# Studies on free vibration of FRP aircraft Instruments panel boards

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## ABSTRACT

*The paper deals with the experimental investigations done on free vibration characteristics of typical FRP aircraft instrument panel boards made of E-glass /Poly vinyl ester composite. Seventeen panel boards are made using the hand lay-up technique with different number of layers, fibre orientations, thickness and fibre contents. Their physical and elastic properties are determined experimentally. The support conditions and the loadings are simulated in the same manner, as they are located on the aircraft. The first three natural frequencies are determined experimentally. These results are compared with the same results obtained using a finite element analysis software package. Apart from these seventeen boards a number of analytical models with variations in the fibre orientations, the number of layers etc. are also studied and the results obtained are discussed.*

## KEYWORDS

*Instruments panel, FRP, Natural Frequency, Free Vibration, Resonance*