

# **Mobile solid shaft inspection using phased array without dismantling the shaft from the train**

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Today numerous trains with solid shaft axles are running worldwide. For security matters a periodical inspection of the axles has to be performed in most countries. The dismantling of wheelsets from the train for the inspection is a costly process. Time constraints and technical risks occur. Therefor an inspection of the shafts without dismantling the bogies where the shafts stay installed on the train is an economically very attractive solution. Framatome's Qualicon has a long term experience in railway inspections. Based on this Qualicon designed a dedicated mobile inspection system for these applications. The integration of phased array technique for this inspection insures rapid performance without compromising precision and reliability. This solution allows the inspection of solid shafts without taking them off the train and is much faster than conventional solutions. The flexible concept of the system allows measurements as a rapid service for various customers. The presentation shows the process from the first developments of the inspection technique and the design of the dedicated manipulator system to the first applications in the field. The successful tests resulted in an approval of the concept. Today this mobile solution is in practical use for several customers. Keywords: Solid shafts, railway, Phased array, mobile inspection