Abstracts

New applications of wirelessly interrogable passive SAW sensors (Dec. 1998, Part II [T-MTT])

A. Pohl and F. Seifert. "New applications of wirelessly interrogable passive SAW sensors (Dec. 1998, Part II [T-MTT])." 1998 Transactions on Microwave Theory and Techniques 46.12 (Dec. 1998, Part II [T-MTT] (1998 Symposium Issue)): 2208-2212.

Applying passive wirelessly interrogable surface acoustic wave (SAW) sensors, many physical parameters can be measured. Up to now, all SAW sensor applications are performed by taking a snapshot of the sensor's response periodically and evaluating the measurand assumed to be quasi-stationary. Therefore, the upper limit for the rate of sampling of a mechanical affect to the sensor is the interrogation rate. Usually, it is in the range of some tenths of kilohertz or less, measurands with a periodicity of up to a few kilohertz can he sampled satisfactory. Even audible vibrations of machine parts can be monitored. Here, the behavior of the sensors for dynamic measurands is discussed, the mechanisms of interrogation limiting the permissible measurand's bandwidth are described, and error estimations are made. Advanced applications for the measurement of vibration and acceleration, for dynamic pressure measurement in mechanical engineering, e.g., for monitoring the tires of cars, are presented.

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