

Active thermography based integrated system for Nondestructive testing and evaluation and its applications

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Summary

Active thermography is an optical-based non-contact inspection method for full-field and quantitative measurement of surface radiation to predict potential faults or inner structure of a test object. The mechanism of the active thermography inspection is to excite the test object using appropriate thermal excitation methods and measure the corresponding thermal response. Active thermography conducts testing in a more controllable way and offer more reliable results compared to passive thermography. This paper reports the development of integrated systems featured some advanced excitation methods and thermal image processing methods. Experiments have been conducted on samples with disbonds, delaminations, internal cracks or voids, and internal composite structure. The results verify the effectiveness of the proposed integrated systems for fault diagnosis, bonding quality evaluation and inner structure identification.

