

responsibility for regulatory compliance on manufacturers, who will be solely responsible for establishing the conformity of their products and for CE marking, even if harmonised standards are not available. Surely we cannot just assume that all manufacturers have the technical knowledge to assess whether the essential requirements of the EMC Directive are being met? It seems inevitable that the number of non-compliant products on the market will increase and the radio frequency spectrum become increasingly polluted. With little enforcement, the revised directive makes the UK a dumping ground for non-compliant products.

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POWER STATISTICS

Mark Polzin (*IEE Review*, January 2005, p4) appears to have tripped himself up in his eagerness to castigate Bernard Sparkes over the use of statistics in his letter in the October 2004 issue about the probability of severe weather affecting availability of energy resources.

The word 'simultaneous' means 'observed in the same measurement interval'. Mr Sparkes is therefore correct in writing that the joint chance (not probability) of two events occurring at 1-in-10 years and 1-in-15 years is 1-in-150 years. That is, the probability that they will both occur in the same year is 1/150th.

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[Editorial comment – Mr Sparkes' original letter to IEE Review emphasised that his example was a much simplified one that ignored the duration of the severe weather. This caveat, which clearly anticipated Mr Polzin's comments, did not appear in the published version and we apologise to Mr Sparkes for the subsequent criticism that appeared in Mr Polzin's contribution to the debate.]

COMPONENT OBSOLESCENCE

When the EU Restriction of Hazardous Substances Directive comes into force on 1 July 2006, it will not be possible to sell



electrical and electronic products into an EU member state if they are built with components that contain lead, mercury, hexavalent chromium and PBB/PBDE flame retardants.

The article on component obsolescence (*IEE Review*, January 2005, p34) therefore greatly understates the problem when it says that existing old stocks of parts "... could be unsuited to current board manufacturing technology because of the switch to lead-free solders". Whilst this is true, even if components will survive a lead-free soldering process, they still may not be used in products.

In order to comply with the directive, each product component must contain less than 0.1% by weight in 'homogenous materials' for lead, mercury, hexavalent chromium and PBB/PBDE flame retardants, and less than 0.01% for cadmium.

A homogeneous material is one of uniform composition throughout that cannot be mechanically disjointed into other, different materials. So, to use the example the DTI itself uses in its guidance document, a semiconductor package would contain many, including the plastic moulding material, the tin-electroplating coatings on the lead frame, the lead frame alloy and the gold bonding wires.

Thus, even if you can re-coat the solderable terminations with something other than standard tin/lead solder, this does not mean the parts will be suitable to solder with a lead-free process, nor will they be suitable for the manufacture of any product to be sold into the EU after 30 June 2006.

There is some industry consensus building to campaign for an exemption under RoHS to allow for obsolete components already ordered and purchased as a lifetime/last-time buy to continue to be used in non-exempt product for a period after the 2006 deadline. The campaign has been spear-headed by Avaya. Readers who are interested should contact Charles Franklin at cfranklin@avaya.com.

Nigel Burt
By email

STAND WELL BACK

Alan Lott (*IEE Review*, January 2005, p4) writes that high-definition television is an unnecessary waste of bandwidth at viewing distances greater than 8in as the best human eye cannot resolve the full detail of standard-definition television at this distance. As anyone who has ever viewed their television from a distance of 8in will be aware, the line structure is highly visible and there is of course an error in Mr Lott's calculations. His estimate of the angular resolution of the human eye is correct, as is his trigonometry, but unfortunately he has made an error while dividing the height of the screen by the number of lines in his example and has therefore calculated the width of a line as being one tenth of its actual size.