COPI is a universal test bench able to fully characterize the performance of any optoelectronics system, operating from visible wavelengths to far-infrared. It replaces the multitude of specific testing tools related to each equipment by a single and polyvalent optronic test system. The modular and versatile mechanical configuration of the universal multispectral collimator, associated with a dedicated exhaustive test software, enable very fast configuration setting for testing all existing or in-development optoelectronics systems:

- TV cameras
- Night and day vision goggles
- Thermal imagers 3-5/8-12 µm
- Laser rangefinders and illuminators (1.06 - 1.54 - 10.6 µm)
- Complete sighting systems

COPI universal test bench consists of 3 parts:

- The optical bench, with an off-axis parabolic mirror, collimates radiation from a set of sources selected via a motorized rotating mirror. It includes motorizations, to select the required focal length and to adjust the optical axis in azimuth, elevation and height. Depending on tests to be performed, it can also include acquisition sensors (CCD camera, radiance meter, joule meter, laser beam analysers, high-speed and high-sensitivity detectors)
- Electronic cabinets control sources and targets selection, optical axis alignment, acquisition sensors power supplies and signals. They also comprise the power supplies and the electronic racks for the unit under test (UUT).
- The computer cabinet, with a ruggedized PC, includes a software to perform a bench autotest, to control the selection of sources and targets, and to assess the performance of the UUT, with an exhaustive range of tests:
  - Noise tests: temporal noise, SiTF, NETD
  - Spatial tests: optical axis alignment, field of view, LSF, MTF, azimuth and elevation ranges
  - Range tests: MRTD, DRI ranges, MDTD, TQD
  - Visible tests: Gain, spatial resolution, infinity focus, dynamic range, zero and focus of eyepiece, parallelism of the 2 optical axes of goggles, detection of spot defects
  - Laser and rangefinder tests: laser energy, beam divergence, accuracy of distance measurement
  - Alignment test and measurement:
    - between IR or visible axis and mechanical axis
    - between IR axis and visible axis
    - between transmitter and sight axis
    - between receiver and visible axis

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**TECHNICAL DATA**

### COLLIMATOR
- **Optical aperture**: 150 mm diameter
- **Focal length**: 1524 mm
- **Spatial resolution**: 20 μrad for 50 mm aperture
- **Focusing range**: 60 m to ∞, motorized (optional: shorter distance)
- **Beam orientation**: -30° to +60° elevation motorized, ±1.5° azimuth motorized for a 100 mm aperture
- **Orientation accuracy**: 0.002° relative, 0.04° absolute
- **Motorized vertical translation**: 500 mm range
- **Spectral bandwidth**: 0.5 to 14 μm
- **Sources selection**: Motorized

### COMPUTER CABINET
- **Control computer**: Industrial type
- **Video display**: LCD monitor
- **Video acquisition formats**: CCIR, RS170, PAL, NTSC, Camera Link, LVDS, Gigabit Ethernet
- **Power supply**: Uninterruptible power supply

### VISIBLE AND NEAR INFRARED SOURCE: VIS1000
- **Spectral bandwidth**: 0.5 to 1.1 μm
- **Radiance**: 0.00032 to 32 Cd m⁻²
- **Colour temperature**: 2856K and/or 3000K
- **Targets**: Motorized selection for alignment, focus, resolution, etc.
- **Autocollimator**: CCD camera with 0.1 mrad resolution

### DIFFERENTIAL BLACKBODY: DCN1000H2
- **Spectral bandwidth**: 3 to 14 μm
- **Temperature difference**: Adjustable from -35 °C to +130 °C
- **Stability**: ± 0.002 °C
- **Emissivity**: > 0.98 ± 0.02
- **6 position motorized target wheel**: for MRTD, NETD, MTF, etc.

### LARGE AREA SOURCE
- **Spectral bandwidth**: Visible
- **Size**: 160 mm diameter
- **Irradiance**: 1.75 kLux

### ACCESSORIES
- **Periscope for test of multisensor systems**
- **Specific support for heavy UUT**

### LASER & RANGEFINDER TEST RESOURCES
- **Wavelengths**: 1.06 - 1.55 μm
- **Laser beam analyzer**
- **Joulemeter**
- **Flight distance simulation**: through fiber optic or time delay generator

Above information is subject to changes without notice.