



SMARTER

KEEPING YOU INFORMED OF DEVELOPMENTS IN THE ELECTRONICS INDUSTRY

DECEMBER 2010

29

Welcome to our newsletter

In this issue we carry a report on our two day conference to celebrate our 26th anniversary.

We thank all participants for making it a lively and enjoyable event. We took the opportunity of raising a glass (orange juice of course) to toast all our loyal members and thanks for all your continuing support. These are difficult times but we hope our programme of events and our series of webinars are helpful to you. The Group has signed up to exhibit and present two papers at Southern Manufacturing & Electronics so we look forward to seeing you there in February.

As this is the last newsletter of the year may we wish you a Happy Christmas and a prosperous New Year.

Warm Regards from all your hard working committee.

Mike Judd



Chairman of SMART Group Keith Bryant opens our 26th Birthday Conference and announces EM&T sponsored competition.

(Full report on pages 2&3)

SMART Group will participate at Southern Electronics as the show continues its growth in 2011

Co-located with the hugely successful Southern Manufacturing show, Southern Electronics has grown rapidly and consistently since the inaugural event eight years ago. A further 750m² of exhibition space has been added and Show Director, Phil Valentine confirms "Stand sales had already exceeded the final total for the 2010 event by mid-September. The 2011 show will be without doubt the biggest Southern Electronics ever staged."

SMART Group will be exhibiting at this two day show to be held at FIVE, Farnborough 16th & 17th February 2011. We are pleased to announce that we will also be presenting two papers in the Electronics Seminar Sessions.

On Wednesday 16th February at 1.15pm Bob Willis will be presenting 'LGA (Land Grid Array) QFN (Quad Flat Lead No-lead) Design, Assembly & Rework Guide'.

LGA/QFN BMC have fast become a common component type often used in many professional portable products due to cost reduction. With any new device type there is always a learning curve for design, process and quality engineers who have to get to grips with the challenges: Bob will show the solutions.

On Thursday 17th February at 1.15pm Peter Grundy will present 'Working Towards an Efficient Factory'. Despite Lean Manufacturing and other techniques, very few companies are truly efficient in their use of equipment and resources. This paper sets out to explore some ways of becoming more efficient.

There are two lecture theatres at the show, one dedicated to ENGINEERING, the other ELECTRONICS with a programme of 12 sessions in each of the two days.

To register online for tickets to this free show visit: www.industrysouth.co.uk We look forward to seeing you there...

SMART Group's 26th Birthday Conference



October 6th & 7th 2010 - The Oxfordshire GC Business Centre

Many thanks to all our speakers and all those who attended and exhibited at our two day Conference, Keith Bryant, SMART Group Chairman, cheerfully welcomed all the delegates to what has become an annual event.

“The conference as a whole was a blend of interesting content and enthusiastic presentation that made the whole experience both worthwhile and enjoyable at the same time” Tim Fryer Editor

www.emtworldwide.com

“Well done SMART Group, yet another most successful conference, the industry is well-served by your presence and the members are well-served by events such as this” John Ling Associate Editor, Emerald Group Publishing.

“Everyone stayed to the end and when Sue Knight called time, no-one was in a rush to leave. An excellent event all round!” Pete Starkey, European Technical Editor EMS007.

Our thanks to these three scribes whose published reports on this event were well received.

Day 1

The opening session was essentially a Q & A with SMART's Vice-Chairman Graham Naisbitt asking the questions to Bob Gregory. Bob is a specialist at Rolls Royce and also Chairman of the international advisory committee IAG for Pb-free Electronics Risk Management (PERM) studying lead-free electronics reliability.

One of the major issues facing industry according to Bob was high reliability design. The supply chain has broken down was his contention. Bob also had some fairly astringent views on the WEEE directive.

Dr Chris Hunt from National Physical Laboratory spoke about reliability issues with lead-free solder. Chris is also working on the \$100 million PERM, (Pb-Free Electronic Risk Management) project which runs organised research activities.

Doug Pauls from Rockwell Collins sees life through experienced and perspective eyes, and gave as usual an amusingly delivered paper on the impact of handling PCBs and the correlation of cleanliness and SIR results.

David Hillman is the other half of the team from Rockwell Collins, but he is a serious metallurgist and thus able to speak knowledgeably about Voiding in BGA's – To Void or Not to Void. Hamlet would have appreciated this!

RoHS & Reach – are they killing the industry in Europe? was the pertinent question posed by Nigel Burt of Enjaybee Associates.



Speakers for first day



Graham Naisbitt



Graham with Bob Gregory



First day Q&A

Day 2

Doug Pauls and David Hillman started the second day with a look at IPC specifications for cleaning and cleanliness.

Ralph Hoeckle of Zestron Europe was answering the question on why we clean if we have a no-clean process. His company provides cleaning solutions to the SMT industry, with water and solvent based cleaners.

From The European Space Agency, Dr Barrie Dunn spoke about tin whisker growth. There is a great deal of activity worldwide on whiskers, with no less than six training schools in Europe. ESA has a comprehensive lead-free control plan which involves inspection and risk assessment, which is vital as it wants a 30 year life for some space vehicles. Conformal coating can slow down whiskers but it can also grow them. In his conclusion it was fused tin-lead that gives an excellent solderable finish.

Jon Anderson from Humiseal spoke on creep corrosion, a problem that very definitely exists, and has done since 1955 which is when the first technical paper was published.

Marion Quarrington, New Products Introduction Manager, for Cooper Industries, whose products, control instrumentation, work in very inaccessible, hostile and harsh environments described some of her practical experiences in designing and building reliable and cost-effective assemblies to work in diverse situations.

Andrew Clarke from AIM looked at the causes of solder joint defects in BGA assembly resulting from an incomplete coalescence of solder ball and paste.

The final presentation was from Callum Drummond of Retronix who wondered if component refinishing/re-tinning was both good practice and reliable. Callum showed many examples of de-wetting, caused by contamination, oxidation, plating issues and poor de-golding and explained how solderability could be improved by stripping and re-tinning.

Both days concluded with an energetic 'Question Time' session. Once more it was clear from the questions asked that the conference programme had stimulated plenty of interest. Everyone stayed to the end and when time was called, no-one was in a rush to leave.

Another two day conference was concluded, our grateful thanks to ALL concerned.



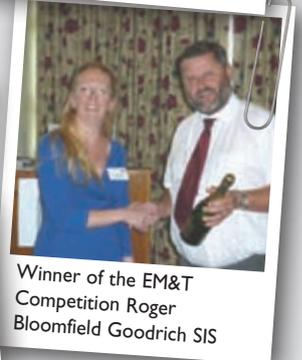
Audience



Toast to SMART Group Members



Second day speakers



Winner of the EM&T Competition Roger Bloomfield Goodrich SIS

BGA Project provided FREE iPad

uBGA is a European funded project which is being supported by the SMART Group; its aim is to produce solder spheres for area array packages for future fine pitch devices.

The solder spheres will then be mounted on different packages to demonstrate successful assembly procedures. In order to meet this objective we have created a short survey which we would like you to complete, it covers different aspects of BGA technology. One lucky survey contributor will receive an Apple iPad free for Christmas. Go direct to the survey at <http://www.surveymonkey.com/subgaSurvey>





PCB Solderability Finishes Workshop

Tuesday November 23rd, 2010

The White Swan Hotel, Arundel and Artech Circuits



L to R, Mike Fenner, Nils Arendt, Nigel White, Martin Morrell, Bob Willis

This was an excellent day with some top notch speakers. We learned:

- That there is no single finish which is optimum for every occasion,
- How to evaluate different finish types to match end use.
- How finishes can be optimised for different applications
- Which finishes can be reclaimed when out of time, and which can't
- How to solderability test, pack, store and specify different finishes

Following the usual introductions we had excellent presentations on the 3 main finishes now in use and gained some excellent insights into how they are specified and optimised for different customer and end use applications. Pros and cons were given by key suppliers for each of their products, followed by an overview of all finish types starting with the earliest types used (basically adaptations of cosmetic lacquers) today's high tech conductive polymers and their impact on PCB manufacturing. The formal day ended with a session and discussion on solderability testing and specifying how the different finishes behave.

A useful comparison perspective. Then delegates had the opportunity to tour Falcon Group's PCB factory to see just how the finishes are applied and speak directly to manufacturing specialists.

Our thanks to our speakers: Nils Arendt (Enthone), Nigel White (Atotech), Martin Morrell (our host Falcon PCB Group) and Bob Willis (ASKbobwillis.com) and organiser Mike Fenner (Indium Corporation)



ChipCheck

ChipCheck is a European funded project being run by TWI, SMART Group is responsible for dissemination of results from this two year project.

ChipCheck team aims to design and manufacture a standalone piece of equipment to x-ray components in their original packaging and be able to compare parts with its own database of authentic parts. The project consists of partners across Europe and held its first project meeting in Wales at TWI's facility during October. Details of the project are available from the SMART Group website or from the project coordinator technical@smartgroup.org

RoHS Mark II Finally Appears

The European Parliament sat in session on Monday 22nd November to debate the proposed amended texts for RoHS and WEEE Directives. The new text was approved in a follow-up Parliament session vote on 24/11/10. It has been reported that there were 640 votes in favour, with just 3 opposed and 12 abstentions. In the end it appears the recent negotiations lead by the new Belgian Presidency did work to bring consensus about. (The amended WEEE directive is still not agreed, however.)

The next step requires formal adoption at the next meeting of the European Council and then the full text of the new law will be published in the EU's "Official Journal". The new version is then deemed to replace the current version 20 days after publication. Member states then have 18 months to transpose the law into their own law books, so UK law should be changed by July 2012 at the latest.

The current Directive draws its scope from WEEE and this link has been broken, so that ALL items of electrical or electronic goods are now subject to RoHS unless specifically excluded in the text or via a valid exemption. This means that the products previously considered outside the scope of RoHS because they are classed as "Monitoring and Control Instruments" or "Medical Devices" will now be covered by RoHS. However, where any product was previously considered to be outside the scope of RoHS and is now within scope, there is to be a transition period of eight years allowed and even so the EU will review those changes within 3 years with impact assessments.

No new substances were added to the list of six, despite the recommendations to include brominated flame retardants and PVC in the revised Directive.

A classic "curates egg" then – good in parts.

Nigel Burt – Technical Committee Vice Chair

smart-e-webinars proving popular wherever you are!

Following on from our introduction to the smart-e-webinars in the last newsletter, they are proving to be very popular. Companies have taken part from USA, Canada, South Africa and all around Europe. SMART Group offers a range of subjects to complement our existing hands on and theory training to companies in the electronics industry.

SMART has always been innovative and keen to provide different types of education and support to our industry. *smart-e-webinars* are ideal learning opportunities for individuals or groups of engineers and will be presented by leading engineers in the electronics industry. Each session lasts between 60-90 minutes and allows a cost effective alternative to existing educational events without the hassle of travel.

To participate in a *smart-e-webinar* all you need is a broadband internet connection, PC and headset microphone/headphones. Alternatively for groups in a conference room you use a PC with speakers, broadband connection and projector plus conference microphone.

The subject of our next webinar is Tin Whiskers taking place on Monday 6th December 2010 at 14.30

Tin whisker formation continues to be a problem and concern to the industry. Whisker problems have been experienced by SMART Group members on PCB surface finishes and component terminations. Even when all of the existing mitigating practices have been followed they can still occur.

We may know part of the reason why they occur on tin surface but we don't seem to be able to totally eliminate them, hence the need to look at alternative surface coatings and conformal coating to prevent whiskers forming low resistance paths. Session lasts between 60-90 minutes.

Presented by Chris Hunt and Martin Wickham of NPL.

Registrations for this *smart-e-webinar* will receive a copy of the slides presented and also obtain a free copy of NPL's published work on tin whiskers from the NPL Defect Database website. Book a place for you or your engineering team today:
www.smartgroup.org/images/stories/smartwebinars01.pdf

Counterfeit Components



smart-e-webinar

Fifteen groups of engineers from around the world participated in the SMART Group webinar on counterfeit component inspection presented by two committee members.

Sue Knight and Nigel Burtt, both members of the SMART Group Steering Committee, presented an overview of the problems associated with counterfeit parts and also drilled down to the real practical ways to identify component issues and how a company can set up a robust detection process. Nigel and Sue highlighted many case studies that they had specifically been able to detect using these new procedures. This webinar complemented the many other workshops SMART has run on the subject over the last couple of years.



A set of the 20 wall charts on counterfeit component inspection were provided to each of the delegates with the webinar slides. The posters are also available from the SMART Group by contacting Tony Gordon info@smartgroup.org

It is with great sadness that Mary Gregory informed me that she and Fred are retiring and A&D ceased trading on 31st October 2010.

Mary & Fred Gregory were staunch supporters of SMART Group.

We hope that they enjoy their time travelling and that their soccer team (Brighton) is promoted to celebrate it's new stadium next season.

Blundell have taken over representation of the IBL Vapour Phase machines; UK Representation of Glenbrook x-ray's will be handled by TestSolve.

SMART GROUP EVENTS DIARY 2010

6th December

Tin Whisker webinar
Online webinar

SMART GROUP EVENTS DIARY 2011

13th January

Lean Management Workshop
Henkel, Dublin 24, Ireland

27th January

Cleaning Options & cost PCB Assembly
Online webinar

15th February

UbGA, PoP & Fine Pitch Paste Printing Workshop
The Oxfordshire, Thame

16th & 17th February

Southern Manufacturing and Electronics Exhibition
Five, Farnborough Stand 97

24th February

Design for Manufacture & Assembly Workshop
Enterprise Ireland, Dublin

5th April

No Clean Materials & Process Reliability Workshop
The Oxfordshire, Thame

12th May

Quality Workshop
Antrim, Northern Ireland

22nd September

Green & Portable Energy Workshop
Tyndall National Institute, Cork

To view any amendments please check our Diary Page on our website.

Note: Scotland dates for 2011 will be announced shortly on website.

SMART Group Scotland meetings are held at the Royal Scots Guards Association Club (opposite Haymarket Station), Edinburgh. For location visit <http://tinyurl.com/rd4qxz>