



Etteplan Test Day 13.6.2018

Transfer to production and
production ramp-up

EMS provider view

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Etteplan Test Day

- Transfer to production and production ramp-up

Key topics

Preparing into ramp up

- Early involvement in NPI projects
- Documentation Control
- Communication
- Planning of the volume ramp up
- Manufacturing Readiness

- Validation of the product ramp up in manufacturing

- Ramp up monitoring

- Supply Chain models

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Preparing into the ramp up

- Early involvement in NPI projects
 - Targets for Cost, Schedule, Manufacturing & Supply Chain
 - Set up targets that are possible to commit
 - NRE's (investments for new equipment, tools for manufacturing)
 - Material selection and analysis
 - Ensure material availability from preferred sources
 - Avoid single source items (due cost, availability, lead time and risk management items)
 - Life Cycle Analysis for key components, LTB/EOL
 - Product design verification for manufacturability / testability
 - Avoiding quality issues as early as possible
- Documentation control
 - Agree systematic and controlled way to share the documents
 - Systematic version/revision control for all of the documents
 - For custom items (mechanics), define critical tolerances in custom mechanics
 - Using customer material coding scheme for every material
- Communication
 - Systematic communication between all parties
 - Action log for key tasks
 - Review of the progress with key milestones

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Preparing into the ramp up

- Planning of the volume ramp up
 - Demand forecast
 - Continuous dialog in case changes occur
 - Realistic daily/weekly/monthly volumes during ramp up
- Manufacturing readiness
 - Verifying technical capability of the manufacturing process
 - Protos , Pilot series
 - Tooling verification and ordering as early as possible
 - Jigs, molding tools , etc.
 - Quality targets and traceability
 - Data gathering from the mfg and test processes
 - Ensuring tracability for products and materials
 - Standardization of work (Lean methods)
 - Documented assembly and test processes
 - Minimizing any extra work or different ways of making the product
 - Mechanics quality requirements
 - Review the quality requirements between all the parties
 - Tester validation / repeatability analysis and tester limit verifications
 - Strong cooperation between EMS, Customer and Test System provider
 - Test data collection to enable process controls
 - Root cause analysis and concentrating into key items

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- Validation of the product ramp up in manufacturing
 - Material mgmt readiness
 - Material availability and cost ensured for the volume ramp up
 - Material lead-times / agreements on place with all of the vendors
 - Product readiness
 - Pilot approvals
 - Quality requirements are met
 - Action plan for the missed items / root cause analysis
- Ramp up monitoring
 - Feedback from the product quality in final customer usage
 - Mfg process and tester yields
 - Adjustments to mfg and test process
- Supply Chain model set up
 - Ensuring product availability / fast deliveries
 - Map out the whole logistics chain to end customer usage
 - Possible buffering options (VMI)
 - Possible follow up of the final customer product usage
 - Material management options
 - Key material buffering in case of long lead time items

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✓ Good preparation

✓ Systematic communication

= Enables Successful Transition and Production Ramp Up