Title	Lamb waves scattering model for identification of damage parameters
Author keywords	structural health monitoring lamb waves piezoelectric transducers composites identification problem physics model scattering quantification
Topics	Structural Health Monitoring, TS - Application of innovative health monitoring techniques
Abstract	In order to optimize their maintenance costs, airlines are very interested in the condition based maintenance approach. For this purpose, structural health data coming from the monitoring of structural subcomponents and in particular their residual useful life (RUL) are used. If a damage is detected in the part, the evolution of its size will strongly influence the RUL. It is therefore essential to have a tool to monitor the size of defects in structures in a reliable manner. In this article, we propose an analytical scattering model that deals with piezoelectric transducers in acting and sensing mode. The actuator generates Lamb waves which are reflected by an inhomogeneity in the material and captured by the PZT in sensor mode. By specifying the material parameters and the input signal, the model predicts the output signal. The theoretical model is successfully validated on simulation data. Finally, the model is used to perform damage size quantification

Authors							
first name	last name	email	country	affiliation	Web page	corresponding?	presenter
William	Briand	william.briand@gmail.com	France	ENSAM		✓	
Marc	Rébillat	marc.rebillat@ensam.eu	France	ENSAM			✓
Mikhail	Guskov	mikhail.guskov@ensam.eu	France	ENSAM			

| Nazih | Mechbal | nazih.mechbal@ensam.eu | France | ENSAM | | | |