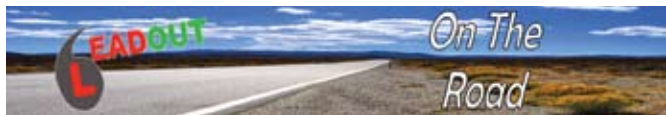


LEADOUT benchmarking of the soldering process PPM study and defects



One of the main objectives of the LEADOUT project is to provide the benchmarking of the lead-free soldering process in order to improve the European competitiveness of the electrical and electronic industry, especially SMEs. Until now this benchmarking programme has been limited to the assemblers within the project, ten in total, who are currently using lead soldering. It is now open to external companies. Information on how your company can participate can be found at the end of this column, but first some background and information on the LEADOUT benchmarking project.

The LEADOUT benchmarking project is based on the UK project started by SMART Group. The project was originally run for two years, with the DTI's support, by Bob Willis, currently the

SMART LEADOUT coordinator. The project is now being coordinated by Rolim Carmo or ISQ.

The LEADOUT Research Institutes partners assist SME companies on how to collect comparable data on the defects occurring in their manufacturing processes. The data is collected in each stage of the process (printing, placement, reflow and wave) then gathered and treated by the Research Institutes to give overall figures for the Parts Per Million (PPM) Opportunities (also known as Defects Per Million Opportunities or DPMO) levels currently being achieved using leaded solders, and how those levels change during and after the conversion to lead-free processing.

All the results are posted and updated each month on the project website at www.leadoutproject.com

LEADOUT, the low-cost

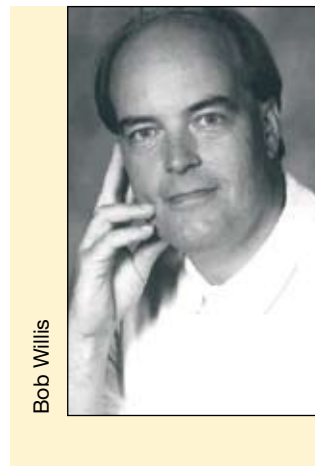
lead-free soldering technology to improve the competitiveness of European SMEs, is one of the most comprehensive projects supported by the European Union on lead-free technologies under the scope of the framework SME-oriented activities in the 6th outline research programme. The LEADOUT project is scheduled for 3 years.

The consortium, comprising 30 partners from 10 European countries (10 industrial and technical-scientific associations, including SMART Group, 16 SMEs and 4 research institutes), had its first meeting in October 2004.

The main objective of the project is to provide technical support to the widest possible user group of SMEs from the member countries of the European Union in the development of solutions for the problems resulting from the replacement of tin-lead solders in the electronics industry. The project also covers the answers to questions about the environmental impact and the life cycle as well as about the efficiency of lead-free soldering processes.

The task of SMART Group as a technical-scientific association is to regularly pass the results from this project on to SME members through its web site, e-mail forums, LEADOUT seminars and regular newsletters.

The types of defects that occur are available at the 'Defect of the Month' section of the project website and are free to download as a poster. Every month a new kind of defect is presented with



its main characteristics and nature.

The LEADOUT Project Benchmarking is now open to external companies. Therefore, we are pleased to welcome new companies to be involved in the LEADOUT benchmarking programme. So, if your company is interested in join us, please contact Mr. Rolim Carmo at rdcarmo@isq.pt

Please be aware that the reliability of this study increases with the number of participants, offering benefits to all the companies involved in it. The data provided is completely confidential.

For further information on this project and to participate contact Mr. Rolim Carmo rdcarmo@isq.pt

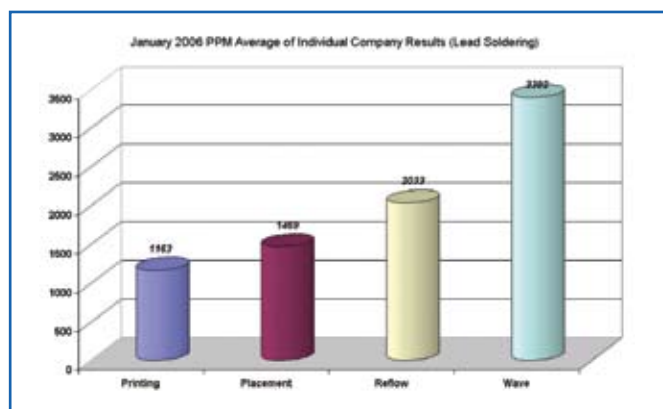


Figure 1. PPM results gathered in January 2006.

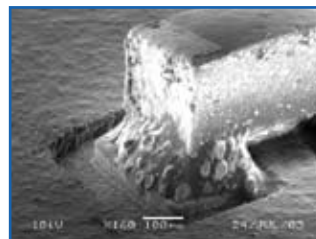


Figure 2. Example of 'Defect of the Month': incomplete coalescence of lead-free solder paste.