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Presentation: **"Tracking Voiding of SMT Solder Joints by automated X-Ray Inspection - Result of a Round Robin Study"**

Short CV

Dr.-Ing. habil. Heinz Wohlrabe (born 1955) studied 1974-1978 electro techniques at Technische Universität Dresden (Dresden University of Technology). He has got the PHD in 1984 at the same university. The main important topic was the usage of statistical quality control in electronics technology. The focus of his scientific work over all this time was the application of mathematical-statistical methods (namely statistical process control, machine and process capability analysis, Design of Experiments) for the quality assurance in electronic production processes. The creation and execution of lectures in these fields belong also to his working field. Special measurement procedures for the quality assurance (placing and printing accuracy), the measurement of the warpage behavior during soldering and the numerical calculation of reliability data complete his research field. He habilitated in Dec. 2008. Since 2021 he is retired.

Abstract:

A round robin study of DKE (German electrotechnical commission) concerning the reproducibility of void quantification in SMD solder joints reveals, that standard requirements for measuring capability are clearly not achievable with current X-ray equipment due to low repeatability of void data and high variation between evaluators. The study was carried with 5 different typical SMD-Boards. The analysis was grouped into area soldering components (QFN …), chip components and BGA's. The boards were analysed by 9 participants (five suppliers of X-ray equipment, four users of X-ray equipment).
As a consequence, the proposal is to concentrate void quantification within SMT assembly on MXI random samples during validation or ramp up phase with individual adjustment of parameters and visual control rather than on uncontrolled 100% series AXI.
The presentation shows some typical results of this study.