

MonaLIGHT F01

Modular Narrow Angle Light Source

MonaLIGHT is a unique modular type of laser-based light source with a directional optical beam that offers an opportunity to design compact and high efficiency outdoor, scientific and industrial applications

KEY FEATURES

- ✓ **Low etendue beam**
 - An outstanding level of peak luminous intensity and a narrow beam can be used in the design of compact and highly efficient subsequent optical elements.
- ✓ **Direct fiber coupling**
 - Optimized for etendue limited applications with a directly accessible focal point with a 5° beam angle.
- ✓ **Compact dimensions**
 - Modules are designed to provide stable and superior performance with minimal size and weight.

PRODUCT CHARACTERISTICS

Spectral Coverage	500-625 nm * continuous
Spectral Bandwidth (FWHM)	95-105 nm *
Beam Divergence Angle (FWTM)	34°
Viewing Angle (FWHM)	4° - 5°
Luminous Flux	550 lm
WPE (high power)	40 lm/W
Peak Luminous Intensity	6000 - 8000 cd *
L ₉₀ (65°C case temperature)	14000 hours
Weight	18.8 g

* depending on the module type



MonaLIGHT F01



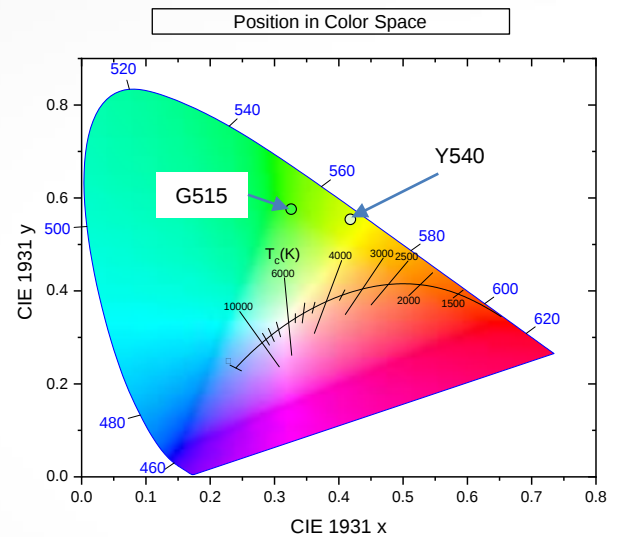
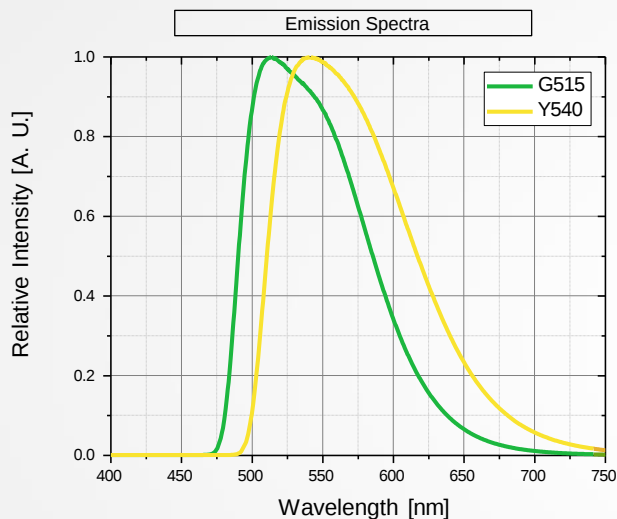
OPTICAL OUTPUT

CHARACTERISTICS ($T_{\text{Case}} = 25^{\circ}\text{C}$)

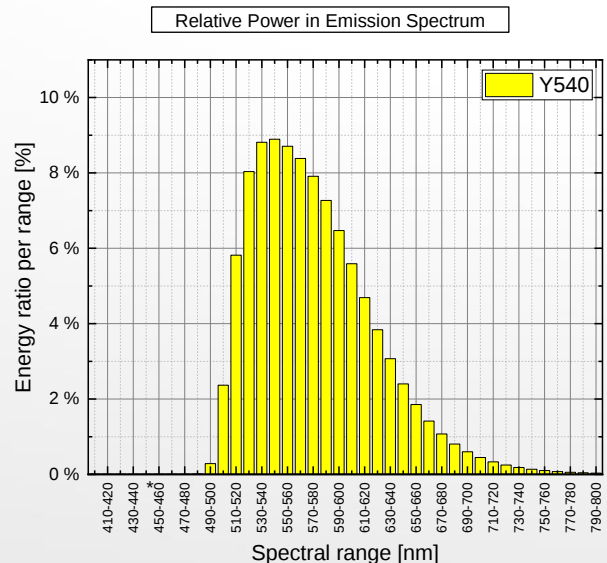
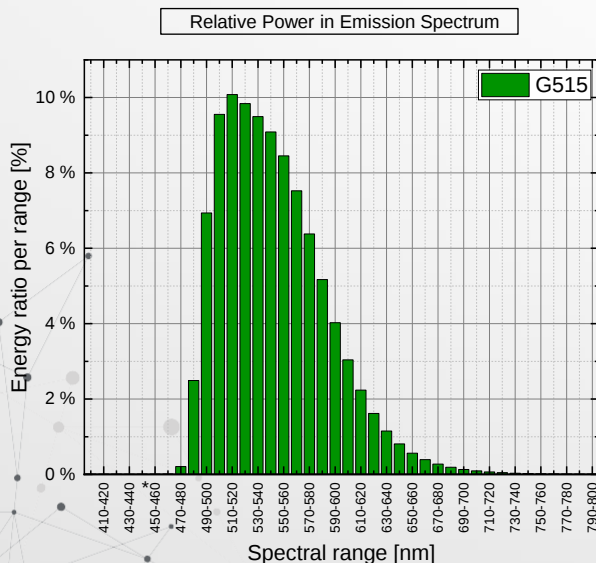
Type ID		G515	Y540	
Product number		23096	23098	
Chromaticity Coordinates	CIE x	0.336	0.422	*
	CIE y	0.597	0.559	*
Typical Peak Wavelength	[nm]	518	542	*
Dominant Wavelength (ref x,y = 0.333, 0.333)	[nm]	555	568	*
Spectral Bandwidth (FWHM)	[nm]	95	105	
Viewing Angle (FWHM)	[°]	4° to 5°	4° to 5°	
Luminous Flux	[lm]	550	550	*
Optical Power	[W]	1.1	1.1	*
Typical forward current	[A]	3.0	3.0	

* Characteristics are dependent on forward current (I_F) and/or temperature

SPECTRAL CHARACTERISTICS



ENERGY RATIO PER SPECTRAL RANGE



* Maximum absolute power in the 440-460 nm range is less than 1 mW

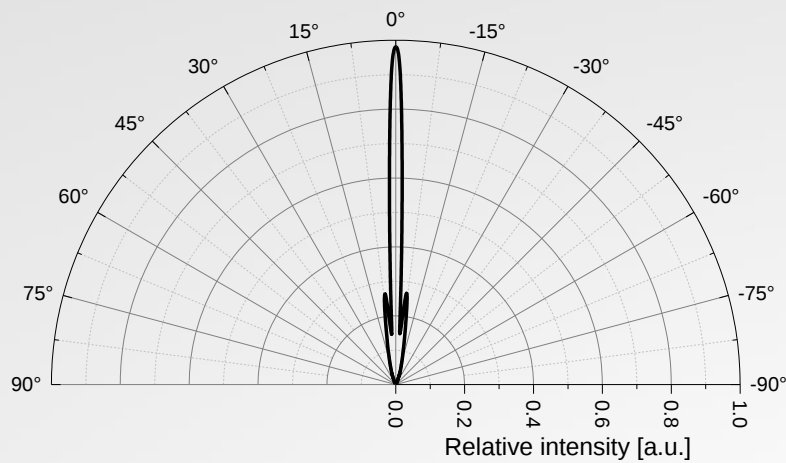


GRAPHS TYPICAL OPTICAL OUTPUT

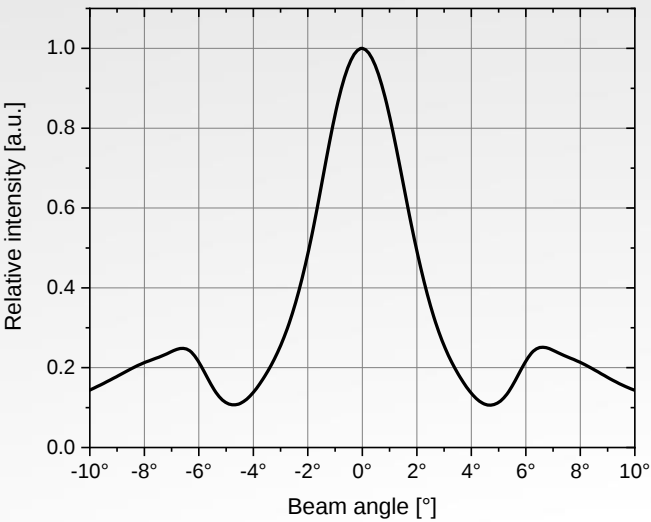
ANGULAR CHARACTERISTICS

(T_{Case} = 25°C)

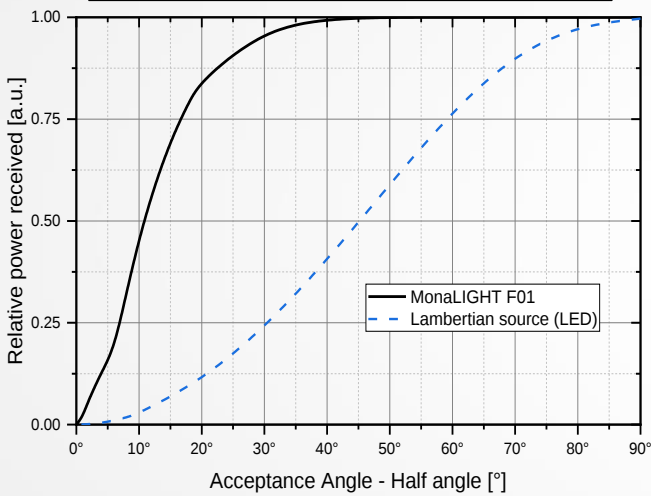
Polar Radiation Diagram - Angular Dependent Radiant Intensity *



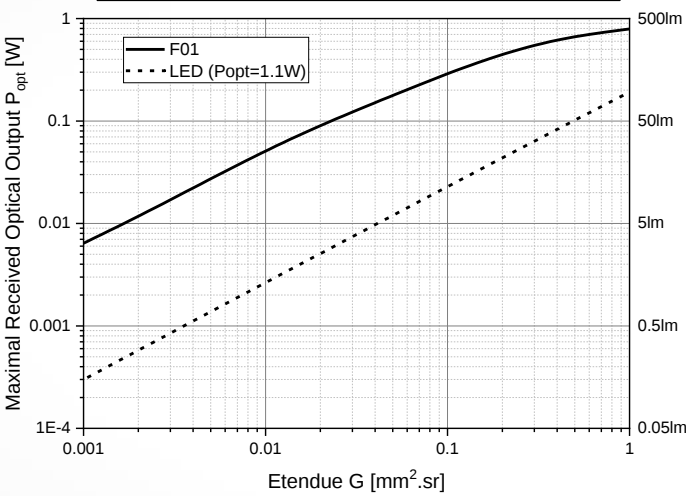
Detailed Angular Dependence *



Integrated Power Received on Acceptance Angle *



Maximal Power Received for Etendue (G) Limited Target *



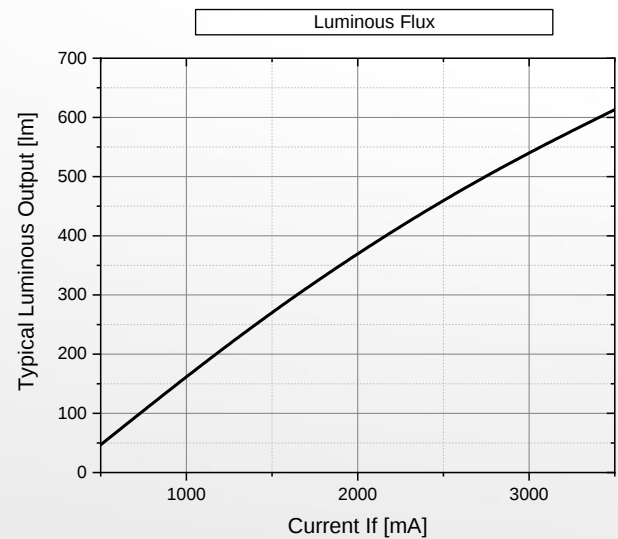
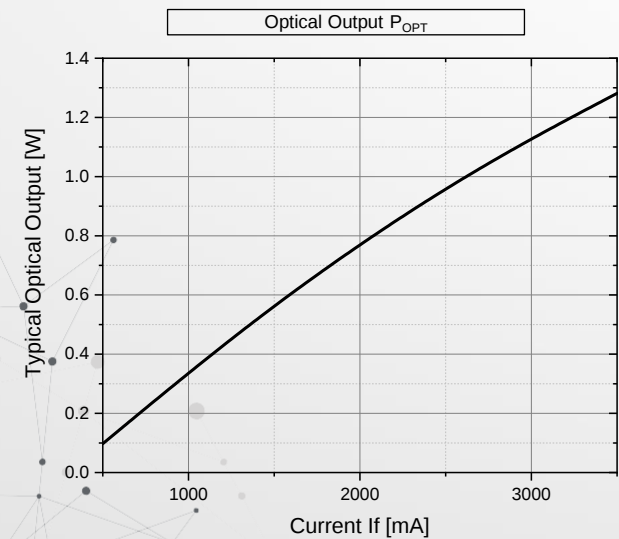
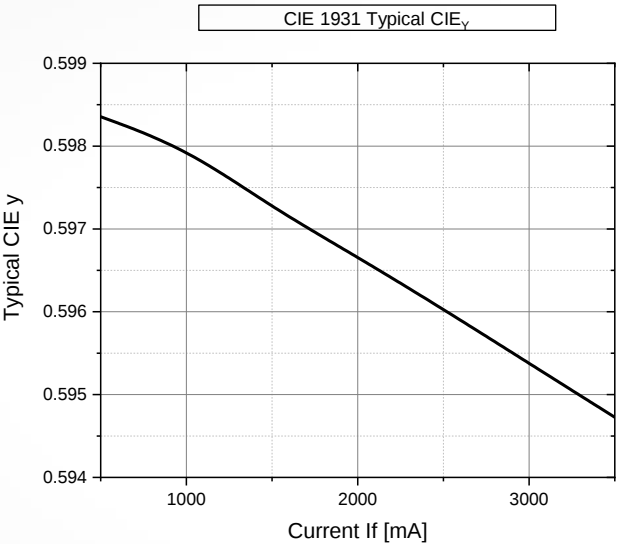
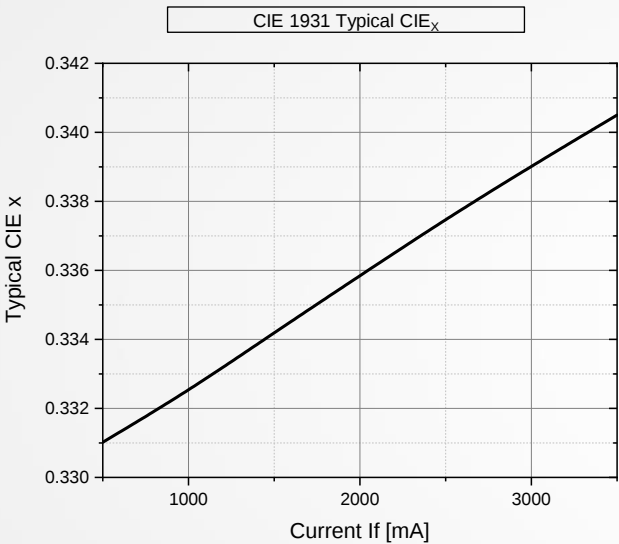
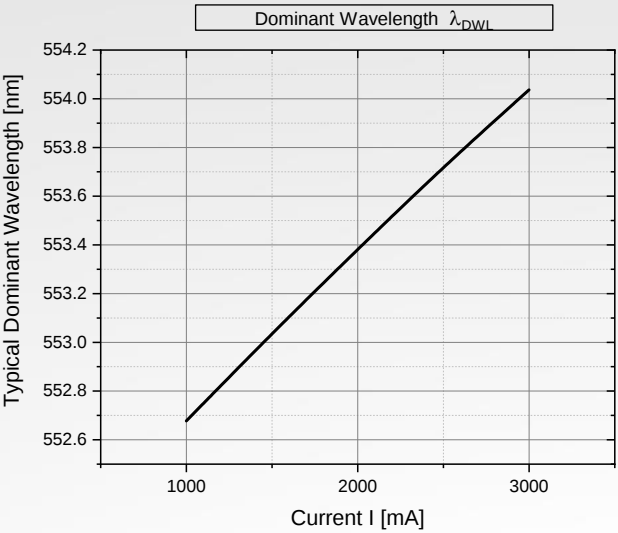
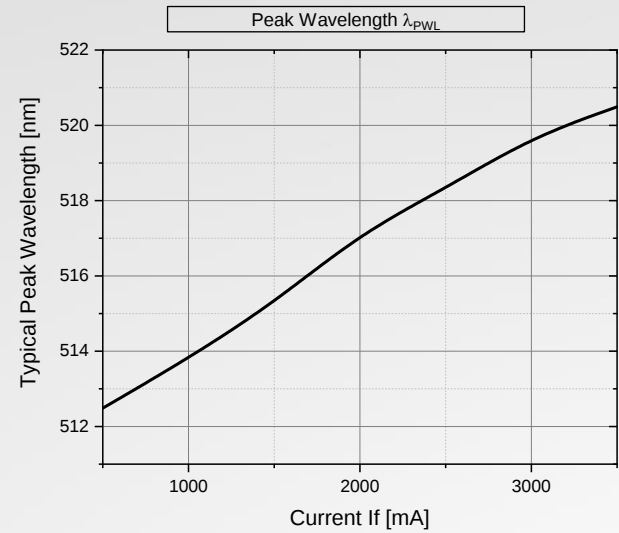
* The data are based on a ray-file simulation. The performance achievable in each application may vary.
The ray-file can be requested directly at product support.



GRAPHS TYPICAL OPTICAL OUTPUT

SPECTRAL CHARACTERISTICS (F01 G515)

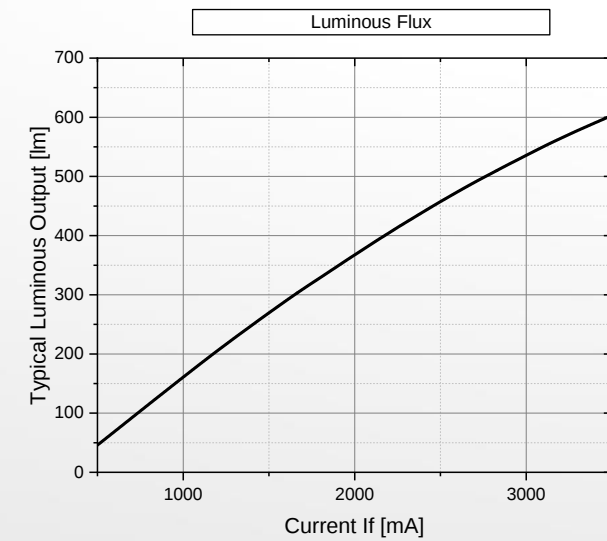
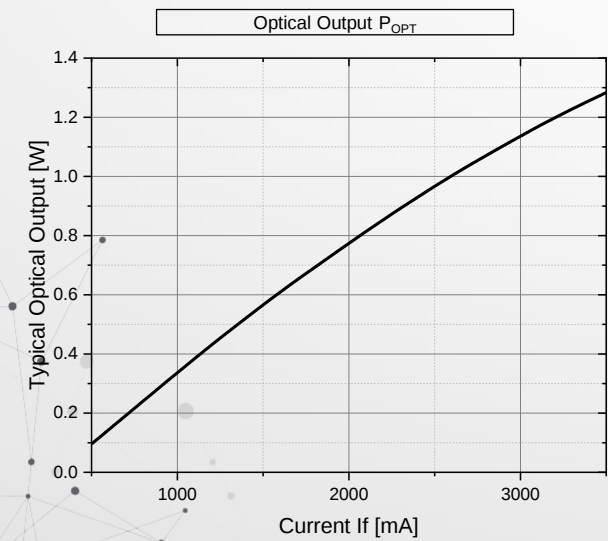
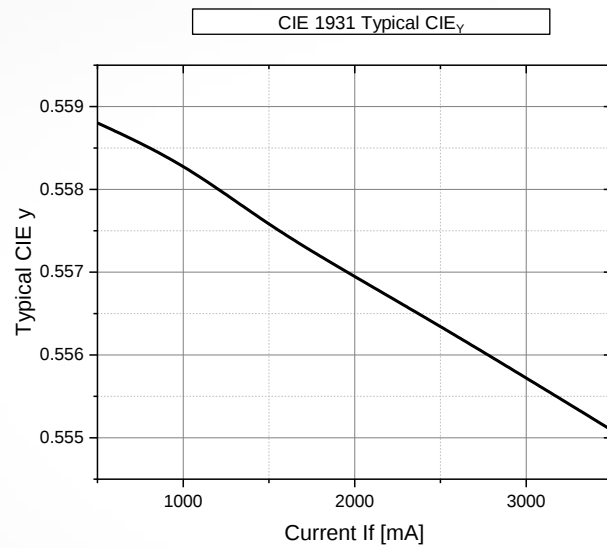
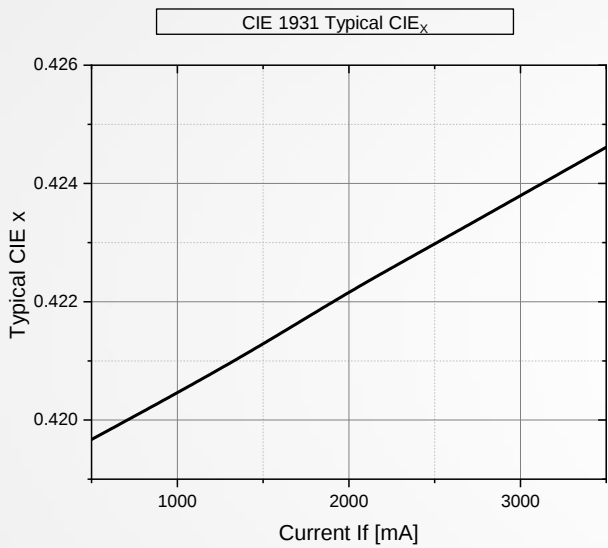
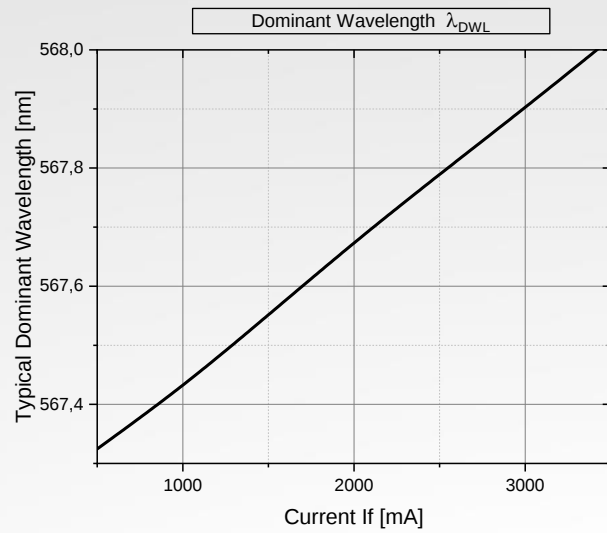
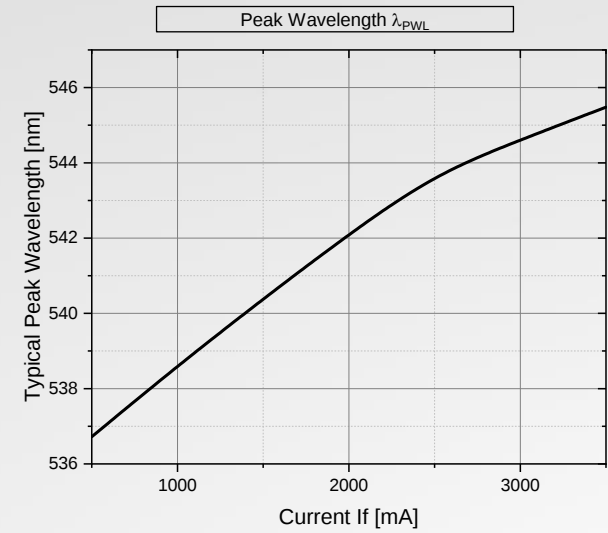
(T_{Case} = 25°C)



GRAPHS TYPICAL OPTICAL OUTPUT

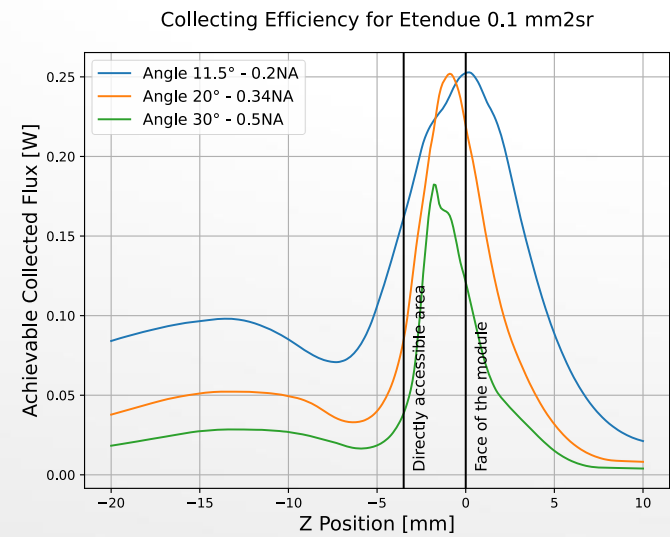
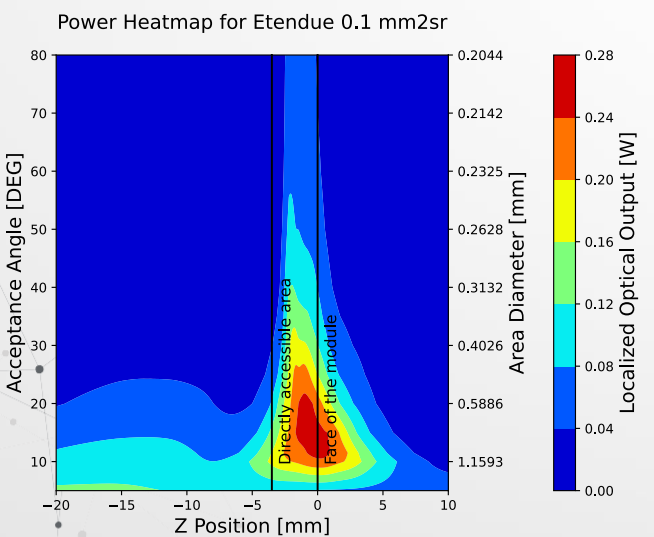
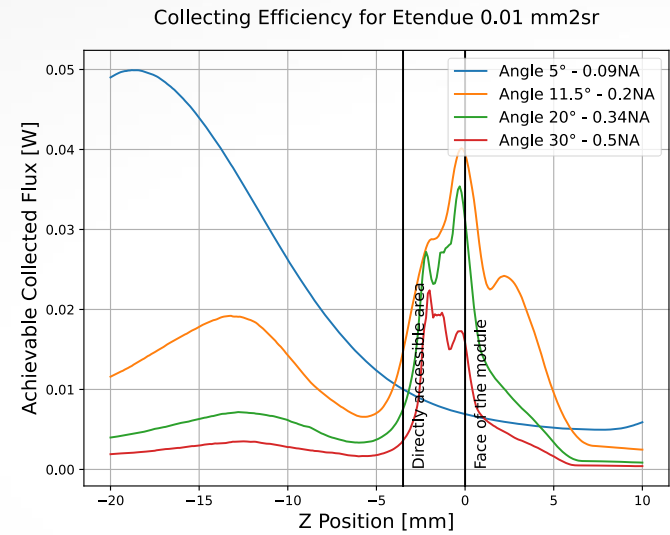
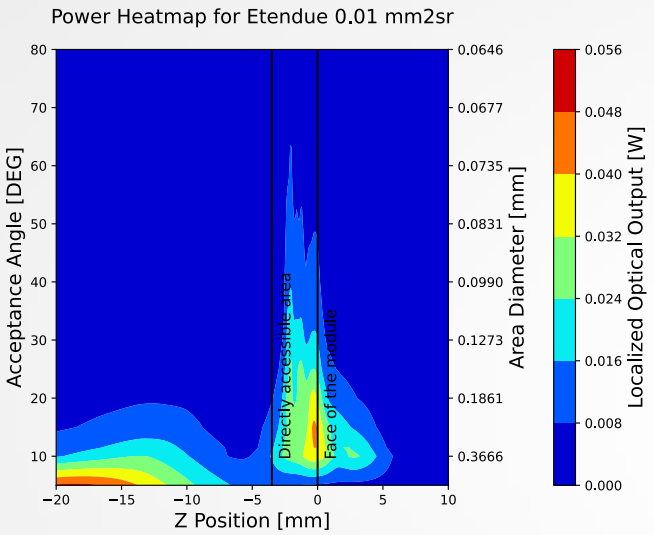
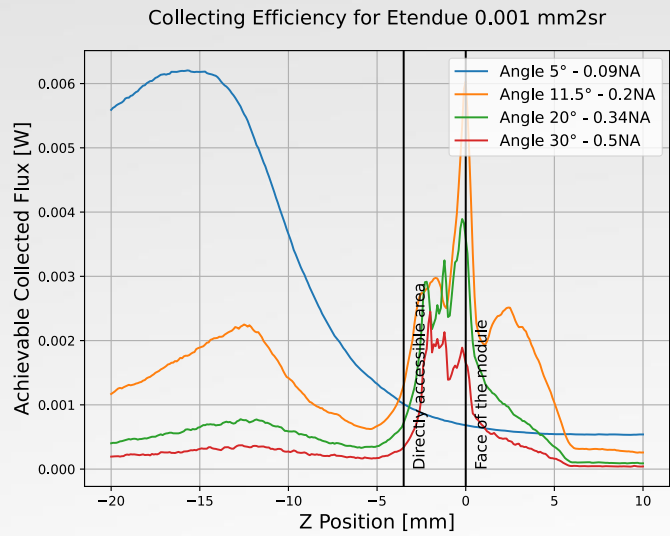
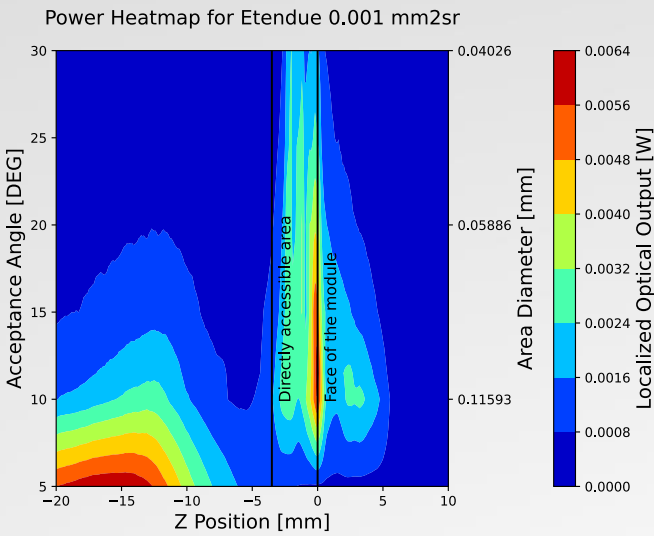
SPECTRAL CHARACTERISTICS (F01 Y540)

(T_{Case} = 25°C)



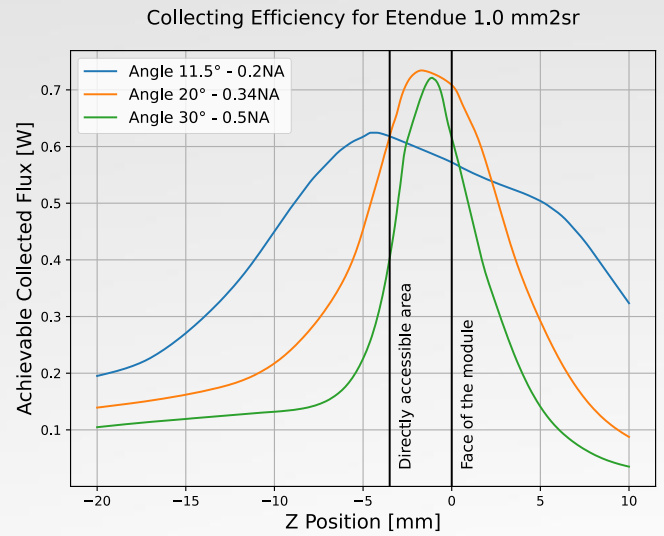
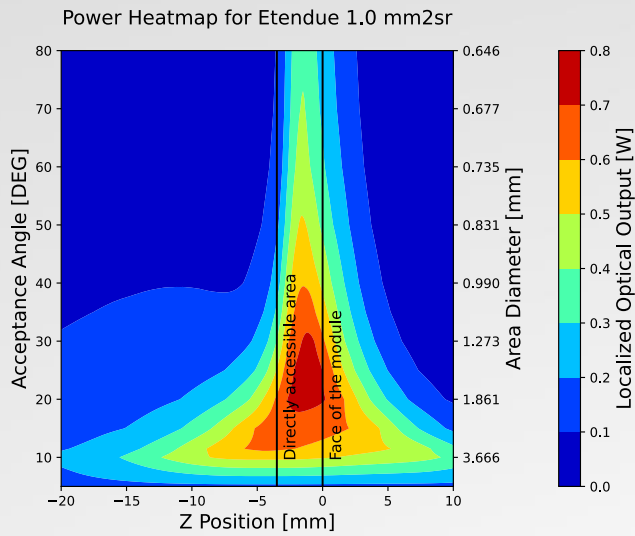
POWER HEATMAPS FOR SPECIFIC ETENDUE

BASED ON THE F01 RAY FILE DATA



POWER HEATMAPS FOR SPECIFIC ETENDUE

BASED ON THE F01 RAY FILE DATA



- Heat maps for specific etendue values and ray-file can be requested directly at product support.
- The term "Directly Accessible Area" refers to the region that can be physically accessed directly, for example, via an optical fiber.
- The models are based on rayfile models and are used for the correct localization of energy within a given model and for basic evaluation of the optical model. Please note that the absolute values measured on the models may be up to 50% lower.



LASER LIGHT SAFETY COMPLIANCE



CLASS 1 LASER PRODUCT

Per clause 4.4 of **IEC 60825-1**, the product is classified as a laser light source intended for use as a conventional lamp.



Risk of eye injury. Do not look straight at the light source during operation. The intense light beam may damage your eyes.
Do not view the light output with optical instruments or with any device that may concentrate the beam.
Immediately stop operating the module if there is a visible blue component of light in any beam direction.
Do not operate the module in case of any visible damage to the front part as protective glass or integrated phosphor!



This product is designed as a **component** for system integration. Any systems that incorporate this product are required to comply with the safety standards outlined in IEC 60825-1.



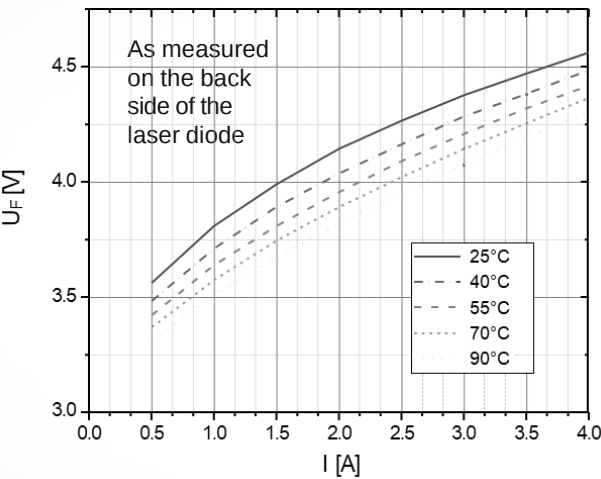
Warning: DO NOT DISASSEMBLE THE MODULE!

ELECTRICAL REQUIREMENTS

Characteristics ($T_{\text{Case}} = 25^{\circ}\text{C}$)

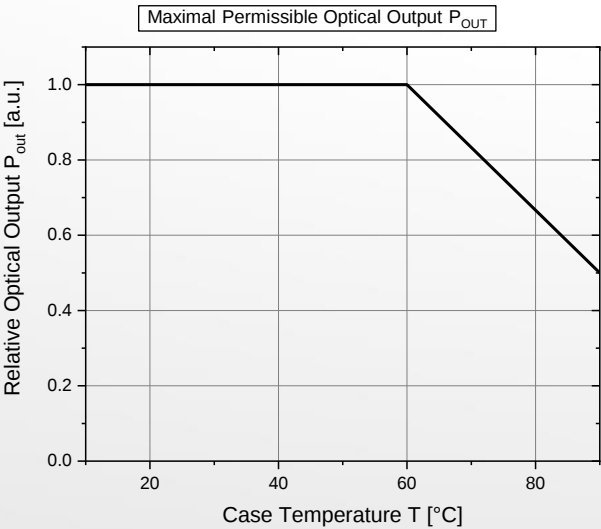
	Min.	Typ.	Max.
Forward Current I_F	0.45 A	3.0 A	3.5 A
Forward Voltage V_F		4.3 V	5.0 V

The module can be used in both continuous and pulsed operations.

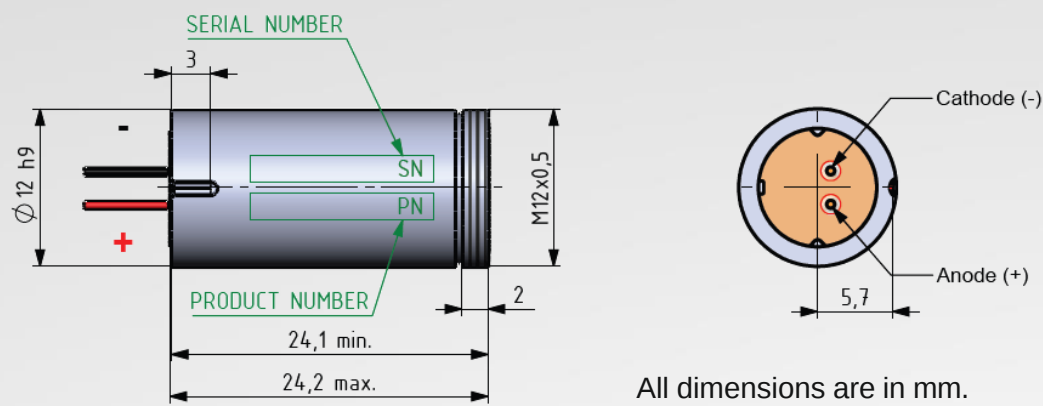


ENVIRONMENTAL HANDLING

	Min.	Max.
Temperature (Back side of LD)	-20 °C	90 °C
Storage Temperature	-40 °C	120 °C



DRAWING



HEAT MANAGEMENT



Using the light module without an external heatsink for extended periods of time can significantly shorten its lifetime and is not recommended.

	Min.	Typ.	Max.
Total Power Dissipation		10 W	12 W
Temperature (Back side of LD)	-20 °C	25 °C	90 °C

- We recommend clamping the heatsink to ensure good thermal contact.
- Proper thermal management has a significant impact on module lifetime.
- Without an additional heatsink, at the lowest input power, it takes approx. 1 minute to reach 50°C on the case from room temperature.
- Please see the Application Note for detailed information to thermo-management.

