



Design, Development, Consultancy Support and New Product Introduction Capability

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www.linwave.alaris.tech



About Us

Alaris Linwave, a subsidiary of the Alaris Group, excels in creating custom microwave integrated modules that operate up to 100 GHz. Our high-performance RF solutions cater to various sectors such as Defence, Aerospace, Marine, Space, Security and Satcom, with a focus on applications in harsh environments. We are based in Lincoln in the UK, have been operating for over 20 years, and have a workforce of over 40 people. Our main business is the design and manufacture of active RF modules and sub-systems intended for use in harsh environments.



Capabilities

Alaris Linwave possess a full range of design, qualification, manufacture and testing capability, to deliver a wide range of high value, high quality RF solutions. The company excels in managing complex customised projects through its robust New Product Introduction (NPI) process with gated reviews for a wide range of applications.

We offer the following routes for customers:

- Custom RF designs based on user specifications.
- Alternative design solutions to address obsolescence issues.
- Modification of existing products to customer specific requirements.
- Contract design, qualification, verification and manufacture.
- Design integration of sub-assemblies and components into custom modules.
- Manufacture from one-offs, prototypes, design demonstrators up to low to medium volume serial production.

OUR CAPABILITIES ARE BASED AROUND THE FOLLOWING:

1. Deep Technical Expertise

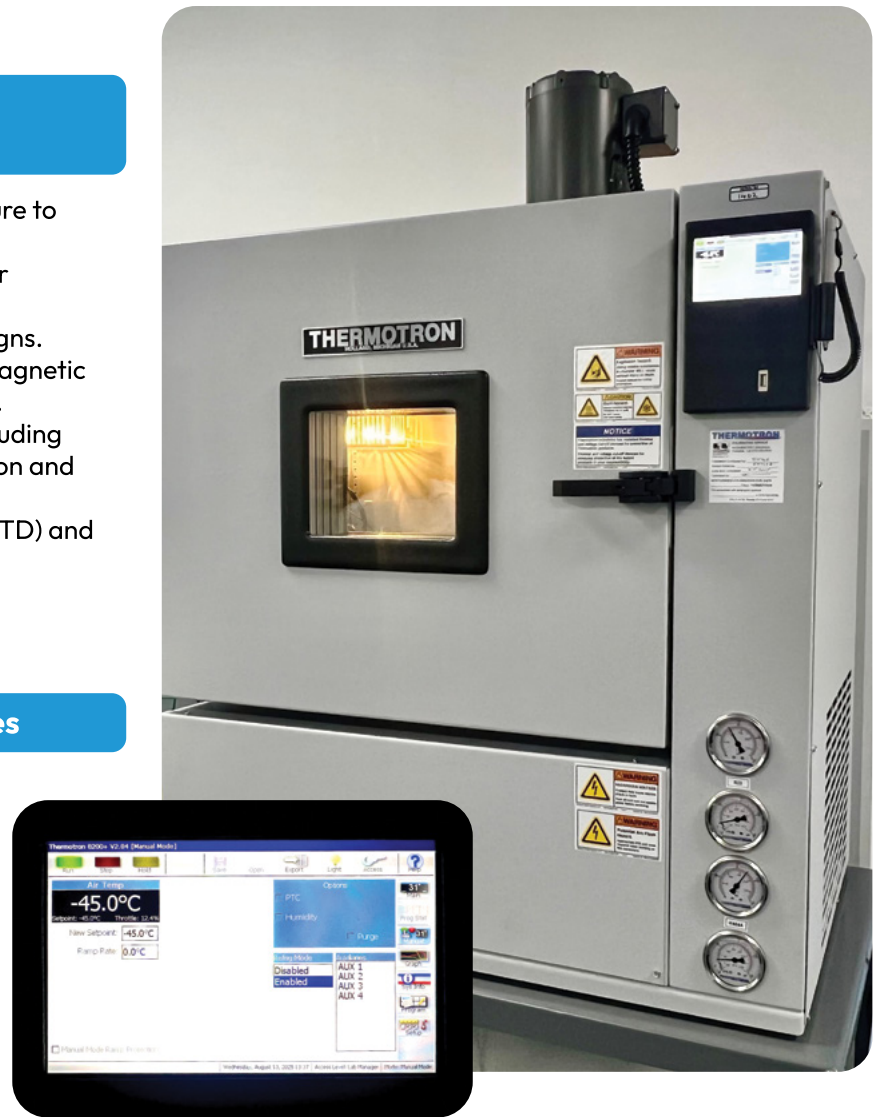
- Team of seasoned RF engineers, mechanical designers, analogue and digital electronic/PCB designers, simulation specialists and programmers.
- Proven track record delivering radar components and subsystems for aerospace, defence, telecoms and automotive applications.
- Continuous investment in R&D to stay ahead of emerging technologies, materials, test, manufacturing and RF trends.

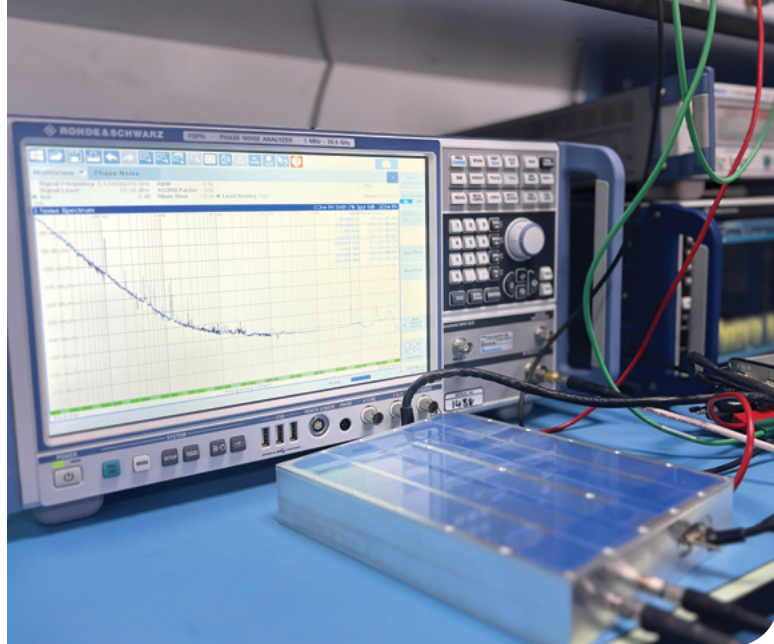
2. End-to-End New Product Initiative (NPI) Support

- Feasibility studies and requirements capture to de-risk early stages.
- Collaborative design partnerships with our customers to develop meaningful product specifications and optimised product designs.
- Concept sketches, linear and 3D electromagnetic modeling and detailed mechanical design.
- Rapid prototyping in our in-house lab, including 3D printing, prototype hardware realisation and anechoic-chamber validation.
- Guidance on certification (CE, FCC, MIL-STD) and regulatory compliance.

3. Agile, Fast-Turnaround Processes

- Parallel workflows: design, simulation, tooling prep and test-planning run concurrently.
- Modular project management - regular milestone reviews to keep you in control.
- Dedicated project lead ensures quick decisions, transparent status updates and slashed lead times.





4. Bespoke Customization & Cost Optimization

- Tailor-made component, module and sub-system designs to meet form-factor, weight and performance targets.
- Value-engineering reviews to balance cost, material choice, ultimate performance and manufacturing complexity.
- Scalability planning - seamless transition from low-volume prototypes to high-volume production.
- Obsolescence management and redesign support to replace obsolete parts from mature designs.

5. Robust Quality Assurance & Reliability

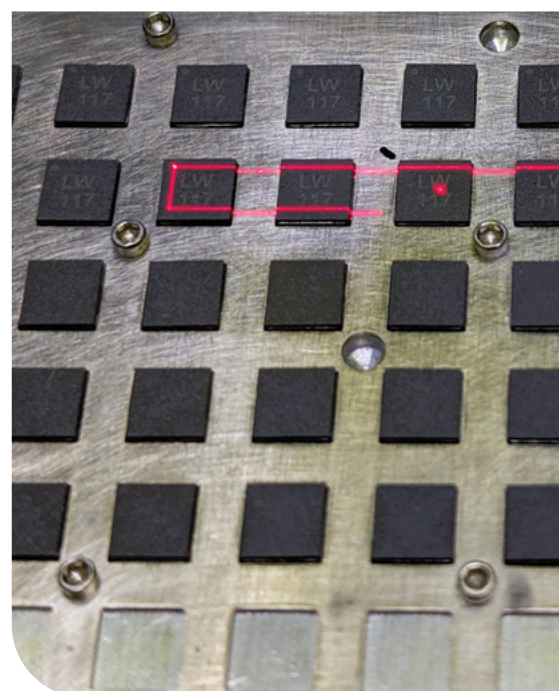
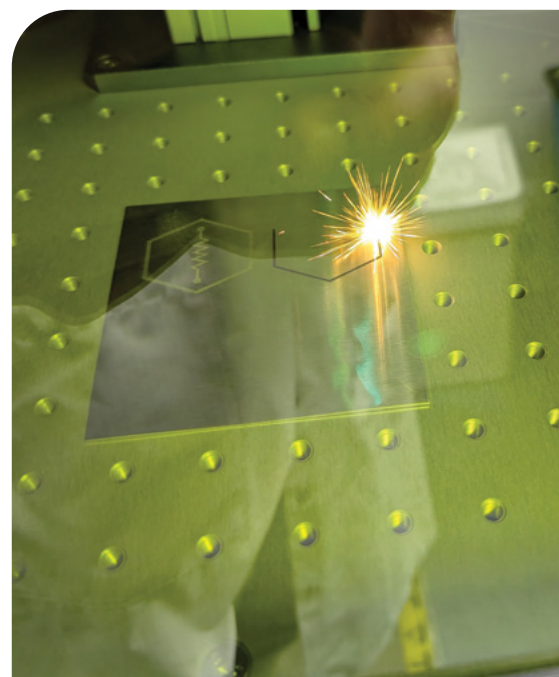
- JOSCAR, ISO 9001, AS9100D and ISO14001 accredited design and manufacturing facilities.
- Environmental and lifecycle testing (thermal cycling, vibration, shock, life-testing) to guarantee field-ready reliability.
- Full traceability of materials and processes, bolstered by Six Sigma Quality best practices.

6. Collaborative, Client-Centric Partnership

- Embedded consultancy approach: working as an extension of your NPI team.
- Knowledge transfer workshops and design reviews empower your engineers.
- Open IP-protection policies ensure your innovations stay yours.

7. Flexible Manufacturing Facility

- Broad range of manufacturing and test capability to support anything from one-off proof of concept hardware to volume manufacture for serial production.
- Class 10,000 cleanroom to facilitate designs with bare die components.
- Solder and eutectic Die mount capabilities alongside ball, wedge and tape bond processes.
- Mixed technology capabilities covering traditional surface mount softboard and chip and wire processes within the same design.
- Support for obsolete product repairs in order to extend the operational life of aged designs.



8. Global Manufacturing & Supply Chain Resilience

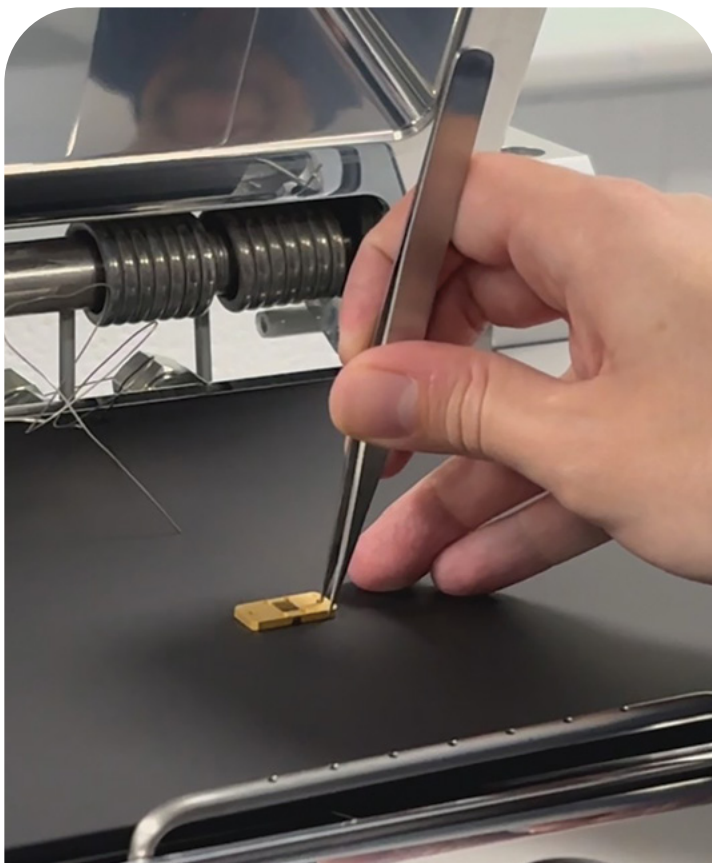
- Multi-site production network across Europe, Africa and the US for geopolitical and logistical risk mitigation, and to provide increased capacity through the product lifecycle should it be required.
- Local sourcing options to reduce lead times and minimize carbon footprint.
- Real-time supply-chain tracking and buffer-stock strategies for uninterrupted delivery.

9. Post-Launch Support & Lifecycle Management

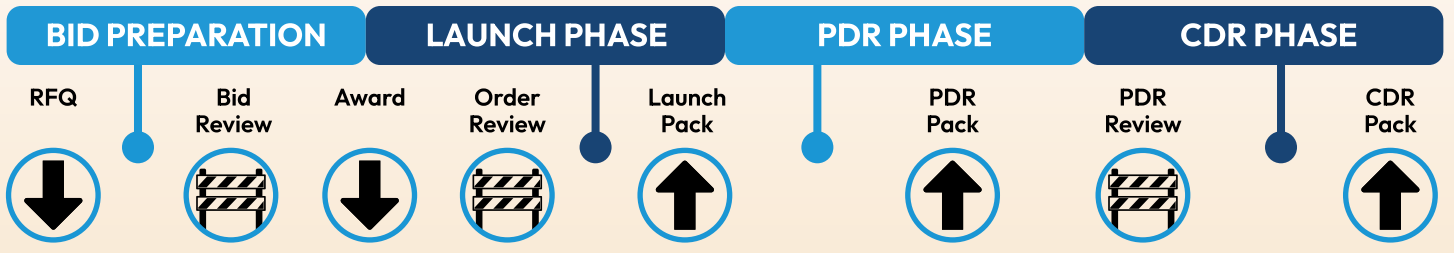
- 24/7 technical support hotline and rapid-response spares program.
- Field-data analysis and design refinement services for continuous performance improvements.
- End-of-life transition planning, including recycling and responsible disposal options.

Next Steps & Further Considerations

- Share your NPI timeline and key milestones to tailor our engagement plan.
- Review relevant case studies where Alaris Linwave cut time-to-market by 30-50%.
- Explore co-development workshops to accelerate concept validation.



DPF24-NPI PROCESS REVIEW CYCLE



Bid Preparation:

- Technical Proposal (*)
- Technical Compliance Statement (*)
- SOW Compliance Statement (*)
- Contract Compliance Statement (*)
- Timescales Assessment (*)
- Project Plan (*)
- Costs Estimate
- Proposed Sales Prices
- RFQ Review Form
- Authorised Costs Sheet
- Formal Quotation (*)

(*) Marked Items as required are part of the customer proposal

NEGOTIATION Q+A

Launch Phase (as required):

- Launch Review Presentation pack to include:**
- Summary of End Application and who it is for
 - Value of Current Opportunity and Future Sales
 - Strategic Importance to Company
 - Key Customer Contacts
 - Key Commercial Points e.g. Security, Penalties
 - Technical Summary of Approach (Eng')
 - Logistics Summary of Development (PM)
 - Design Review Checklist
 - Project Workbook
 - Baseline Project Cost and Timeline Plan Target Agreement
 - Risk Register
 - Statement of Compliance to Specification / SOW

Provisional Design Review (as required):

- PDR Presentation Pack to include:**
- Deliverables Summary
 - Technical Compliance Summary
 - Concept Functional Block Diagram
 - System Analysis
 - Reliability Analysis
 - Failure Mode Affects and/or Fault Tree Analysis (*)
 - Software/Firmware Specification (*)
 - Automated Test Specification (*)
 - Initial Design Verification Matrix
 - Identification of Requirements for Qualification Tests, Acceptance Tests, Environmental Test requirements (*)
 - Concept Manufacturing Process
 - Design for Manufacturing Aspects
 - Safety and Environmental Assessment
 - Special to Type Jigs and Tools Identification
 - Initial BOM
 - Definition of Support Documentation Requirements (*)
 - Compliance Matrix
 - Critical Assumptions definition
 - Current Project Plan
 - Statement of Work Compliance
 - Project Workbook
 - Risk Register
 - Project Management Plan
 - Target Costs Analysis and Time Variance
 - Open Action List
 - Design Review Checklist
 - Percentage Variances
 - Time
 - Cost
 - Agreement to Proceed

Critical Design Review:

- CDR Presentation Pack to include:**
- Deliverables Summary
 - Technical Compliance Summary
 - Final Functional Block Diagram
 - System Analysis
 - Detailed Schematics
 - Detailed Mechanical Solution
 - Reliability Analysis
 - Updated Failure Mode Affects and/or Fault Tree Analysis (*)
 - Critical Component Analysis
 - Software/Firmware Status (*)
 - ATE Software Status (*)
 - Status Design Verification Plan and Report
 - Status of Requirements for Qualification Tests, Acceptance Tests, Environmental Test Requirements (*)
 - Finalised Manufacturing Process
 - Adopted Design for Manufacturing Aspects
 - Updated Safety and Environmental Assessment
 - Special to Type Jigs and Tools Details
 - Component Level BOM
 - Status of Support Documentation Requirements (*)
 - Updated Compliance Matrix
 - Updated Critical Assumptions
 - Updated Project Plan
 - Updated Statement of Work Compliance
 - Project Workbook
 - Risk Register
 - Updated Project Management Plan
 - Updated Target Costs + Time Variance + Percentage Variance Analysis
 - Provisional Datasheet
 - Open Action List
 - Design Review Checklist
 - Agreement to Proceed

REVIEW CYCLE: FROM AWARD TO CLOSURE

- **Quarterly**
 - Board Level Executive Review
- **Monthly**
 - Management Executive Review
- **Weekly**
 - Project Status Review
 - Sales and Opportunity Review
- **Daily**
 - Progress Status
 - CSIP action status

MRR/TRR PHASE

CDR Review



MRR/TRR Pack



MRR/TRR Review



FDR PHASE

FDR Pack



CLOSURE

FDR Review



Closure Review

Manufacturing Readiness / Test Readiness Design Review (as required):

MRR/TRR Presentation Pack to include:

- Sub-module Assembly Instructions
- Sub-module Test Instructions
- Sub module ESS Instructions
- Complete Software / Firmware (*)
- Complete ATE software (*)
- Full BOM on Business System
- Module Assembly Instructions
- Final Design Verification Plan and Report
- Final Qualification Test Plan and Report (*)
- Final Acceptance Test Plan and Report (*)
- Status on Commissioning Activities for Hardware
- Status on Commissioning Activities for Software (*)
- Acceptance or Rejection from Production Head

Final Design Review:

FDR Presentation Pack to include:

- Deliverables Summary
- Technical Compliance Achieved
- Final Functional Block Diagram
- Margin Analysis
- Reliability Analysis / MTBF
- Critical Component Analysis
- Final Software/Firmware
- Final ATE Software
- Populated Design Verification Report
- Populated Qualification Report (*)
- Populated Design Verification and Tests report (*)
- FAI Report (*)
- FMEA (*)
- Thermal Analysis (*)
- Populated Environmental Stress Screening Report / Procedure (*)
- Finalised Manufacturing Process
- Updated Safety and Environmental Assessment
- Special to Type Jigs and Tools Details (*)
- Component Level BOM on Business System
- Support Documentation (*)
- Updated Compliance Matrix
- Updated Critical Assumptions
- Updated Project Plan
- Updated Statement of Work Compliance
- Project Workbook
- Risk Register
- Maintenance Schedule (*)
- Disposal Requirements (*)
- Updated Project Management Plan
- Updated Target Costs + Time Variance + Percentage Variance Analysis
- Open Action List
- Design Review Checklist

Project Closure Review:

- Certificate Of Design (*)
- Issued Datasheet
- Updated Target Costs + Time Variance + Percentage Variance Analysis
- Recommended Actions To Address Overspend Risks
- Training Requirements (*)
- Stock Report
- Obsolescence Summary
- IPR Submission (*)
- Capital Procurement Recommendations (*)
- Current Pricing Analysis
- Further Cost Down Opportunities
- Opportunities For Design Re-Use
- Further Opportunities For Design Exploitation
- Lessons Learned Summary And Analysis
- Newsletter Submission (*)
- Communication to Sales Network
- Communication to Alaris Linwave Staff and Sub-contractors
- Open Action List
- Design Review Checklist

PROTO/PRE-PROD PHASE (MAY INCLUDE QUALIFICATION/CERTIFICATION)



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