



COPI™

Universal Test Bench for Optronic Maintenance

INTRODUCTION

In response to the multiplicity of optronic equipment used by Defence Forces, HGH proposes a universal bench for optronic tests and maintenance. It aims to replace the multitude of specific maintenance tools related to each equipment by a single and polyvalent optronic test system.

The modular structure of the universal multispectral collimator enables very fast configuration setting for testing all optronic 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

Every existing or new optronic system can be easily tested on the bench, using mechanical and electronic interfaces and a dedicated software for test and diagnostic.

CONFIGURATION

The COLLIMATOR includes an optical bench surrounded by two electronic cabinets.

The optical bench comprises motorised mirrors for azimuth / elevation orientation of axis. An off-axis parabolic mirror collimates radiation from a set of sources / detectors selected via a motorised rotating mirror.

The optical components are accurately set by micropositioning devices. A multispectral window seals the optical compartment from the dust.

The electronic cabinets comprise the control units for sources, micropositioning devices, the power supplies and the electronic racks for the unit under test (UUT).

The COMPUTER CABINET includes a ruggedized PC computer with colour display and printer. The software main functions are :

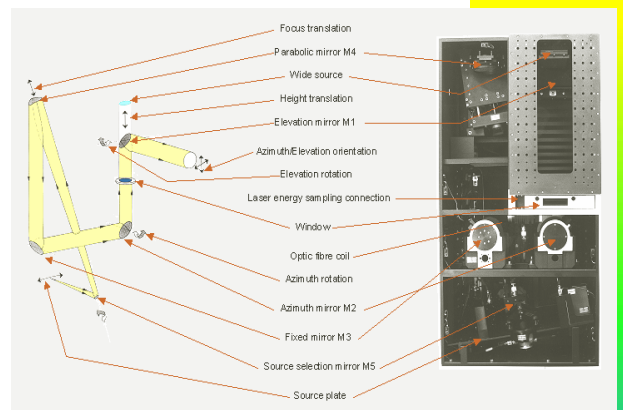
- Collimator control
- Bench autotest
- Selection of automatic / manual test mode
- Specific diagnostic of UUT performance
- Operation check after maintenance on UUT
- Selection of bench transport configuration

More specifically, the software enables to perform :

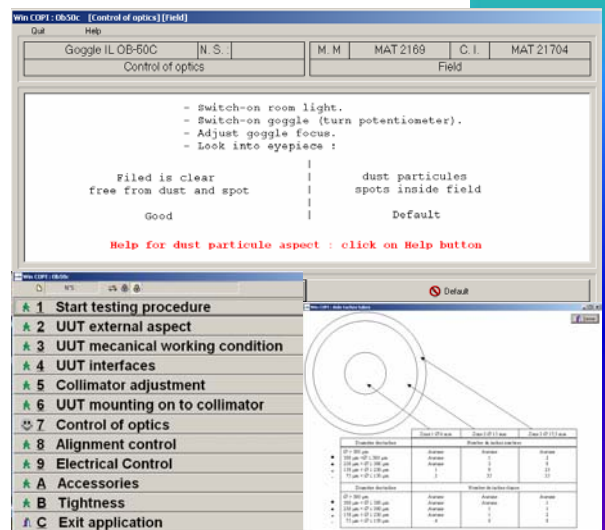
- Optical axis alignment
- Field of view measurement
- Azimuth and elevation range
- Spatial resolution and contrast (day/night) measurement
- Sensitivity tests
- Gain measurement for light intensification equipments
- NETD - MRTD - MTF
- Laser tests



General assembly



Optical path layout



Typical software display



UUT : Laser rangefinder



UUT : Binocular goggles



UUT : Night sight

TECHNICAL DATA

COLLIMATOR

- Optical aperture 150 mm diameter
- Focal length 1524 mm
- Spatial resolution 20 μ rad for 50 mm aperture
- Focusing range 60 m to ∞ , motorised (optional : shorter distance)
- Beam orientation - 30° to + 60° elevation, motorised \pm 1.5° azimuth, motorised, for a 100 mm aperture
- Orientation accuracy 0.002° relative
0.04° absolute
- Motorised vertical translation 500 mm range
- Horizontal translation of UUT 172 mm range
- Spectral bandwidth 0.5 to 14 μ m
- Sources selection Motorised

VISIBLE AND NEAR INFRARED SOURCE : VIS100

- Spectral bandwidth 0.5 to 1.1 μ m
- Radiance 0.00032 to 32 Cd m⁻²
- Colour temperature 2856 K to 3000 K
- Targets Motorised selection for alignment, focus, resolution, etc.
- Autocollimator CCD camera

DIFFERENTIAL BLACKBODY : DCN1000N

- Spectral bandwidth 3 to 14 μ m
- Temperature Adjustable from 5 °C to 100 °C
- Temperature accuracy 0.01 °C (differential mode)
- Emissivity > 0.98 \pm 0.02
- 6 position motorised target wheel for MRTD, NETD, MTF

LARGE AREA SOURCE

- Spectral bandwidth Visible
- Size 160 mm diameter
- Irradiance 1.75 kLux

LASER TESTS

- Wave lengths 1.06 - 1.54 - 10.6 μ m
- Energy/power
- Divergence
- Pulse width

RANGEFINDER TESTS

- Accuracy of distance measurement,
- Alignment of sight/emitter/receiver channels,
- Sensitivity of receiver,
- Maximum range.

OPTIONS

- Periscope for test of multisensor systems
- Specific support for heavy UUT

Above information is subject to changes without notice



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