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Leo Lambert
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Welcome to the EPTAC Webinar Series:
Common Wave Soldering Manufacturing Issues

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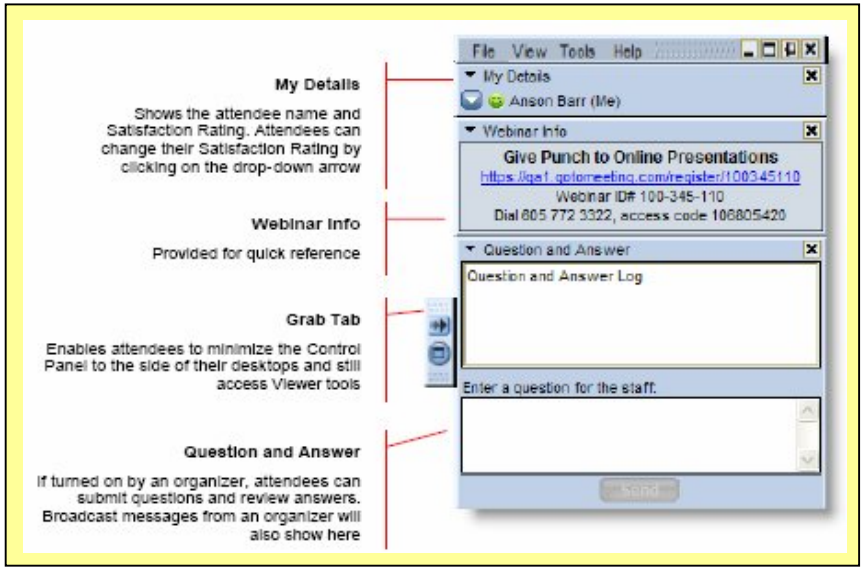

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Soldering Issues

- SMT components on Bottom side of board
- Insufficient PTH fill and voids within solder joints
- Soldering of through hole components in a 24 layer board
- Assembling an LCD onto a board and want to wave solder it to improve throughput, any ideas?

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#1 Surface Mount Components on Side 2

Surface mount components secured with adhesive on bottom side, how do I wave solder and what kind of problems can I expect?

- "Is there a possibility for the solder to get stuck/deposited on the SMT components' body or cause a solder bridge between the components' pins in the IC areas where the pins just come out of the package?"

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#1 Surface Mount Components on Side 2

- How do I wave solder and what kind of problems can I expect?
- Will the solder stick to the components and cause a solder bridge?
- Will the solder bridge the component leads?
- What can we do so the solder is not deposited on the component body?

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#1 Surface Mount Components on Side 2

- Securing components in this manner is common
- Chip wave was developed to address skips
- Design has to orient the components properly to reduce defects
- SOIC's can also be wave soldered
- Importance of developing thermal profile

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#2 Insufficient PTH Fill And Voids Within Solder Joints

- Can't determine the cause and don't know how to prevent them
- Looking for suggestions

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#2 Insufficient PTH Fill And Voids Within Solder Joints

- Filling PTH is based upon:
  - The temperature of the board during the soldering operation
  - Flux penetration into plated through hole
  - Depth of the board in the wave

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#2 Insufficient PTH Fill And Voids Within Solder Joints

Voids in the solder plated through hole solder joints can be caused by:

- Bad plated through holes
- Fluxes

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#3 Through Hole Soldering of a Multilayer Board

- Manual soldering of a 24 layer board, poor solder flow through, why?
  - Using Tin/Lead Solder is only information provided

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#3 Through Hole Soldering of a Multilayer Board

- Manual Soldering requires the following issues to be addressed
  - Solder iron temperature
  - Known solder iron heat capacity
  - Preheating of the board

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#3 Through Hole Soldering of a Multilayer Board

- Most likely
  - Not enough heat capacity or thermal capacity in the iron
  - Heat is dissipated into the board's inner layers

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#3 Through Hole Soldering of a Multilayer Board

Recommendations:

- Preheat the boards
- Do not remove the solder irons from the board until the hole is completely filled with solder
- Use two solder irons, applied from both sides of board

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#4 Wave Soldering LCDs

- Currently manually soldering LCD on double sided boards, want to wave solder to improve quality and throughput.

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#4 Wave Soldering LCDs

- Selective wave or mass soldering system
- Use of spacers to keep the unit up off the board surface
- Double sided board would not require too much top side preheat to get the solder to flow up into the plated through hole

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Further Information

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