

Case Study

Reduce power up test failures



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Project background

One of the key products of a small energy company had a rolled throughput yield (RTY) of 92%. The cost of rework for this product was €111 per unit or €107,000 per year. A new cable power reliability product family was designed to replace the existing product in USA, Brazil and Europe but the RTY of the new product was only 71% damaging reputation and market penetration.



Problem

The Rolled throughput yield (RTY) for a new product was 71%. Initial power up test failures were running at 21% costing €438,000 p.a. The Black Belt discovered excess variation in the connection fitting sequence during test set-up giving rise to false failures - the company was failing good units. However, the Black Belt also discovered damaged and poor condition test cables.

The company was unable to test using a small auxiliary transformer at test stage as wires were not connectable, wires were incorrectly fitted and crystals were blowing on test due to tolerance stack up on capacitor and resistors.

Solutions

A cross functional team was set up of people involved with the design, parts procurement and production of the product.

After mapping the process, noting the data capture points using extensive FMEA and process capability analysis the team modified the test software to guide operator thorough correct set-up procedure. A total preventative maintenance (TPM) system was set-up on test carts for test cables and computerised checking of cable condition. In-process testing was introduced for the small auxiliary transformer.

The product was then re-designed using mistake proofing methods preventing connectors being fitted incorrectly. A new specification capacitor and resistor was fitted to the crystal circuit.

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Business benefits

Rolled throughput yield was increased from 71% to 80% by reducing initial power up test failures. Failure costs were reduced by €135,000. Further design changes at a supplier were needed and a second successful Six Sigma project addressed supplier related yield issues.