment shock tolerance, natural frequency, quasi-static load

Abstract:
This paper presents shock analysis methodologies used to assess the survivability and mounting requirement for video walls, when subjected to in-structure shock due to an external explosion. Shock testing was performed using a shaker table to derive the shock tolerance of video monitors. The hydrocode Autodyn was used to derive the in-structure shock loading at the desired mounting locations of the video wall. Results from the analysis were then used to generate the shock response spectrums, which were compared with the shock tolerance of the video walls derived from laboratory shock testing to assess the survivability of the video monitors. Abaqus software was used to derive the natural frequency of the video wall, which was used along with the shock loading, to calculate using SDOF methodology, the quasi-static design load required to mount the video wall securely in place.