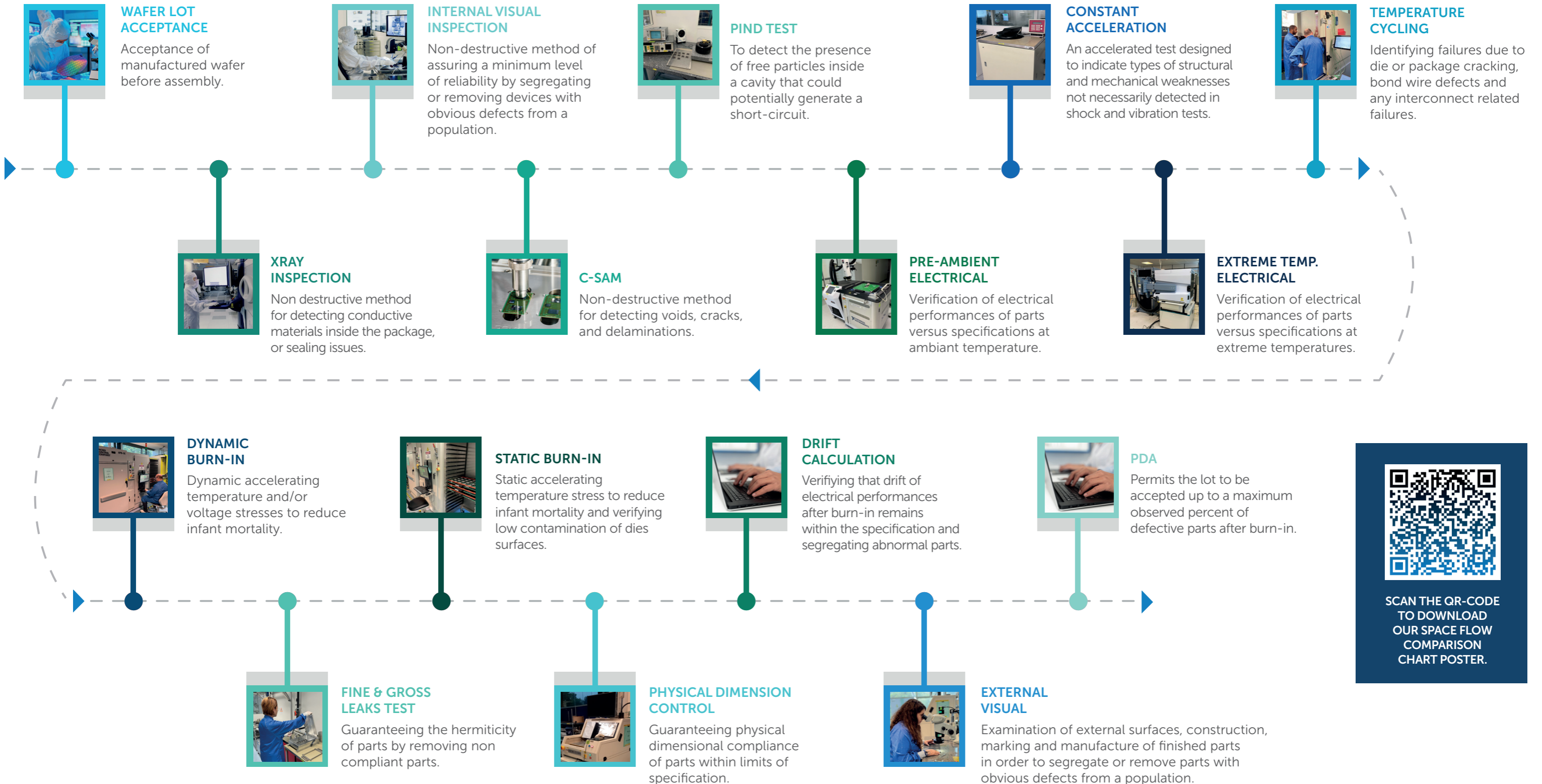


Tests performed during manufacturing phase



SCAN THE QR-CODE TO DOWNLOAD OUR SPACE FLOW COMPARISON CHART POSTER.

Tests performed during qualification phase

For more information, please link to the "Quality Requirements" in the Space Flow Comparison Chart Poster.

Tests	Te2v Quality Level	Method / Condition	Purpose of the test
Lot Verification Testing (ESCC9000)			
LVT1 - Environmental	NB1	ESCC 9000 - Chart F4	Application of thermal cycle as seen from the parts to validate assembly and eliminate abnormal manufacturing batches.
LVT1 - Mechanical		ESCC 9000 - Chart F4	Simulate the mechanical stresses associated with the satellite launch to validate assembly and eliminate abnormal manufacturing batches.
LVT2 - Endurance		ESCC 9000 - Chart F4	Verifying the wear out mortality within the expected lifetime of parts.
LVT3 - Capability		ESCC 9000 - Chart F4	Verification of assembly reproductibility, conformance and eliminate abnormal manufacturing batches.
Quality Conformance Insp. (MIL-PRF-38535)			
Group A - Electrical test	QML-Q QML-V QML-Y	MIL-PRF-38535 / delivered parts	Verification of electrical performances of parts versus specifications.
Group B - Assembly Capability		MIL-PRF-38535	Verification of assembly reproductibility, conformance and eliminate abnormal manufacturing batches.
Group C - Steady-state life test		MIL-PRF-38535	Verifying the wear out mortality within the expected lifetime of parts.
Group D - Thermal & Mechanical		MIL-PRF-38535	Application of thermal cycling and simulation of mechanical stresses as seen from parts to validate assembly and eliminate abnormal manufacturing batches.
Group E - RHA		MIL-PRF-38535	Verification of electrical performances under radiation.
Wafer acceptance Report		QM plan	Acceptance of manufactured wafer before assembly.
Outgassing test		ASTM E595	Guarantee low or very low condensated volatile materials under vacuum .
Preconditioning / CSAM		J-STD-020 / MIL-STD-883 TM 2030	Verification of sensitivity to moisture during reflow phases.
Qualification Lot (PEM-INST-001)			
Radiation Verification Tests	«-Nx» NASA Level	TID and SEE - ESCC 22900 / MIL STD 883 1019 /ESCC 25100	Verification of electrical performances under radiation.
Preconditioning		Moisture soak / Reflow simulation	Verification of sensitivity to moisture during reflow phases.
Subgroup 1a - Life testing		MIL-STD-883 TM1005 / D / 125°C	Verifying the wear out mortality within the expected lifetime of parts.
Subgroup 1b - Temp cycling		MIL-STD-883 TM 1010 / B + DPA	Application of thermal cycle as seen from the parts to validate assembly and eliminate abnormal manufacturing batches.
- DPA/FA		PEM-INST-001 and internal standards	Inspect and verify the internal design, materials, construction and workmanship of parts.
Subgroup 2 - Biased HAST		JESD22-A110 / 96 hours / +130°C / 85% RH	Ensure insulation deteriorations and corrosion driven by moisture (accelerated by adding voltage stress).
- Unbiased HAST		JESD22-A118 / A / 96 hours / +130°C / 85% RH	Ensure insulation deteriorations and corrosion driven by moisture.
Lot Acceptance Test (ECSS-Q-ST-60-13)			
Construction analysis	«-Ex» ECSS Class	ECSS-Q-ST-60-13	Inspect and verify the internal design, materials, construction and workmanship of parts.
Outgassing test		ECSS-Q-ST-70-02	Guarantee low or very low condensated volatile materials under vacuum.
Precond + (Biased HAST or THB)		JESD22-A110 96H / +130°C / 85%RH or JESD22-A101	Ensure low insulation deteriorations and corrosion driven by moisture (accelerated by adding voltage stress) and low sensitivity to moisture during reflow phases.
Precond + Temp Cycling + CSAM		MIL-STD-883 TM 1010 / B / 100cy / -55°C to 125°C	Application of thermal cycle as seen from the parts to validate assembly and eliminate abnormal manufacturing batches.
HTOL		MIL-STD-883 TM 1005 / D / 125°C / per diffusion lot	Verifying the wear out mortality within the expected lifetime of parts.
Radiation Verification Tests		TID (ESCC 22900 / MIL STD 883 1019) and SEE (ESCC 25100)	Verification of electrical performances under radiation.
Lot Trace Code validation			
Radiation Verification Tests	Teledyne -X1	TID (ESCC 22900 / MIL STD 883 1019) and SEE (ESCC 25100)	Verification of electrical performances under radiation.