

## Welcome to our NEW Chairman

**ELECTRONICS  
TECHNOLOGY** SMART  
GROUP  
Conference – Exhibition – Networking Event

### On his appointment as Chairman of SMART Group UK, Keith Bryant gave his views on the year ahead:

It is a great honour to be elected Chairman of such a prestigious organisation, which has been a guiding light to electronics manufacturing for so many years. Taking the reins at this testing time for our industry is also challenging, but I am sure the SMART Group will be an even stronger force to facilitate change and growth.

I plan to do everything possible to add value to being a member of the SMART Group. Our first-rate technical advice forum, outstanding training courses and excellent new web site that contains a wealth of easy to access information form the core of our competency. Together with a very active program of seminar events,

*“It is a great honour to be elected Chairman of such a prestigious organisation, which has been a guiding light to electronics manufacturing for so many years.”*

Keith Bryant, Chairman

we will reach out to all areas of our manufacturing base and continue to help improve their manufacturing processes.

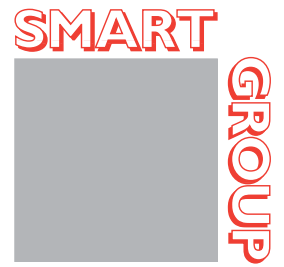
Our event at the end of September, ‘Electronics Technology 09’ (details of the launch in this newsletter) is a great step forward for the Group and from our research would seem to be exactly what our industry needs at this time. It will concentrate on Technology and will be relevant to all levels within the Electronics Industry. The location, venue and timing are crucial and the mix of Conference, Exhibition and Networking will give real value and many reasons for visitors to attend.

I have also been helping to get SMART Group South Africa off the ground over the past couple of years and onto a secure footing. In April we will be holding our third Seminar tour there. The thirst for knowledge and appreciation of our work goes from strength to strength.

In Summary, this is going to be a tough year, but SMART Group, YOUR Trade Association, will do all it can to guide and support its members, providing training, imparting knowledge, unbiased information, expertise and raising awareness of legislation and other key issues. I am really looking forward to the challenge and seeing you at future events.



# ELECTRONICS TECHNOLOGY



## Conference – Exhibition – Networking Event

**EXHIBITION AND NETWORKING EVENT AT RICOH ARENA, COVENTRY 30 SEPT – 1 OCT 2009**

An exciting event will be taking place 30th September – 1st October 2009 for the Electronics Technology Industry. This event includes a SMART Group Conference, with an Exhibition and Networking event running alongside.

This new format is to inform the electronics industry of new technology developments including: **REDUCING WASTE; IMPROVING RELIABILITY and INCREASING PROFIT.**

These subjects are important to the European Electronics Industry in these difficult times. This top level conference, being put together by the SMART Group and organised by Electronics Technology, will deliver an audience rarely seen at a UK event. This audience will be of a high calibre and very relevant to exhibiting companies.

SMART GROUP Vice-Chairman Graham Naisbitt speaking at the announcement of this event stated:

*"I have long felt that the days of traditional exhibitions are over thanks to the Internet, whereas Technical Conferences have proved to be increasingly popular. Networking also remains an essential benefit, as it does in all walks of life, to ensure that you remain up-to-date with current events that might have a direct impact on your own destiny. SMART Group has consistently proved to be THE most pro-active force in the electronics industry in regard to both Technical Conferences and Networking events.*

*Nevertheless, having the opportunity to directly review new technology, it naturally follows that running an exhibition alongside a conference and a networking event would provide the perfect environment to achieve all of these goals at one time.*

*Now the SMART Group, together with event management partner M2 Events, brings all of this to fruition with Electronics Technology – THE Conference – Exhibition – Networking Event."*

Marilyn Driscoll, one of the organisers of the Exhibition believes that 'a conference lead exhibition' is the only way to guarantee exhibitors seeing the right audience. She further commented that the days of

the all encompassing event in the UK are long gone and that this cost effective format is what is required. She also stated that direct mail will be a key element of the marketing campaign.

*"Together with the SMART Group we will be doing all that we can to ensure that this double header delivers quality to all participants!"*

**A Call for Papers for the conference is on the SMART Group website.**

For enquiries on the conference please contact: Tony Gordon, on 01494 465217 or email: [info@smartgroup.org](mailto:info@smartgroup.org)



Graham Naisbitt (Vice Chairman SMART Group) and Marilyn Driscoll (M2Events) sign Electronics Technology Contract, watched by L to R Tony Gordon (Sec SMART Group), Rachael Bussy (GEN3), David Townsend (M2Events) and Bob Willis (Honorary Vice President SMART Group)

## NPL hosted a SMART Group reliability seminar at its facility at Teddington



The theme of the meeting dealt with challenges in the manufacturing of high reliability lead-free circuit assemblies. This included the pitfalls and having a better understanding of the material properties. The meeting addressed a number of issues that included material and processing properties.

An overview of the copper dissolution phenomena in selective soldering was given by Davide Di Maio. A method has been developed to measure dissolution rates with different alloys, and the work has produced a best practice guide. Davide also reported on the defects-database and how that can be used as a resource and how it can be added to.

Tin whisker remains an important issue, and work at NPL has developed. Martin Wickham discussed a special test vehicle that provides a sensitive test to measure the mitigation properties of conformal coatings. The work looked at how different coatings prevented whiskers erupting and penetrating the coating.

An important aspect of reliability is the prevention of leakage currents due to electrochemical processes resulting from process residues and contamination.

Ling Zou presented reviewed techniques that can be used, and highlighted impedance techniques that can predict the tendency for dendrites to form.

The transformation of tin and lead-free alloys was discussed. This is observed in lead-free alloys as well, and NPL can measure the transformation rates. NPL is looking for partners in a new project that explores the circumstances under which commercial alloys are susceptible.

Prediction of solder joint reliability was discussed by Chris Hunt, comparing testing circuit assemblies and a modelling approach. The importance in the modelling approach of materials data was emphasised. NPL has developed an instrument for measuring low cycle fatigue in small solder volumes and hence the capability to calibrate the models.

Conformal coatings are often applied to meet environmental concerns. The protection offered by the coating will be dependent on its chemistry and the coverage achieved. Hence the work has looked at a test vehicle where coverage can be tested by a range of components, and applying generic contamination to search protection. The work will look in the future at the possibility of applying condensation testing.

The reliability and robustness of plated through holes was discussed, where different aspect ratio holes were tested. The work showed there are clear differences between the resin systems, with the newer phenolic high Tg materials performing well. The effect of various initial conditioning was evaluated, applying different reflow cycles, and then testing the PCB in a thermal cycling environment.



Speakers: Davide Di Maio, Ling Zou, Chris Hunt & Martin Wickham



Graham Naisbitt opened the day's proceedings

## First step of the EUP Directive is made on tiptoes

Just before the Christmas break, on December 17th last year, the European Commission announced it had adopted an eco-design regulation to reduce standby energy consumption of all household and office products.

This is the first practical implementing phase of the Energy Using Products Directive that was adopted by the EU in 2005 and became enforced by UK law in 2007.

This new regulation entered into force on January 7th 2009 and is immediately "binding and directly in all member states." So you would imagine this fact would be reported on the Commission's website page devoted to EUP or on the relevant UK Government BERR department website page, but you would be wrong.

### So what does it mean for product designers?

By next year, on January 7th 2010, affected product types must not consume more than one watt of power (1W) when fully off, or inactive, but in standby mode. If the standby mode retains some active functionality, such as a status display or clock, then the permitted figure is 2W. These figures are halved to 0.5W and 1W respectively by January 2014. All affected products must provide an off mode or standby mode unless inappropriate, for example, the item concerned is intended for 24-7 active service.

### So what products are affected?

Though the Regulation specifically identifies household and office equipment, its scope contains four product groupings: large and

small domestic appliances; domestic IT equipment; consumer audio-visual equipment; and toys, leisure or sport equipment.

These are all very similar to groupings used in the WEEE and RoHS Directive, which was deliberately vague and intended to be indicative only, such that it encompassed professional low-volume manufactured products, as well as mass-produced electronic equipment. The concern is that the same might apply to this first EUP Regulation given such a precedent and BERR responded to an enquiry on this matter with "...it was not the intention of this measure to capture professional equipment (although it does not specifically say this in the measure). So the key issue will be for you to decide whether your products are intended to be used in a domestic environment or whether they are intended to be installed and used by professionals."

### So how much energy is being saved?

The EC says that the member states combined annual losses due to this will rise from the original EUP Directive estimate of 45 TeraWattHours ( $45 \times 10^{12}$  WattHours) in 2005 to 49TWh in 2020. They claim that implementing this regulation alone will save about 125 TWh by 2020, " - an amount comparable to the annual electricity consumption of Sweden." If they are right,



Nigel Burt

then this is a fairly impressive measure and you would have thought that the announcement should have had more of a fanfare given the impact on the manufacturing industry and the EU's total energy usage.

### And the next tentative steps are?

Last month the Commission also announced the demise of the bog-standard light bulb used in domestic lighting starting this year and to be phased out completely by the end of 2012. Savings here are described as roughly the annual electricity consumption of Romania.

The next measure as far as the EUP Directive is concerned would appear to pertain to external power supplies and battery chargers. The proposed text is in the final stages of scrutiny and predicted savings here are more modestly described as equal to Lithuania's yearly electricity consumption. Other EUP measures in progress that are expected to move forward to implementation in 2009 concern office and public street lighting, and simple set-top boxes for digital TV.

### Nigel Burt

SMART Group Steering Committee and Technical Committee Vice-Chair

## SMART Group Ireland Update:

As from the end of March 2009, the SMART Group Secretariat will move from Tyndall National Institute in Cork to Dublin. Tyndall staff will continue to have close links with the SMART Group and will remain on the committee. Philip J. O'Rourke, Life Vice President and past Chairman will look after the Secretariat for the SMART Group from Dublin. It is anticipated that a smooth transition will take place. All group activities will continue as before and the calendar of events for 2009 looks promising. Address, phone and email changes will be forwarded to all members in due course. SMART Group Ireland will be set up as a company limited by guarantee and charitable status has been sought.

## Profit from RFID in your Business

28th January 2009 at Agilent Scotland

"Profit from RFID in your Business" was the title of a SMART Group Scotland collaboration with the ED Technology Support Centre and the Electronics Knowledge Transfer Network, aimed at reaching out to the wider business community, and made possible by financial sponsorship from EDTC and EKTN.

The programme devised and chaired by Nigel Rix of EKTN had marshalled six speakers to cover most aspects of this fascinating topic, from the basic technology through standards to applications. They gave real-life examples from many different

industry sectors, and insights into potential areas for growth and product development. RFID was shown as an enabling technology with many potential applications, but one where optimal results came from considering the whole of the business process.

The presentations, which culminated in an all-too-short Q&A session, were supplemented by a table-top exhibition, where eight RFID-related providers spent the breaks actively networking with the 65 registrants who enjoyed Agilent's splendid facilities. These came from an unusually wide range of backgrounds, from

healthcare to logistics, and for many it was their first SMART experience. We hope that they now know more about the contribution of UK electronics manufacture, as well as having a clearer understanding of RFID and related technologies.



Nigel Rix and his line-up of guest speakers at the RFID event



## DIARY 2009

### February 26th

'Back to Basics Part 2: Board Assembly and Test'  
Dalgety Bay, Scotland

### February 26th

'Metrology in Electronics'  
Frogmore, St Albans

### March 11th

'Inspection Methods and Technology'  
Frogmore, St Albans

### March 26th

'Supply Chain Management in Electronics'  
Flextronics, Cork

### April 23rd

'Back to Basics Part 3: System Integration'  
Livingston, Scotland

### April 28th

'PCB Materials and Finishes – What Assemblers Should Know'  
Arundel, West Sussex

### May 12th

'Component Counterfeiting – Problem and Solutions'  
Dublin, Ireland

### May 18th

'Advanced Technology Seminar'  
Durban, South Africa

### May 19th

'Advanced Technology Seminar'  
Midrand, South Africa

### May 20th

'BGA, CSP, LGA, QFP and QFN Workshop Hand Soldering and Desoldering Workshop'  
Midrand, South Africa

### May 20th

'Module Reliability Workshop'  
Hemel Hempstead

### May 21st

'Advanced Technology Seminar'  
Cape Town, South Africa

### June 3rd

'Troubleshooting Surface Mount Assembly Process'  
Chelmsford, Essex

### September 24th

'ESD Controls & Reliability seminar'  
Avocent, Shannon

**ELECTRONICS TECHNOLOGY** SMART GROUP  
Conference – Exhibition – Networking Event

**September 30th / October 1st**  
'Electronics Technology Conference: Exhibition and Networking'  
Coventry

### December 3rd

'Seminar (topic tbc)'  
Henkel, Dublin

For more information on all events contact... Tony Gordon, Secretary SMART Group [info@smartgroup.org](mailto:info@smartgroup.org) or visit [www.smartgroup.org](http://www.smartgroup.org)