

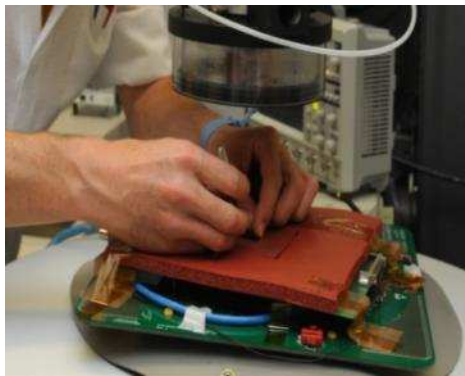


SERMA Technologies

Presentation

ETM[®]: Electronic Technologies Management

The engineering offices and the Laboratories SERMA Technologies are implanted in Pessac, Les Ulis, Grenoble and Chambéry

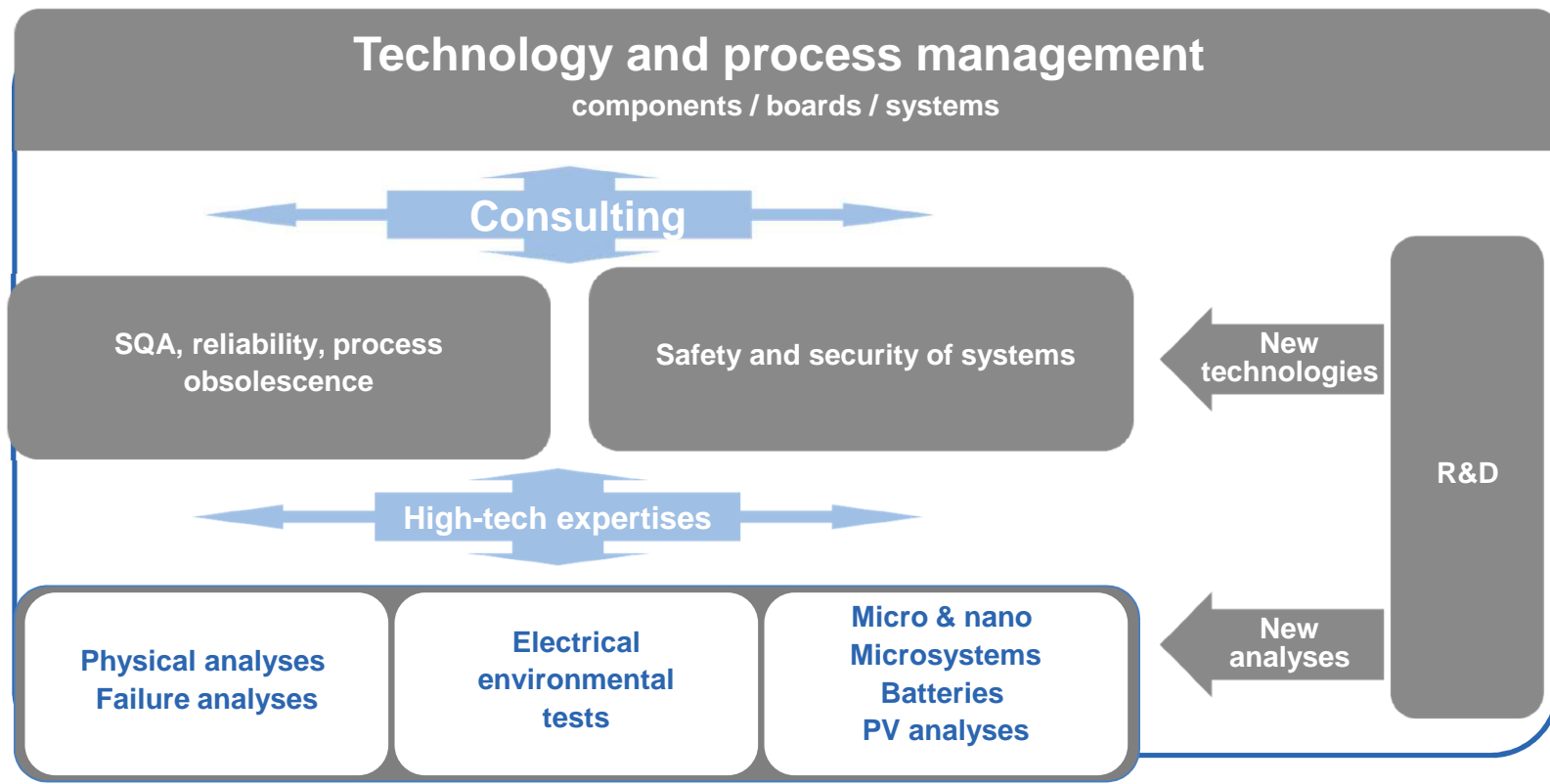


- ▶ Expertise and consulting service of electronic components, boards and systems.
- ▶ Laboratories tests and physical analysis
- ▶ Training
- ▶ R&D - partnerships on innovative technologies

- ▶ Staff: 170 with 90% of Engineers & Technicians
- ▶ 7000 m² of laboratories
- ▶ 7000 expertises by years
- ▶ 25 M€ worth of equipments



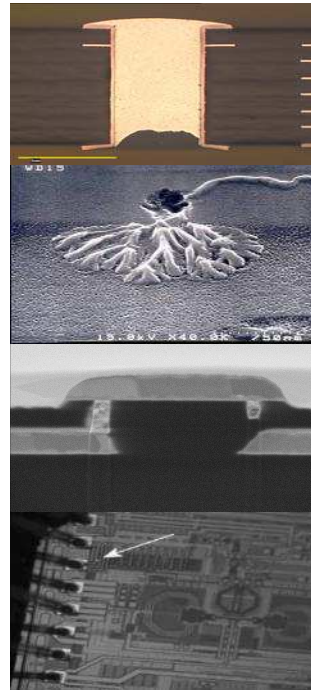
ETM[®]: Electronic Technologies Management



ETM[®]: Physical expertise

A large range of equipments:

- Sample preparation
- Physical / Chemical Analysis
- Optical microscopes (up to 2400 x 2400)
- SEM with EDX system
- Focused ion Beam imaging
- Castaing Microprobe (WDS)
- 2D & 3D X-Ray
- X-Ray Fluorescence



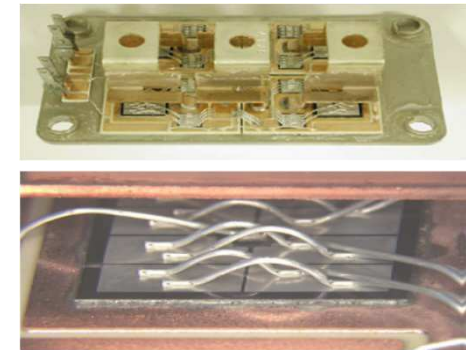
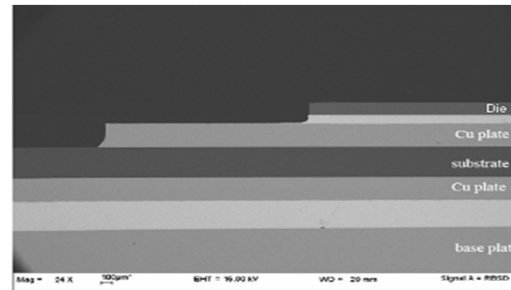
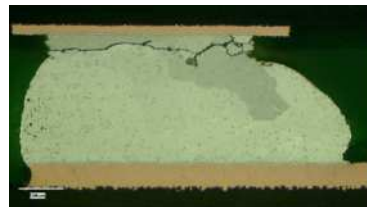
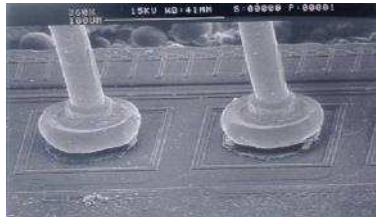
- Acoustic microscopy
- Micro-probing
- Laser Cutter
- Wet etch and plasma dry etch
- Transmission Electron Microscopy
- Atomic Force Microscopy
- Metallic and molecular contamination



ETM[®]: Physical expertise

Technological analysis

- ▶ Construction analysis
- ▶ DPA
- ▶ Physical and chemical characterization
- ▶ Counterfeit detection
- ▶ Destructive physical analysis (DPA)
- ▶ "Critical Process" expertise
- ▶ Circuit edit with navigation system



Failure analysis

- ▶ Plastic package functional opening
- ▶ Electrical and physical defect localisation
- ▶ Failure mechanism understanding
- ▶ Root cause determination
- ▶ Corrective actions plan definition



ETM[®]: Electrical expertise

- ▶ Development of test solutions
- ▶ Go/NoGo test, upscreening (7000 test programs in our library)
- ▶ Parametric characterization (AC / DC, Functional)
- ▶ Qualification according to standards (ESCC, MIL, AECQ100...) including radiation tests
- ▶ Customized evaluation (non-standard specifications)
- ▶ Sreening & upscreening
- ▶ Lot qualification, lot acceptance test
- ▶ ESD, latch-up, electromigration



Verigy 93K



Mu-Test



ETM[®]: Environmental tests

- ▶ Thermal cycles/Thermal shocks
- ▶ Temperature & humidity
- ▶ Pressure cooker & HAST
- ▶ High-temperature storage, burn-in
- ▶ HALT (-100°C/+250°C ; 70°C/mn ; 70 g) / HASS
- ▶ Mechanical vibration
- ▶ Mechanical shocks
- ▶ Constant acceleration
- ▶ Performances & endurance tests on batteries



Batteries/Batteries Management Systems (BMS)

Testing, expertise and consulting

Engineering

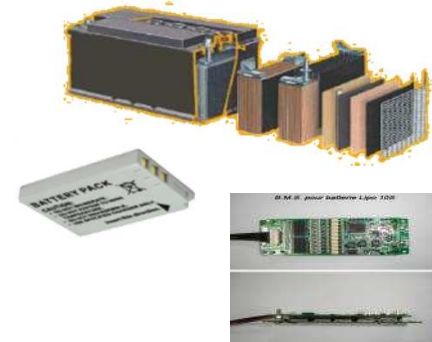
- ▶ Technological choice
- ▶ Benchmarking
- ▶ Test validation & endurance plans
- ▶ Definition of mission profiles
- ▶ Reliability
- ▶ Support to BMS development
- ▶ Manufacture BMS hardware
- ▶ Audit
- ▶ Development of control algorithms*
- ▶ Training*

Markets

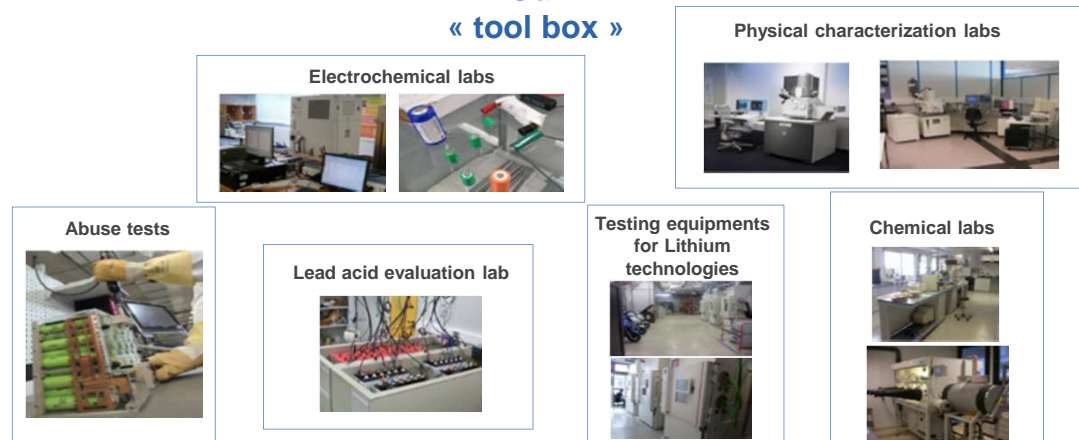
- ▶ Automotive, transports
- ▶ Medical, telecom
- ▶ Avionics and space, industry
- ▶ Consumer electronics
- ▶ Research, battery manufacturers

Laboratory

- ▶ Problem solving
- ▶ Full construction analyses
- ▶ Post-mortem & failure analyses
- ▶ Material characterization
- ▶ Performances & endurance tests
- ▶ Process & test validation
- ▶ Supplier quality assurance
- ▶ Qualification
- ▶ Abuse tests (UL1642, UN 38.3 ...)



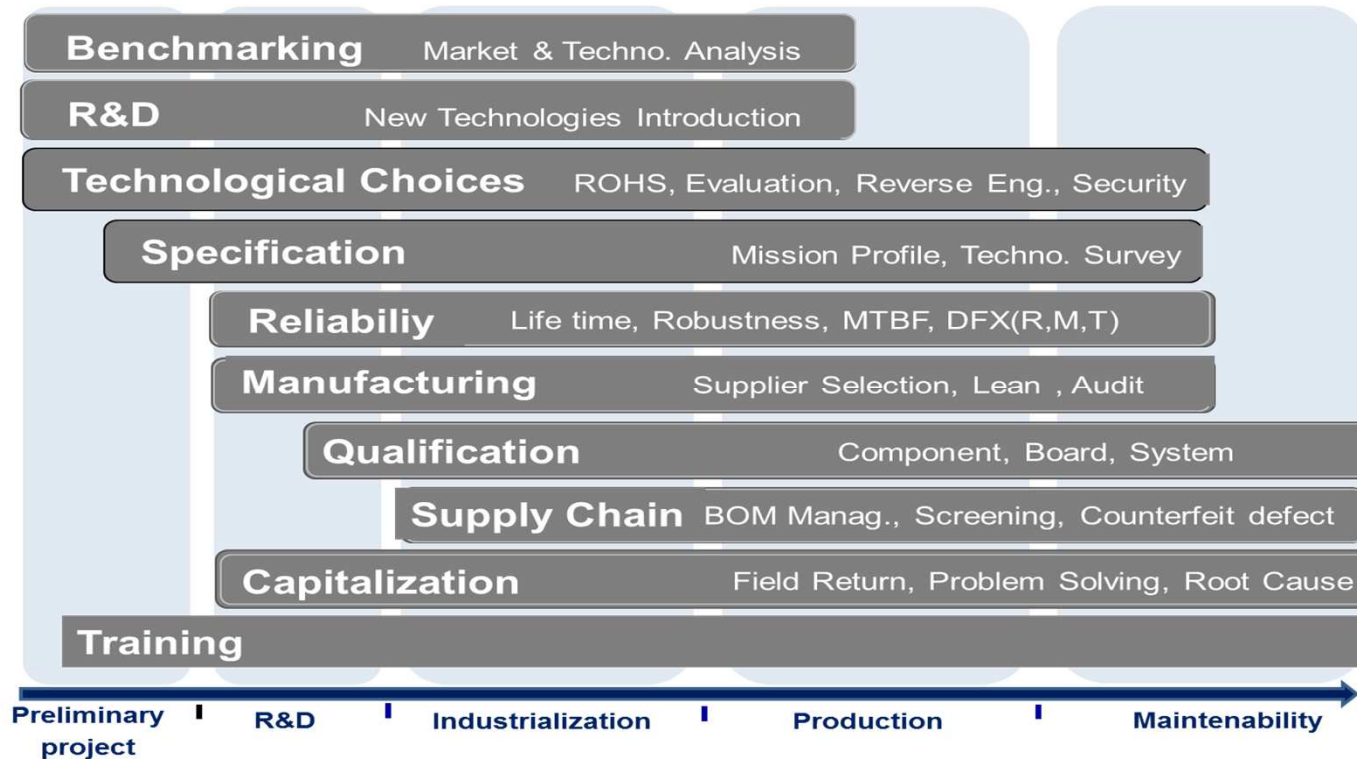
Our « tool box »



* : In partnership with



ETM[®]: Consulting



Training



- ▶ TECHNOLOGIES: PCB, Passive, Active, Magnetic, Power comp.
- ▶ ASSEMBLY: Board assembly, Lead-free, ESD protections, ESD standards
- ▶ AUDIT: Board assembly line audit
- ▶ FAILURE ANALYSIS: Failure mechanisms, Physical analysis
- ▶ SUPPLIER QUALITY ASSURANCE: PPAP, Obsolescence Management, Storage of components and boards
- ▶ INSPECTION AND CONTROL: Inspector Certification IPCA600 & PCB IPCA610
- ▶ RELIABILITY: Reliability improvement, Qualification plans, FMEA
- ▶ DEPENDABILITY: Design & architecture of safety critical system (IEC 61508, CENELEC 50128)
- ▶ ELECTRONIC SYSTEMS DESIGN & DEVELOPMENT: EMC, DO254, Information Technology Security



Contacts



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