Experiment data for

A homogenisation scheme for Lamb ultrasound wave dispersion in textile composites through multiscale wave and ﬁnite element modelling

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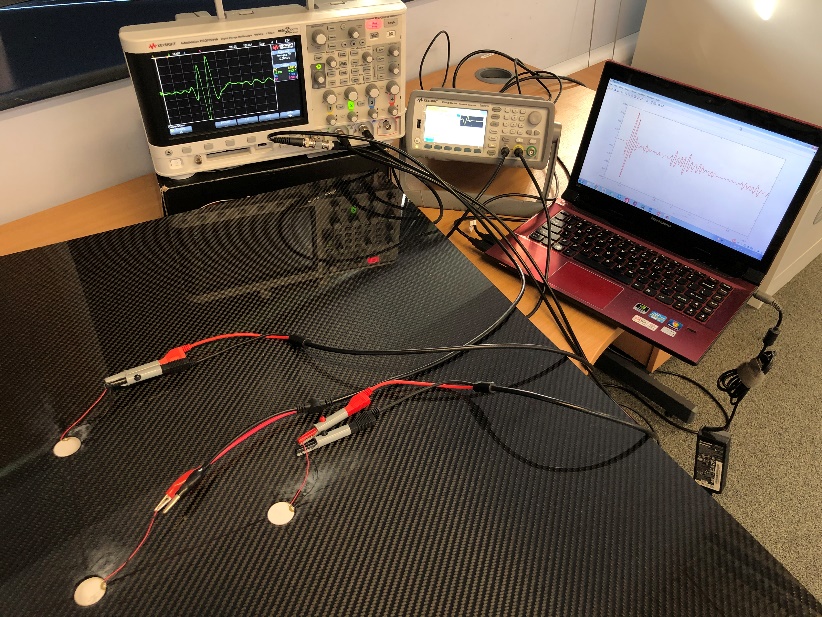
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Introduction

The plate structure was excited at diﬀerent frequencies, ranging from 10 kHz to 120 kHz with a step frequency of 10 kHz. In Fig. 1, three sensors are denoted counter-clockwise S1, S2 and S3 respectively from the centre one. The experimental setup used in the ultrasound tests (see Fig. 1) consisted of: (1) a Keysight 33512B arbitrary waveform generator, which generated 2-cycle sine tone-burst centred at each frequency; (2) a DSOX2014A oscilloscope that digitised the signals using a sampling frequency of 9.6 MHz and averaging 32 measurements to increase the signal-to-noise ratio; (3) piezoelectric disc transducers of 22 mm diameter and 0.25 mm thickness with radial mode vibration and a resonant frequency of 92 kHz and placed 150 mm apart from the actuator; and (4) a laptop controlling the experimental suite and storing the digitised ultrasonic data.



Sensor3

Sensor2

Sensor-1 (Actuator)

Fig 1: Experimental setup used for the validation of the composite plate