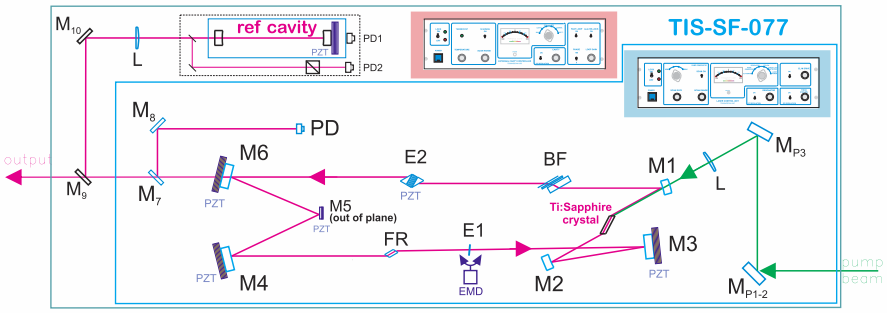
Flagship model of 15-kHz-linewidth CW Ti:Sapphire laser by Tekhnoscan

Flagship model TIS-SF-777 of Tekhnoscan's CW single-frequency Ti:Sapphire laser series features exceptionally narrow radiation line width that amounts to only about **10 kHz** (specification: < 15 kHz). The design of laser TIS-SF-777 and its electronic control system are especially tailored to make this super-high-precision laser very easy to set-up and to operate, and also to deliver **ultra-high stability of radiation frequency** even in the presence of high level of external perturbations. In combination with efficient resonant frequency doubler by Tekhnoscan, laser TIS-SF-777 will deliver the line width of about 20 kHz in the UV and blue spectrum ranges. Laser TIS-SF-777 is started at the customer's site and the customer's personnel is trained directly by representatives of Tekhnoscan.



Frequency stabilisation of the laser output is done with a thermostated high-finesse reference cavity and special PZT actuators that have extended response bandwidth. The fast PZT-controlled mirrors allowed to avoid using an electro-optical modulator in the frequency stabilisation system, which would otherwise complicate the laser design and the electronic control boards as well as it would introduce certain additional radiation losses. Because of the foregoing laser TIS-SF-777 features relative simplicity and high reliability of design as well as **high output efficiency**: maximum output power of the laser exceeds 1.5 W with a 10-W DPSS laser pump (532/515 nm).

New super-frequency-stable Ti:Sapphire laser TIS-SF-777 is primarily designed for **high-precision experiments and technologies** that make use of cooled atoms and molecules

Besides the uniquely narrow radiation line width, TIS-SF-777 laser also features a unique function **Smart Auto-Relock** that allows uninterrupted laser operation in the frequency stabilisation mode under arbitrary external perturbations (acoustic, mechanic, etc.).

Because of advanced **Smart Auto-Relock** function laser TIS-SF-777 offers the user a new level of comfort when working with precisely stabilised single-frequency Ti:Sapphire laser

On special order Tekhnoscan ships Ti:Sapphire laser TIS-SF-777 with additional system of **long-term radiation frequency stabilisation** that uses ultra-narrow absorption reso-nances and other optical references. This allows reduction of the long-term drift of the laser radiation line down to the level of 1 MHz/hour and less.

TIS-SF-777

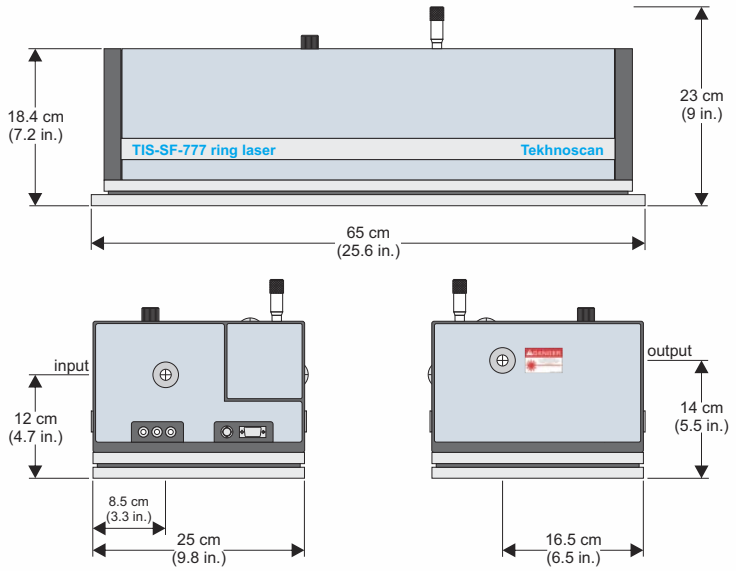
Frequency-stabilised CW single-frequency ring Ti:Sapphire laser

Specifications:

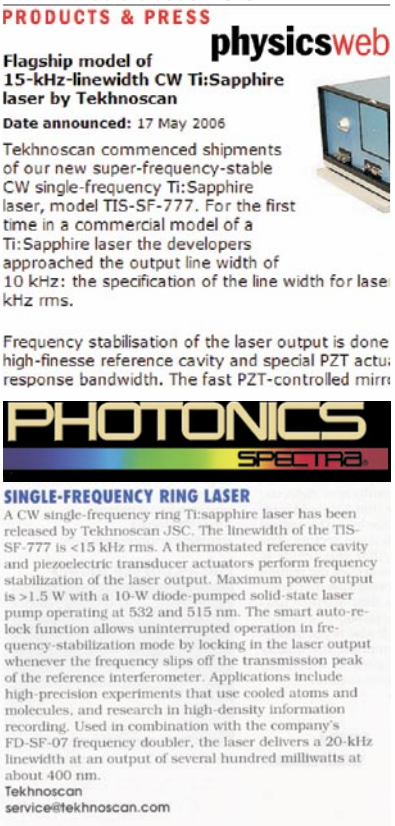
Wavelength range	750-850 nm 695-770, 850-950 nm
Output	> 1.5 W at 10 W pump
Linewidth	< 15 kHz rms[1]
Frequency drift	< 30 MHz/hour[2]
Smooth scanning	> 5 GHz[3]
Spatial mode	TEM_{00}
Polarization	horizontal

1. relative to the reference cavity
2. < 1 MHz/hour with frequency stabilisation to an atomic/molecular line (optionally)
3. up to 18 GHz (optionally)

Options:
1. 18 GHz smooth scanning
2. 350-475 nm wavelength range with Resonant Frequency Doubler “FD-SF-07”
3. Absolute Frequency Stabilisation to an atomic/molecular line
4. + Dye laser (linewidth < 100 kHz) in the same Laser head



Media about TIS-SF-777:


PRODUCTS & PRESS

physicsweb

Flagship model of 15-kHz-linewidth CW Ti:Sapphire laser by Tekhnoscan

Date announced: 17 May 2006

Tekhnoscan commenced shipments of our new super-frequency-stable CW single-frequency Ti:Sapphire laser, model TIS-SF-777. For the first time in a commercial model of a Ti:Sapphire laser the developers approached the output line width of 10 kHz: the specification of the line width for lase kHz rms.

Frequency stabilisation of the laser output is done high-finesse reference cavity and special PZT actu response bandwidth. The fast PZT-controlled mirr

PHOTONICS SPECTRA

SINGLE-FREQUENCY RING LASER

A CW single-frequency ring Ti:sapphire laser has been released by Tekhnoscan JSC. The linewidth of the TIS-SF-777 is <15 kHz rms. A thermostated reference cavity and piezoelectric transducer actuators perform frequency stabilization of the laser output. Maximum power output is >1.5 W with a 10-W diode-pumped solid-state laser pump operating at 532 and 515 nm. The smart auto-re-lock function allows uninterrupted operation in fre-quency-stabilization mode by locking in the laser output whenever the frequency slips off the transmission peak of the reference interferometer. Applications include high-precision experiments that use cooled atoms and molecules, and research in high-density information recording. Used in combination with the company's FD-SF-07 frequency doubler, the laser delivers a 20-kHz linewidth at an output of several hundred milliwatts at about 400 nm.

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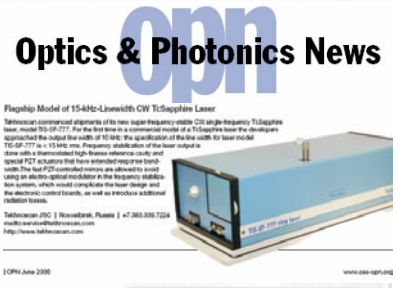
Optics & Photonics News

Flagship Model of 15-kHz-Linewidth CW Ti:Sapphire Laser


optics & laser europe

June 2006

Ti:sapphire laser

Tekhnoscan

Tekhnoscan of Russia has started shipping its 15 kHz linewidth CW Ti:sapphire laser. Dubbed TIS-SF-777, applications include high-precision experiments involving cooled atoms or molecules and high-density data-recording such as holographic memory.

According to the firm, the device's maximum output power exceeds 1.5 W when pumped with a 10 W DPSS laser. The TIS-SF-777 features special PZT actuators to extend the response bandwidth and a frequency stabilizing high-finesse reference cavity. A so-called Smart Auto-Relock function locks the laser's output frequency whenever the frequency slips off the reference interferometer's transmission peak.

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