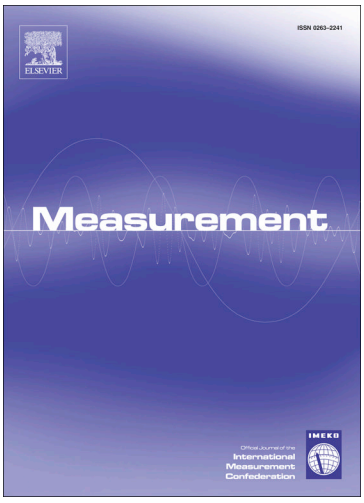

Novel insight into swept frequency eddy-current non-destructive evaluation of material defects

Ladislav Janousek, Andrea Stubendekova, Milan Smetana

PII: S0263-2241(17)30748-0
DOI: https://doi.org/10.1016/j.measurement.2017.11.039
Reference: MEASUR 5108

To appear in: *Measurement*

Received Date: 1 June 2017
Revised Date: 26 September 2017
Accepted Date: 13 November 2017

Please cite this article as: L. Janousek, A. Stubendekova, M. Smetana, Novel insight into swept frequency eddy-current non-destructive evaluation of material defects, *Measurement* (2017), doi: https://doi.org/10.1016/j.measurement.2017.11.039

Novel insight into swept frequency eddy-current non-destructive evaluation of material defects

Ladislav Janousek*, Andrea Stubendekova, Milan Smetana

Department of Electromagnetic and Biomedical Engineering

Faculty of Electrical Engineering, University of Zilina

Univerzitna 1, 010 26 Zilina, Slovak Republic

{ladislav.janousek, andrea.stubendekova, milan.smetana}@fel.uniza.sk

***Abstract* — Swept frequency eddy-current non-destructive evaluation of defects is concerned in this paper. Possibility of evaluation of detected crack dimensions from response signals is experimentally studied. Two plate specimens having electro-discharge machined slits of various dimensions are inspected using an eddy-current probe. The probe is fixed at a certain position above a specimen during entire inspection of one slit. Frequency of the exciting signal is changed in a wide range in order to acquire frequency response characteristics. The frequency range is adjusted in such a way that the electrical resonance is clearly visible from the acquired characteristics. The characteristics are further processed for exploring their variations in respect to size of inspected slits. Presented results clearly show that the**

* corresponding author: Ladislav Janousek, T: +421 41 5132145, E-mail: ladislav.janousek@fel.uniza.sk