

Simulation and Experimentation Investigation of Infrared Non-Destructive Testing on Thermal Insulation Material

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Abstract : The heat-resistant material has important application in the aerospace field. The reliability of the connection between the heat-resisting material and the body determines the success or failure of the project. In this paper, lock-in infrared thermography non-destructive testing technology is used to detect the stability of the thermal-resistant structure. The phase relationship between the temperature and the heat flow is calculated by the numerical method, and the influence of the heating frequency and power is obtained. The correctness of the analysis is verified by the experimental method. Through the research, it can provide the basis for the parameter setting of heat flux including frequency and power, improve the efficiency of detection and the reliability of connection between the heat-resisting material and the body.

Keywords : infrared non-destructive, thermal insulation material, reliability, connection

Conference Title : ICRSSE 2018 : International Conference on Reliability, Safety and Security Engineering

Conference Location : Paris, France

Conference Dates : August 27-28, 2018