

**Sample definition Project management**

Category	Description	Use	Nature	Manufacturing
Functional sample	Sample with one or more functions or concepts	Test of concepts or functions to ensure the integration into a product during any pre-development (e.g. within the context of a feasibility study or before a concept is passed on to acquisition) or product development stage (e.g. for unforeseen incidents)	limited	any
A-sample	Sample with limited functions	Test of the concept freeze while in its critical (still hazardous) functions	Limitations of the functions with regard to customer and internal specifications: e.g. operating temperature, optics, dimensions.  Not suited for permanent testing	<b>Special production</b> (Sample construction) Or modification of existing products  only final materials  E.g.: Temperature sample, photometric prototype (ALU block), STL
B-sample	Sample with all functions without guarantee  Exception SW: vehicle SW such as diagnosis functions very often only present in release samples	To test all functions and the technical requirements including permanent testing  Test in the vehicle and on the test stand  Sample for design validation (DV)	All functions are available and installation dimensions according to the series.  Possibly not all customer specifications ensured	Parts from test or <b>auxiliary tools</b> .  Mostly from final materials E.g.: ALU-tool  SW has the specified architecture
C-sample	Sample with all functions guaranteeing that functions are protected in theory	Tests to achieve "Technical Release" (laboratory tests, trial assemblies)  Sample for product validation (PV, qualification)  Sample for process validation	As B-sample, but specifications reached for sure.  Tolerance assessment, fit description,... → theoretical safeguarding	Parts from <b>tools produced in series</b> and manufacturing processes close to production.  Manual assembly of advance ISIR (laboratory tests) allowed Final  Final materials and arrangement of the components
D-sample	Sample with all functions guaranteeing that functions are protected in practice	Pilot production with proof of the production reliability  Initial Sample Inspection Report (ISIR), capability study like measurement tool capability (also measurement system analysis "MSA"), process capability, machine capability) PPAP  Basis for homologation	As C-samples  Compliance with quality requirements statistically guaranteed  Serial parts that are used for initial sampling, with the objective of approval for product-series delivery (PSO) internally and by customer	<b>Initial sample:</b> Parts from tools produced in series mounted and inspected with standard manufacturing processes under standard conditions  If necessary, with deviation from initial sample status as agreed with customer
Series production	Sales product	Proofs of quality according to specifications	Standard parts, series production status approved	Series production