Servatron’s RoHS Compliance Plan
Project Status To Date

Major Accomplishments:

• Defined customer RoHS requirements
• Instituted controls for handling RoHS materials, documentation and product
• Mfg Process instituted for the PCBA processes
• RoHS Part numbering scheme established for Servatron
• Instituted RoHS Component Selection Software
• Built deliverable RoHS products
Materials

• Part Numbering
  – Adding “-R” to compliant p/n’s creating a unique P/N in JDE
  • Adding “RoHS” as part of description in JDE
  –“LF” AVL Indicator
• Material Identification
  – Green Label added to all RoHS compliant parts at Stores
  • Only intended as visual cue, not p/n control
SMT Process

• **Equipment Process Capability (Lead-Free)**
  – Ekra Stencil Printers: capable
  – Europlacer Pick and Place: capable
  – BTU Reflow Oven: capable
  – Austin American Wash: capable
  – CR Technology X-Ray: capable
  – Air Vac BGA rework: capable
SMT Process (cont’d)

• **Solder/Alloy and Flux Selection**
  – Kester R520A Water Soluble paste, SAC305 alloy (AIM WS 353)
  – Existing Kester TSF-6805 WS tacky flux used for BGA rework; evaluating Kester TSF-6952 NC tacky flux to eliminate cleaning
  – SMT rework uses same Kester 331 WS fluxed wire, but SAC305 alloy; existing Kester 2331-ZX WS liquid flux as needed
Dedicated RoHS Post-SMT Area

• Dedicated RoHS Assembly Area
  • Post SMT Work Stations
  • Inspection Station
  • Repair Station
• Mfg area is solely dedicated to RoHS products
• Dedicated Soldering & Inspection Equipment
  • High temp solder tips available
  • Solder wire with RoHS compliant alloy
    • SN96.5/Ag3.0/Cu0.5
• Specific Assembly Procedures for RoHS products
• All personnel in area trained to IPC- A- 610 rev D lead free requirements
Final Assembly

• All Module & Final Assemblies Vary in Complexity
  • Flexible or Dedicated Assembly Areas
  • Some may require hand soldering of wires (RoHS)
  • Flexible assy process to run very much like the SMT line
    • Set-up and tear down required specific to RoHS
  • Depending on customer to supply a RoHS compatible design
    • Cables (Pre-tinned leads), LCD’s
    • Coatings on plastics, Keyboards
    • Screw and battery contact plating
    • Etc.
Manufacturing Test

• **Testing**
  – Performed in standard mfg test process
  – Performed with standard test equipment

• **Technician Troubleshoot and Repair**
  – Material Control (product) – RoHS PCBA’s to be transferred on racks with green RoHS traveler or individual ESD bags with RoHS label
  – Material Control (components) – All RoHS repair components will be stored by RoHS P/N in the dedicated RoHS repair area
  – Troubleshooting performed at standard tech bench with required test equipment
  – All repair of RoHS boards will be done at repair bench within a dedicated lead free work zone in mfg
  – Repair work performed by a RoHS trained tech or repair person
Lead Free Solder, Inspection & Repair Training

• **Training Plan**
  – Train to IPC-A-610 Rev D requirements
  – IPC Certified Servatron Trainer (training since 1997)
  – People being trained two at a time with the trainer
  – Training Records Updated after completion of training
  – Only people who have signed-off Lead Free Training Records will be allowed to solder, inspect or rework lead free boards

• **Groups to be Trained**
  – SMT Inspection & Repair, Post SMT, Technicians, Auditors, Engineers, BGA Repair Specialist, Proto Assembly
  – Eighteen people have completed the training course to date
Process Qualification

- RoHS Solderability Verification
- RoHS Cleanliness Verification
- Product Reliability Testing
  - Performed by customer if required
- In-Process Audits
  - Performed by existing quality organization
- RoHS Compliance Team
  - Quality Engineer
  - Post Engineer
  - SMT Engineer
  - Manager Material Handling
  - Manager Materials
  - Production Operations Manager
  - SMT Manager
  - Team Leader
    - Monthly reviews with Sr. Management