

# AdvEOLab



## AdvEOLab

### State of the art measurements

Optoelectronics is a high growth emerging sector that requires rapid and efficient performance evaluation for market-driven products. Various techniques allow characterisation under different conditions.

**AdvEOLab**, is a Test House service offered to manufacturers, integrators, designers and users who can interact with our experts on a confidential basis. Access is given to a modern laboratory dedicated to measurement, tests, reliability evaluation, qualification and analysis of opto components and their systems.

Examples :

- Lasers, Photodiodes, Laser diodes, Light Emitting Diodes (LED), opto-couplers...
- Modulators, Wavelength conversion module, Couplers ...
- Optical fibers, Connectors, ...
- Modules and microwave components...
- Data transmission...
- Components and subsystems (optoelectronics, electrical and optical)

# AdvEOLab

## Test, Evaluation & Qualification

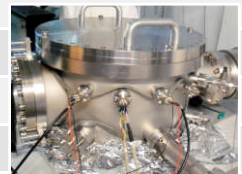
### Climatic Tests

High and low temperature storage  
 Damp heat storage  
 Temperature cycling  
 Thermal shock  
 Accelerated ageing in air, nitrogen or other gaseous atmospheres  
 Special tests : moisture, salt spray, fungus...



### Vacuum tests

Primary and secondary vacuum test down  $10^{-7}$  mbar  
 Thermal management in vacuum  
 Monitoring : Optical, Electrical, Pressure, contaminants...  
 Clean room environment (class 100)  
 Vacuum Thermal Cycling



### Mechanical tests

Fiber Pull test with in-situ monitoring  
 Vibration, shock  
 PIND Test  
 Electrical and optical contact cut off monitoring down to 2ns



### Radiation tests

Proton radiation  
 Gamma radiation



### Tests ESD & COD

ESDS Tests (Electrostatic Discharge Sensitivity)  
 EOS Tests (Electrical Overstress)  
 Optical COD test on laser diodes (Catastrophic Optical Damage)



*Non-exhaustive list*

Standard Operating Procedures are set up for each programme in order to ensure tracability and reliability of test results.

These procedures are applied from component reception and during all the sequences.

Our methods and procedures have been audited by our customers (Space, Aeronautic, Military, Telecommunications...).

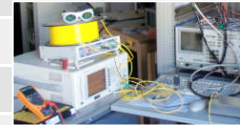
Our laboratories comply with the IEC 61340-5-1&2 standards for ESD protection.



## Optoelectronics : Measurement, Characterisation and Monitoring

### Optical Sources and Emitters

Optical power versus laser current, $L(I)$
Monitoring photodiode versus laser current, $I_{mon}(I)$
Laser voltage versus laser current, $V(I)$
Optical spectrum (UV, Visible, IR)
Optical bandwidth, FWHM
Wavelength, $\lambda$
Return Loss, RL
TEC power consumption (ThermoElectricCooler)
Polarisation Extinction Ratio, PER
Optical Noise measurements, RIN
Low level, $I(V)$
Laser Linewidth, (MHz) or $\Delta\lambda$
Optical divergence
Thermal resistance (non destructive method), $R_{th}$



### Optical sensors and receivers

Dark current versus voltage, $I_d(V)$
Responsivity, $S(I,\lambda)$ [A/W], Quantum efficiency
Photocurrent versus voltage, $I_{ph}(V)$
Capacitance, $C(V)$
Response time measurement, $T_r$ , $T_f$
Avalanche gain versus voltage, $M(V)$
Optical crosstalk, XT



### Passive devices (fibre or free space)

Insertion Loss, IL
Return Loss, RL
Polarisation Dependence loss, PDL
Spectral transmission and reflection
Wavelength dependence loss
Mode Field Diameter, MFD
Crosstalk, XT
Photometry (Photopic, Scotopic)
Radiometry



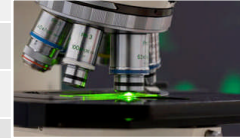
*Non-exhaustive list*

Find the list of our optical, electronic and RF/Microwave measurements in our leaflets and website [www.adveotec.com](http://www.adveotec.com).

# AdvEOLab

## Analysis and Modelling

Conformance and reliability analysis, FMEA  
Statistical analysis  
Non destructive and destructive physical analyses, NDPA and DPA  
Electric Optical, thermo-mechanic and radiation modelling



## Expertise and Support

Technological consulting  
Training  
Definition & Validation of specifications  
Industry technical/economic surveys



## National, European and International standards and regulations

Telecommunication: Telcordia, GR 468, GR1209, GR1221, IEC, ETSI...  
Space : ESC, MIL STD 883, MIL STD 750, ESCC-Q-20B...  
Aeronautics: NF EN 2591, EUROCAE ED14/RTCA DO160, MIL STD 461...  
Defence/Military: MIL STD 883, MIL STD 750, MIL STD 1553, MIL STD 810...  
Connector applications : IEC 60 300, Telcordia 1209, Telcordia 1221, NF EN 2591...  
More applications : Transportation, Industry, Energy, Biotechnologies...



### AdvEOTec with you for Advanced Electro-Optical Technologies

#### Services

AdvEOTec designs and implements a wide range of tests and measurements : thermal measurements, microwave measurements, noise measurements, vibration tests, shocks, radiation tests (ionising and non ionising)... Its Services Department provides support for the management of complete programmes.

#### Products

In addition to its services, AdvEOTec designs and builds turn-key equipment according to customer specifications. AdvEOTec takes in charge the specification validation, the equipment fabrication, the software development, the system industrialisation and the operator training. AdvEOTec ensures the regular servicing and updates.

### Measurement of Optoelectronics, Optoelectronics for Measurement

#### CONTACT

6 - 8, rue de la Closerie, Lisses  
ZAC Clos aux Pois CE5270  
F-91052 EVRY Cedex – France

Tel : +33(0)1.60.86.43.61  
Fax : +33(0)1.60.86.43.87  
contact@advteotec.com

www.advteotec.com