RFFM-16N4

Key parameters：

- 405nm、455nm、520nm、620nmLED
- Mixed white light Ra≧85
- Output power of violet light 12000mW
- Output power of blue light 6000mW
- Output power of wide green light 3700mW
- Output power of red light 4000mW
- Back focus length：7.5mm

Application features:

- White light & NBI endoscope imaging
- Adapted fiber NA≥0.77
- Multiple light combinations, support four-color light output with custom ratio
- Peak spectral ratio adaptive calibration
- Dimming light range up to 1%~100%

Work mode	
Default modes	LED combinations
WL mode	455nm+520nm+620nm
MSL mode	405nm+520nm
BLI mode	405nm+455nm+520nm+620nm
LCI mode	405nm+455nm+520nm+620nm

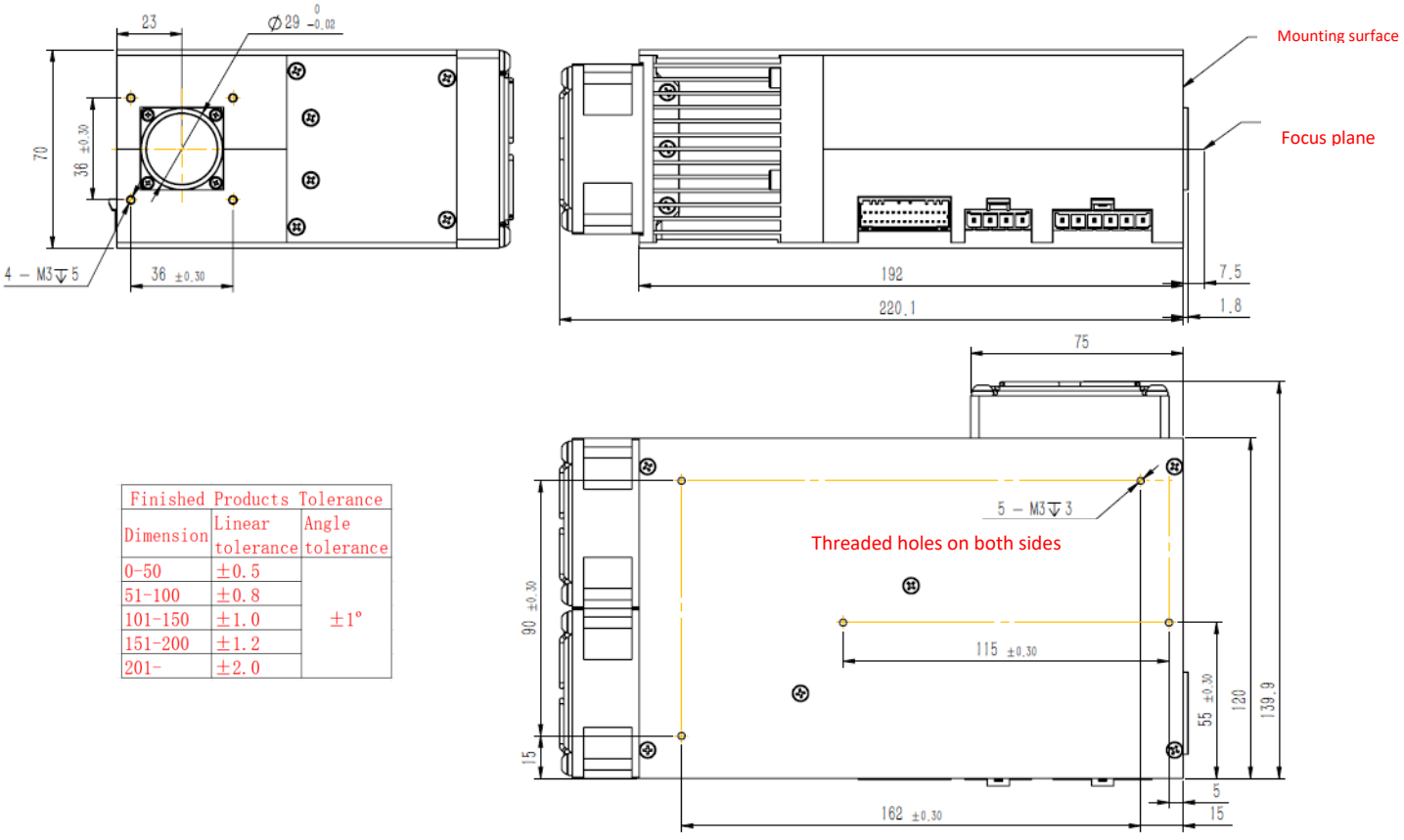
Technical Data

Parameter		Min	Typical	Max	Remarks/Conditions
Optical Data					
light source			405nm+455nm+520nm+620nm LED		
Mixed white light	CCT		Defined by custom light ratio		Output data of module
	Ra			＞85	
Violet light	Output power		12000mW		
	Peak wavelength	400nm	405nm	410nm	
	FWHM		15nm		
Blue light	Output power		6000mW		
	Luminous Flux		2151m		
	Predominance wavelength	450nm	455nm	460nm	
	FWHM		23nm		
Wide green light	Output power		3700mW		
	Luminous Flux		19501m		
	Predominance wavelength	510nm	520nm	530nm	

	FWHM		96nm		
Red light	Output power		4000mW		
	Luminous Flux		650lm		
	Predominance wavelength	615	620nm	630	
	FWHM		20nm		
Back focus length			7.5mm		From the last lens vertex
divergence angle			100°		Adapted fiber NA≥0.77
Electric Data					
Input voltage			DC 12V		Input voltage of driver
Input power			350W		The data will be updated after subsequent actual measurement, now is rough. Including the power consumption of driver, 4 light sources are operating at full power.
Recommend selected power of source		450W			The source power should be selected based on this value
Dimming of single light		1%		100%	PWM+RS232, Current accuracy±10%
Dimensions and Weight					
Dimensions			As drawing		
Weight			2500g+800g		Light engine+Driver（Include wire）
Conditions					
Working temperature		-10℃		40℃	
Relative humidity				95%	
Transportation and storage		-20℃		80℃	
Reliability					
Life of LED			30,000h		Tj of LED ≤125℃
Compliances					
IEC 60601-1:2005		Medical electrical equipment - Part 1: General requirements for basic safety and essential performance			
IEC 60601-1-2:2014		Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests			
IEC 61000-4-2:2008		Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test			
IEC 61000-4-3:2020		Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency,electromagnetic field immunity test			

EN 55011:2016+A2:2021	Industrial, scientific and medical equipment - Radio-frequency disturbance
GB9706.1-2007	Medical electrical equipment - Part 1: General requirements for basic safety
YY 1081-2011	Medical endoscope- Endoscope function supply device, cold light source
IEC 62321-3-1:2013	RoHS
IEC 62321-4:2013+AMD1:2017	
IEC 62321-5:2013	
IEC 62321-6:2013	
IEC 62321-7-1:2015	
IEC 62321-7-2:2017	
IEC 62321-8:2017	

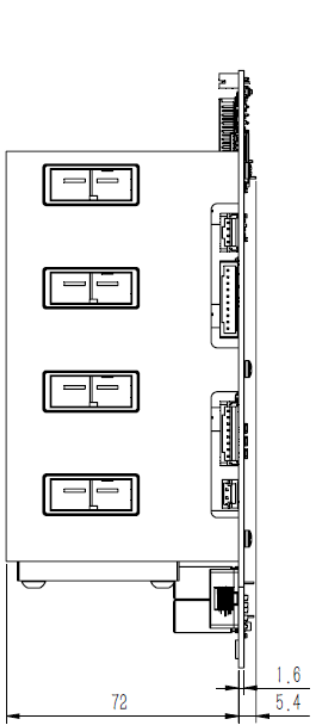
Dimensions of light engine:

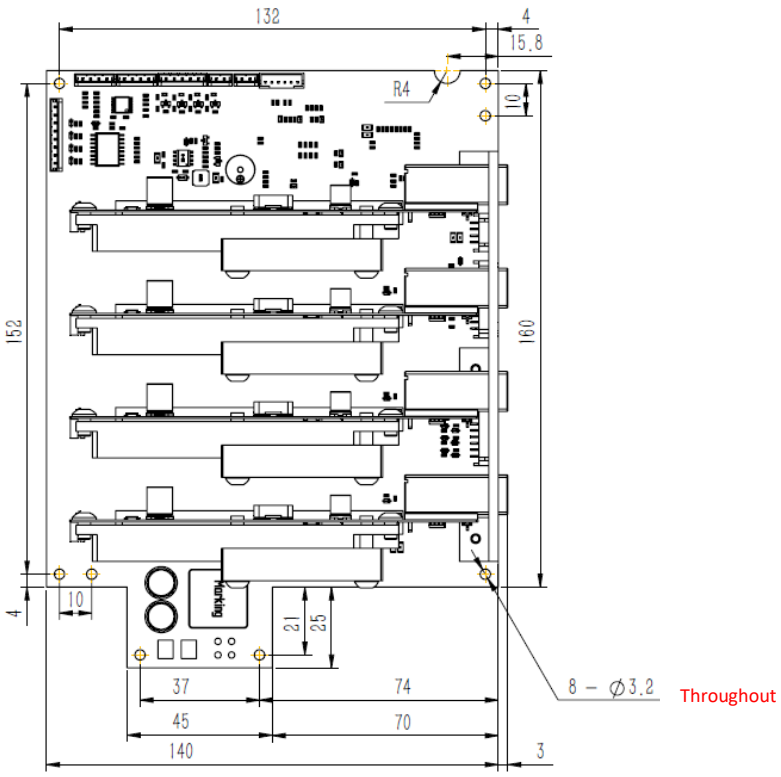


Finished Products Tolerance		
Dimension	Linear tolerance	Angle tolerance
0-50	±0.5	±1°
51-100	±0.8	
101-150	±1.0	
151-200	±1.2	
201-	±2.0	

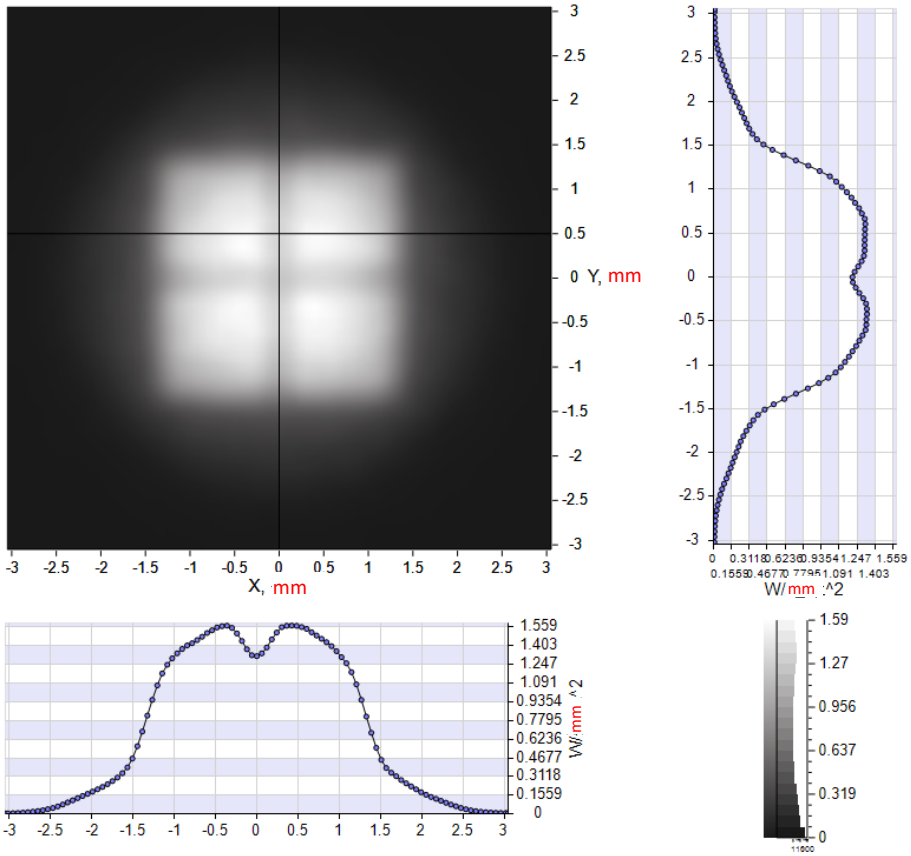
Dimensions of driver board:

Finished Products Tolerance		
Dimension	Linear tolerance	Angle tolerance
0-50	±0.5	±1°
51-100	±0.8	
101-150	±1.0	
151-200	±1.2	
201-	±2.0	

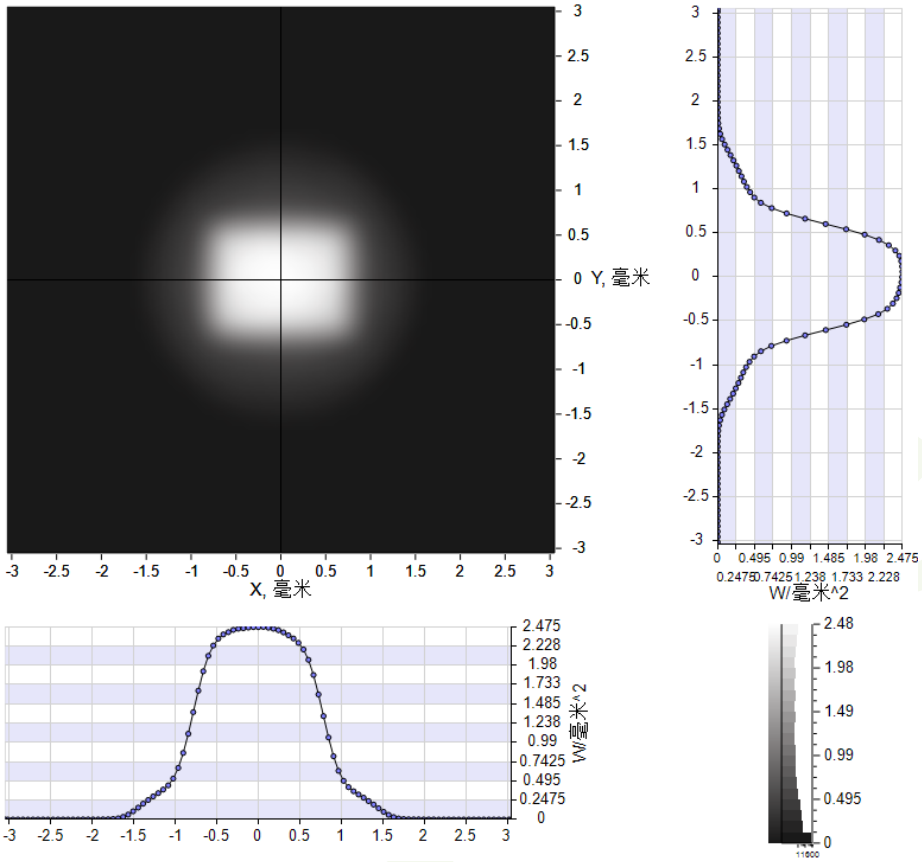




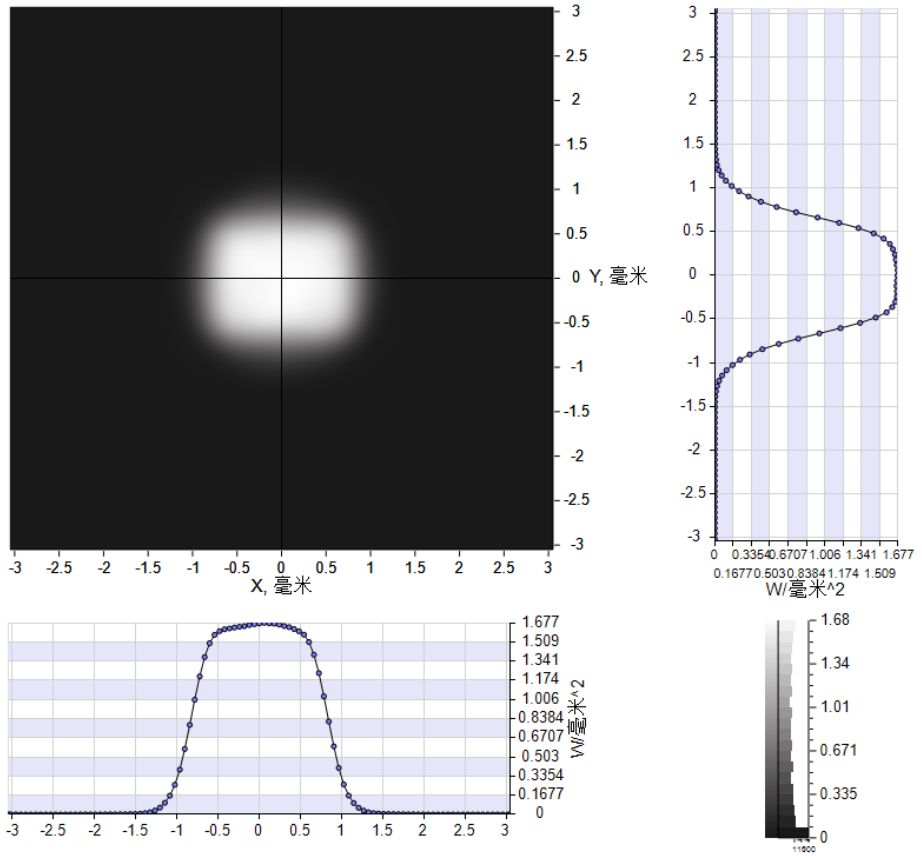
Violet light illuminance irradiance at focal plane:



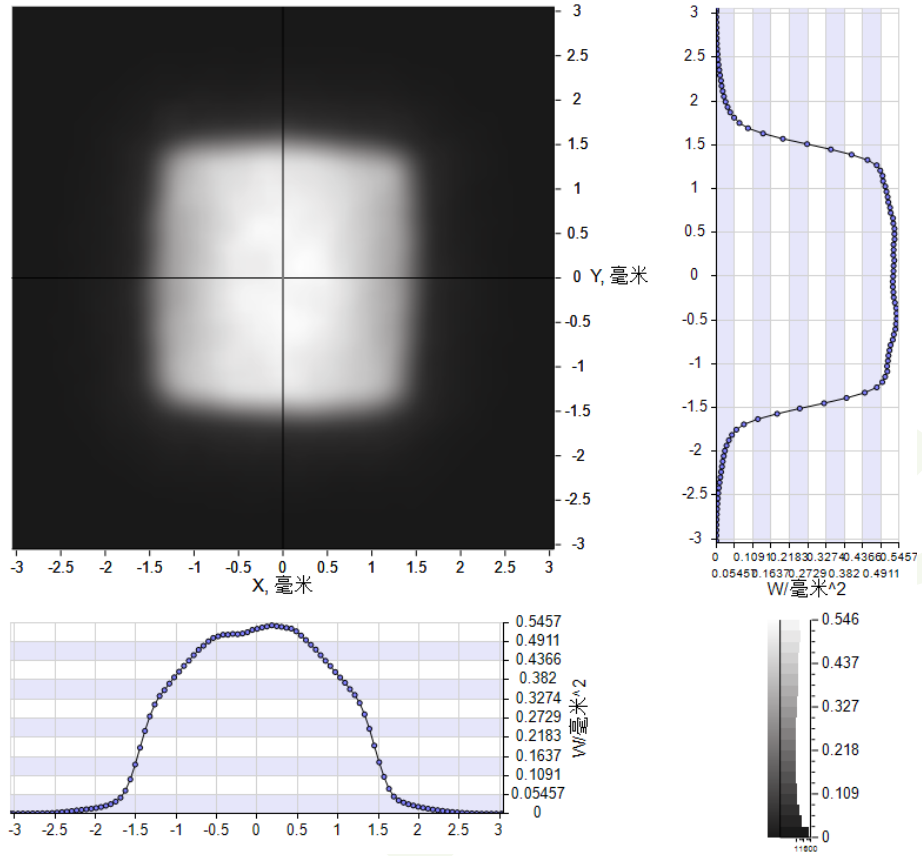
Blue light illuminance irradiance at focal plane:



Wide green light illuminance irradiance at focal plane:

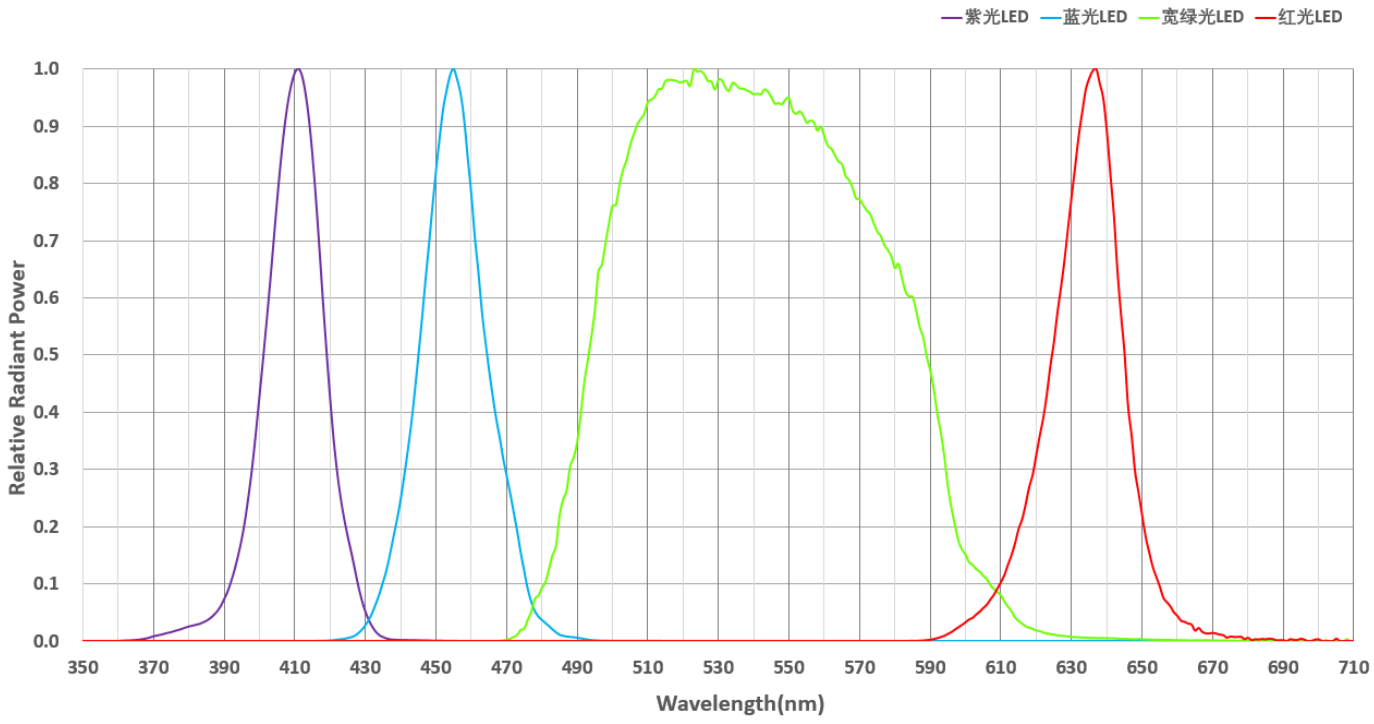


Red light illuminance irradiance at focal plane:



Warning ! *Keep away from the focus of light, it's easily get burned!*

Spectrum:



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