



Radel Advanced Technology Pvt. Ltd.

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Complete design **solutions** for
Aerospace and Military Applications

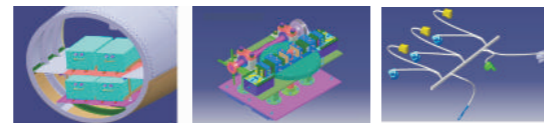
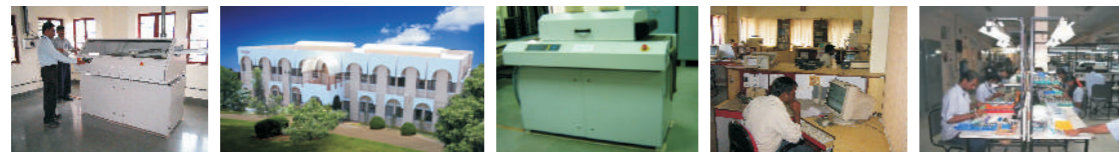


ABOUT US

Radel Advanced Technology Pvt. Ltd. is a CEMILAC-approved design and engineering services organisation, promoted by technocrats with decades of proven track records in the aerospace industry. The specialists at Radel have executed various projects ranging from design and development of avionics equipment to systems installation and integration on various Indian military aircraft and helicopters such as the Jaguar, Dhruv ALH, Cheetah, Chetak, Kiran, HPT 32, etc. The design team has the expertise to undertake design and modification of structural elements required for installation of new equipment. Radel engineers have interacted extensively with Indian certification agencies such as CEMILAC, DGAQA, and DGCA and are fully familiar with the certification procedures and documentation requirements. The designers are completely familiar with the requirements of MIL STD-810, MIL STD-461/462, MIL STD-704, DO-160, DO-254, etc. In association with its sister organisation, Radel Electronics Pvt Ltd, an ISO 9001:2000 certified electronics design and manufacturing organisation that has been producing innovative electronic products for the past 30 years, Radel ATG provides mature, state-of-the-art electronic design and manufacturing services. Radel places a great deal of emphasis on building a long-term relationship with the customer to provide prompt and efficient delivery of quality services and products.

INFRASTRUCTURE

- Located in the prestigious Electronics City in Bangalore.
- 2000 sq. mtrs. of floor space.
- Facilities for design and development: PCs with CAD/CAM packages (CATIA V5, Zuken E3, CADSTAR PCB design, LabVIEW, etc.), development environment for embedded software, test and simulation tools, qualified and trained engineers.
- Comprehensive test and measurement facilities, besides standard electronic manufacturing facilities such as wave soldering and reflow oven.



SERVICES OFFERED

Aerospace and military applications

- Systems design - Installation, Integration, Testing and Documentation.
- CAD/CAM services for mechanical, electrical design.
- Wiring harness design and manufacture.
- Design and development of airborne and ground support equipment.
- Sub-contract manufacture of electronic equipment and modules.
- Documentation support.

TYPICAL SERVICES

Aerospace systems integration

- Equipment installation design.
Executed a design subcontract for CMDS installation on a state of the art Indian military aircraft using CATIA V5.
- Executed a subcontract from HAL for the design of a floor mounted Equipment Rack comprising aluminium and composite structures, cooling arrangements, etc. for a special installation on one of their helicopters.
- Preparation of wiring drawings, loom drawings and routing drawings.

- Harness installation drawings in 2D as well as 3D mock-ups.
- Fabrication of installation bracketry and Harness.
- Documentation: Operation Manuals, Maintenance Manuals, Illustrated Parts Catalogues, etc.

DEVELOPMENT OF ELECTRONICS AND INTERFACES

Airborne equipment

- Audio management, warning systems and interface equipment.
Designed and manufactured a digital Voice Warning System with facility for 14 voice messages aired in response to analog / digital trigger inputs. The unit can be offered in various configurations to suit the requirements of any aircraft.
- Design of multilayer PCBs.
Designed and supplied a number of multi-layer PCBs (upto 16 layers) for analog, digital and hybrid circuits for use in a sophisticated military armament equipment.
- Design of analog and digital circuits employing micro-controllers - fully familiar with protocols such as MIL STD 1553B, ARINC-429, etc; can provide customised interface units for upgradation of aircraft and helicopters with new systems.
- Design and manufacture of wiring harnesses – End to end solutions for design of wiring harnesses from schematic capture to routing on 3D mock-up and generation of flattened harness drawings for

- manufacturing support, using state of the art software.
- Design of mechanical packaging of electronic circuits.

Ground Support Equipment

- Special to Type Test Equipment.
Intercom Test Jig for ALH – Developed and supplied to HAL for carrying out bay servicing of the intercom LRUs.
- RMI Test Jig –A microcontroller-based test jig for functional testing of radio magnetic indicator that enables testing of the compass indication as well as the ADF indication. The test jig is fully solid-state without any moving parts, and generates digitally synthesized synchro signals.
- Test jigs based on virtual instrumentation.
Designed and developed LabVIEW based automated test equipment for functional tests on a set of analog and digital electronic modules consisting of operational amplifiers, microprocessors, digital-to-synchro convertors etc. forming part of a military equipment.

Subcontract Manufacture

- Manufactured the Generator Control and Protection Unit under subcontract from HAL, Lucknow Division. The work involved fabrication of metal parts and housings, printed circuit assemblies, interconnection wiring and testing.
- Radel also manufactures wire harnesses under subcontract.

