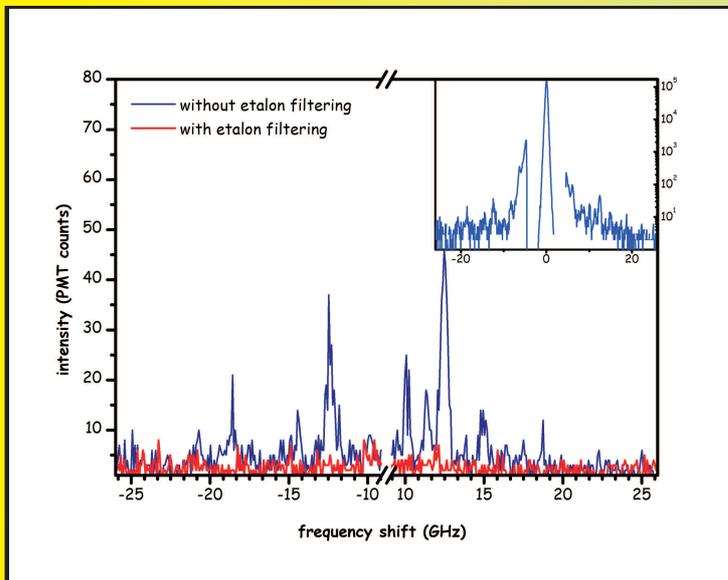


TEMPERATURE CONTROLLED LASER FILTER TCF-1

A compact and efficient device to get rid of all spurious and unwanted additional laser modes



Effects of an etalon filter on spurious modes within a few GHz from the main wavelength produced by a commercial laser source. In the inset : the unfiltered spectrum also showing an attenuated central wavelength component. Measurements are taken by means of a photomultiplier counter, 10 ms accumulation time for each point.



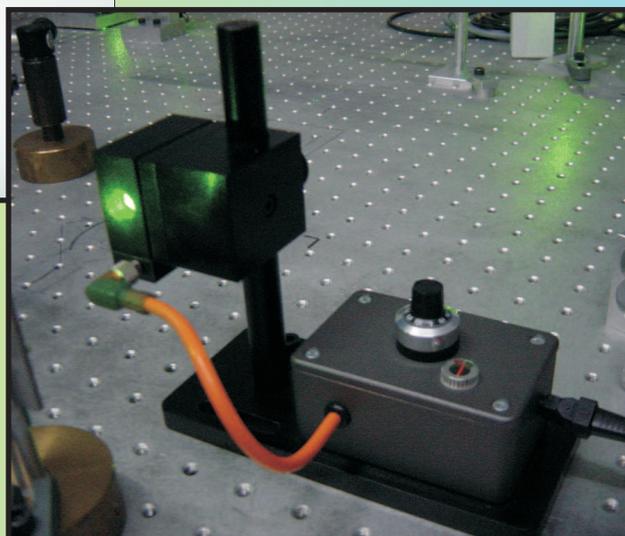
The JRS TCF-1 is optimized for 532 nm wavelength, but will give satisfactory performance for all wavelengths in the range from 490 nm to 550 nm.

The TCF-1 is a temperature stabilised etalon device, designed to reduce the intensity of spurious secondary laser modes found on many modern commercial solid state laser light sources. These secondary modes are very weak with an intensity typically 10^{-8} to 10^{-11} of the laser intensity, but unfortunately they lie in the region of interest for Brillouin spectroscopy measurements.

A Brillouin spectrum measured in the presence of a strong elastic peak will inevitably show these secondary peaks in the background, making interpretation of the spectrum difficult.

The JRS TCF-1 device will strongly attenuates these modes, in many cases reducing them below the detection threshold.

The largest attenuation provided by this filter for the unwanted modes is close to 600. It is expected to provide an extinction factor of 2 for components as close as 1.8 GHz from the primary radiation and to reach 99% of the maximum attenuation already around a 9 GHz frequency shift.



JRS Scientific Instruments
Im Grindel 6
8932 Mettmenstetten-Switzerland
E-Mail: info@jrs-si.ch
Internet: www.jrs-si.ch