

Tuneable Ring Laser

The University's photonics group has developed a novel approach to constructing a semiconductor laser capable being rapidly tuned to output different frequencies of light.



Inspecting wafer in clean room,
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Key Benefits

- Significantly faster wavelength / frequency switching and stabilisation action
- Comparable side mode suppression ratio (SMSR)
- Comparable tuning range
- Replacing a set of lasers with a single component
- Hence reduced component count in DWDM systems
- Potential to integrate with other functional elements such as optical amplifiers
- Minimal thermal disturbance to laser cavity mode frequency

Applications

DWDM transponders for optical communication equipment.

Tuneable Ring Laser

Tuneable lasers are beginning to be used in optical telecommunications systems, and in particular in Dense Wave-division Multiplexing (DWDM), a technology widely used to greatly expand the capacity of optical links in the backbone network.

The University of Bristol tuneable ring laser consists of grating reflectors connected to a semiconductor ring laser cavity through a bi-directional coupler. This invention has the tuning mechanism placed outside the laser cavity, separate from the lasing frequency-determining mechanisms. Therefore the tuning action does not affect the accurate values of lasing frequency, and the laser is rapidly tuneable to very accurate pre-set frequencies without drifting afterwards.

IP Status

Granted Us Patent 7376167

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