

Wave Solder Process Optimisation (DoE)

Course Number ETS0001

Scope:

The Aim of this training is to provide an understanding of the Wave Solder Process and then a practical investigation / improvement of existing product(s). We derive a DOE to test how well a process has been optimised and make improvements where necessary. Taguchi methods are used to arrive at results quickly in a controlled manor.

Target Audience:

Technicians, Process Engineers, Quality personnel. The main beneficiary will be the person who sets up the wave solder machine. However, due to the process overview and then the statistical approach, it has proven to benefit quality personnel with no Wave Solder experience.

3 persons Max per course.

Duration:

2 Day (*pos. 3 Day depending on Production environment*).

Pre-Requisites:

Trainees should have a basic understanding of Wave Soldering, a ability to operate Wave Solder equipment and the ability to identify process defects.

Equipment:

Training will take place both on the Shopfloor and in a classroom environment. The classroom should have a projector or large monitor suitable to serve 3 persons.

Sufficient product should be available to make the training effective. Below show a MINIMUM product quantity required for each stage:

Initial Process Benchmark – 5 PCBs
Taguchi Trials – 27 PCBs (or higher multiples of 9)
Confirmation Run – 5 PCBs

COURSE STRUCTURE

Day 1

History of Wave Soldering *(Classroom)*

Process Overview *(Classroom)*

Machine Overview

- Conveyor
- Fluxer
- Pre Heat
- Solder Pot
- Wave Dynamics
- Back Flow
- Cooling

Current Defect Analysis

Initial Process Set Up

Taguchi Experiment

- Taguchi Overview *(Classroom)*
 - Brainstorm *(Classroom)*
 - DOE Design of Experiment *(Classroom)*
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Day 2

Practical Taguchi Experiment

- Test Runs – Adjusting and measuring Process as dictated by DOE.
 - Record Results
 - Result analysis *(Classroom)*
 - Define and execute confirmation run *(Classroom)*
 - Conclusion Report *(Classroom)*
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Day 3

Overflow Day – provision to cover extra time due to size of DoE.