



# Technical seminar on “The impact of the EU's RoHS directive on the electronic maintenance and repair services using lead-free solder”

by Ir. Alan Mok



Johnny Shing, AMC Chairman, (Left) presented a souvenir to S.L. Law.

On 21 July 2006, the EN, IT Division and AMC jointly organized a technical seminar on “The Impact of the EU's RoHS directive on the Electronic Maintenance and Repair Services using Lead-Free Solder”. The speakers, S. L. Law, Senior Principal Consultant of the Hong Kong Productivity Council (HKPC), Thomas Chow, Principal Consultant, and Daniel Chan, Senior Consultant of HKPC gave a talk on the latest development on EU's RoHS.

SL Law, our honorable guest, opened the talk by providing an overview on the EU's RoHS directive. The full name of RoHS is Reduction of Hazardous Substance. Traditionally, soldering is done by means of the solder as composed of Tin (63%) and Lead (37%). With this combination, the associated melting point is 183 °C. However, after 21 July 2006, all EU countries will only allow importing of Lead-Free soldering.

Thomas then went on to discuss about the impact of the increase in the solder melting point. Lead is replaced by Alloy and the new melting point has increased to 217 °C. Therefore, the electronic component have to withstand another 34 °C during the soldering process. Under this new temperature, the impact will include Pad Lifting as a result of the coefficient of Thermal Expansion. In

hand soldering, technician will clean up the iron tip before the actual soldering using the sponge. However, this is not a right way as the temperature of the iron tip dropped significantly – from 300 °C to 200 °C – which will then lead to cold joint ! To solve this problem, the technician can use the pre-heat device for larger PCB.

Apart from the hand solder, there are also solder process such as Wave Soldering, SMT Soldering. Furthermore, there are three class for the soldering process. Class 1 is for general electronic; class 2 is for dedicated device; class 3 is for high performance. Thomas concluded his part of presentation by stating that the segregation is needed to avoid contamination of materials, equipment, and test tools.

In the final part, Daniel presented the Design Guideline for Reliable Surface Mounted Technology. Daniel pointed out the reliability problem can happen at any point of time throughout the life cycle , and the cycles include assembly, testing, storage, transportation, operating, and repair.

The seminar ended with a question-and-answer session and a souvenir was jointly presented by EN Division and AMC to the guest speakers.

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