

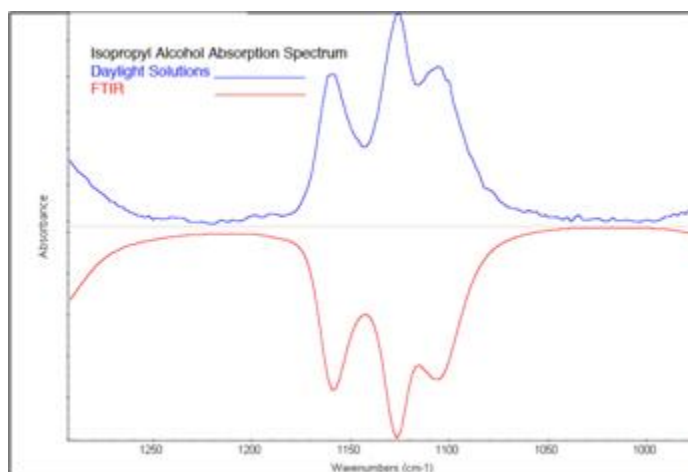


Daylight Solutions is proud to announce another technical first: 324 cm^{-1} of continuous narrow-band tuning from a single Quantum Cascade (QC) gain media in an external cavity configuration. To the best of our knowledge, this is the broadest tuning reported for a standard QC structure. The increased wavelength coverage is a result of both QC media development and design improvements to Daylight's patented^[1] External Cavity resonator. The media was tested in a version of the company's Swept Sensor™ fast-scanning pulsed cavity. The tuning range extended from 973 to 1297 cm^{-1} or 7.71 to 10.28 μm . This represents greater than 29% tuning of the center wavelength. The laser system operates at room temperature and without external cooling. The system is able to tune across the entire gain bandwidth of the QC in less than 10 ms. The peak power of the swept laser was greater than 80mW.

The spectrum below illustrates the broad tunability of the laser. The upper, blue trace was obtained with the swept laser, an [ac-coupled MCT detector](#) (available from Daylight Solutions), and a 10 cm vapor cell saturated in isopropyl alcohol. The trace is an average of a 1000 sweeps taken over a 10 second period. The lower trace is an FTIR spectrum of the same for comparison.

Broad tuning will continue to drive ECqcl™ (External Cavity quantum cascade Laser) development as it will facilitate molecular sensing applications. The more complete spectra obtained from broader tuning chips will result in more accurate quantitative and qualitative determination of analytes in complex mixtures, since pattern recognition software and fitting algorithms will have more data with which to work.

Daylight Solutions offers a commercial version of our broad-tuning pulsed laser system with over 150 cm^{-1} of continuous tuning. We provides narrow-band, high-brightness tunability in various ECqcl™ platforms from 4-12 μm . For further information, please contact Chris Armacost at carmacost@daylightsolutions.com, or visit our website, www.daylightsolutions.com. Please visit us at the PittCon Exposition on Laboratory Science, booth # 1007 in Orlando, FL (1-4 March, 2010) or at the SPIE Conference on Defense, Security, and Sensors, booth # 3312 also in Orlando, FL (6-8 April, 2010).



^[1] US Patent# 7,466,734