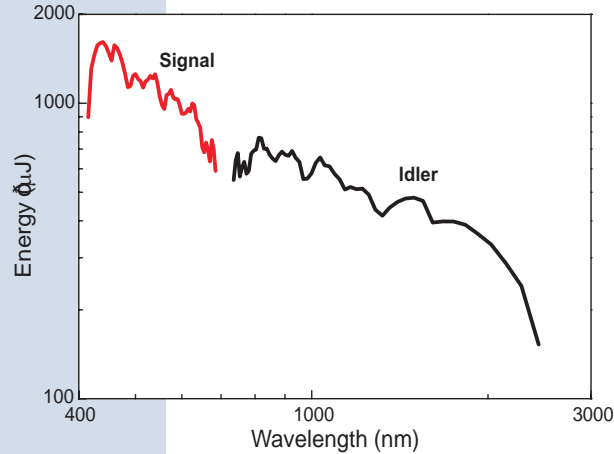


TYPICAL OUTPUT PERFORMANCE OF
TOPAS 355 PUMPED WITH 9 mJ,
354.7 nm, 5 ps



TOPAS Model 355 is pumped by third-harmonic of Nd:YAG lasers and covers wavelength range from 417 to 2400 nm. With optional frequency mixers this range can be extended from 189 nm to 20 microns.

PUMP REQUIREMENTS

Pulse width	10-50 ps @ 1064 nm
Pulse energy	0.5- 12 mJ @ 355 nm
Spectral width	< 1.0 cm ⁻¹
Energy instability	< 2% peak-to-peak
Pulse width instability	< 1 % pulse-to-pulse
Beam divergence	< 1.3 diffraction limit
Time-bandwidth product	<1 assuming Gaussian shape
Pulse contrast	< 5% of output energy in background
Spatial profile	Gaussian
Intensity modulation	<15%
Beam divergence	<1.2 x (diffraction limit)
Beam pointing instability	<0.1 x (diffraction limit)

PERFORMANCE SPECIFICATIONS WITH 355nm/5 mJ/25 ps/1 cm⁻¹ PUMP PULSES

OUTPUT FROM TOPAS

Tuning range (signal+idler)	417-2400 nm
Energy (signal+idler)	~ 1 mJ at peak
Pulse duration	(0.5 to 0.7) x pump pulse width
Spectral width	< 5 cm ⁻¹
Polarization	vertical
Energy instability	< 10% rms
Beam divergence	< 2x diffraction limit

OUTPUT FROM OPTIONAL SECOND-HARMONIC GENERATOR SH OF SIGNAL (SHS) & SH OF IDLER (SHI)

Tuning range	220-355 nm (SHS)	355-417 nm (SHI)
Pulse energy	> 100 μJ at peak	
Pulse duration	(0.7 to 1.0) x signal pulse width	
Polarization	horizontal	

OUTPUT FROM OPTIONAL DIFFERENCE-FREQUENCY GENERATOR *

Tuning range with DFG#1	2.4-11 μm
Pulse energy	> 100 μJ @ 5 μm
Pulse duration	(0.7 to 1.0) x pump pulse width
Polarization	vertical
Tuning range with DFG#2	5-20 μm
Pulse energy	> 40 μJ @ 10 μm > 1 μJ @ 18 μm
Pulse duration	(0.7 to 1.0) x pump pulse width
Polarization	vertical

OUTPUT FROM OPTIONAL DEEP UV GENERATOR**

Tuning range	189-220 nm
Pulse energy	> 40 μJ at peak
Pulse duration	(0.7 to 1.0) x pump pulse width
Polarization	vertical

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Beam divergence with all options <2 x diffraction limit

* Difference- frequency mixer outputs are specified for 10 mJ @ 1064 nm - idler pulse

** Deep UV generator mixes laser fundamental (1064 nm) and SHS pulses. (Assuming secondary 2 mJ pump channel @ 1064 nm)

Note: with increased pump energy TOPAS output energy scales up linearly