

Title (en)  
METHOD AND DEVICE FOR DETECTING WATER IN A CELLULAR STRUCTURE

Title (de)  
VERFAHREN UND EINRICHTUNG ZUM DETEKTIEREN VON WASSER IN EINER ZELLULAREN STRUKTUR

Title (fr)  
PROCÉDÉ ET DISPOSITIF DE DÉTECTION D'EAU DANS UNE STRUCTURE ALVÉOLAIRE

Publication  
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Application  
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Abstract (en)  
[origin: WO2008148740A1] The invention relates to the detection of liquid (11) in a cavity (12) of a structure (1), e.g. a sandwich-structure cell with honeycomb core and carbon fibre composite coating. The structure is subjected to a mechanical vibration, at a frequency  $f_m$  in the acoustic domain, by means of an excitation wave (14, 42), the area being explored is subjected to an incident electromagnetic wave (17) and the reflected electromagnetic wave (18) is analyzed to deduce therefrom the presence or the absence of liquid in cavities. The Faraday-induced wave (16) on the surface of the liquid (11) in the cavity (12) comprises subharmonic frequencies of  $f_m$  which modulate the reflected electromagnetic wave (18) and make it possible to identify the presence of liquid. A detection device comprises means (10, 13, 40, 41) of generating the vibration excitation wave (14, 42), means (21, 22) of generating the incident electromagnetic wave (17), means (15, 19) of measuring the reflected electromagnetic wave (18), and processing means (20).

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