

EYP-RWE-0740-02000-1500-SOT02-0000

Revision 1.11

GAIN CHIPS AR coated Fabry-Perot Laser

Distributor



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General Product Information

Product	Application
tunable 740 nm Fabry-Perot Laser	Spectroscopy
for use in an External Cavity Diode Laser (ECDL)	covering wavelengths between 723 and 742 nm
sealed SOT Housing	
Monitor Diode	



Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	°C	-40		85
Operational Temperature at Case	T_C	°C	-20		50
Forward Current	I_F	mA			180
Reverse Voltage	V_R	V			2
Output Power (extracavity)	P_{opt}	mW			50

Measurement Conditions / Comments

Stress in excess of the Absolute Maximum Ratings can cause permanent damage to the device.

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_C	°C	15		40
Forward Current	I_F	mA			160

Measurement Conditions / Comments

Characteristics ex-cavity at $T_C = 25^\circ\text{C}$, at BOL under recommended working condition

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_c	nm		735	
Tuning Range	$\Delta\lambda_{tun}$	nm	723		742
Output Power	P_{opt}	mW		40	
Polarization				TM	
Spatial Mode (transversal)				TEM ₀₀	

Measurement Conditions / Comments

The actual achieved wavelength and power are strongly influenced by the external cavity. eyP gives no guarantee on these parameters.

E field perpendicular to Pin 2 - Pin 3 - plane
Fundamental Mode

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2019-03-01

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Amplified Spontaneous Emission (ASE)

without external cavity

Parameter	Symbol	Unit	min	typ	max
Divergence parallel (FWHM)	$\Theta_{ }$			10	
Divergence perpendicular (FWHM)	Θ_{\perp}			28	
Monitor Detector Responsivity	$I_{\text{mon}} / P_{\text{ASE}}$	$\mu\text{A/mW}$	1		40

Measurement Conditions / Comments

parallel to Pin 2 - Pin 3 plane (see p. 3)
 perpendicular to Pin 2 - Pin 3 plane (see p. 3)
 $U_{\text{R MD}} = 5 \text{ V}$

Chip Parameter

Parameter	Symbol	Unit	min	typ	max
Cavity Length	L	μm		1500	
Reflectivity at Front Facet	R_{ff}			$3 \cdot 10^{-4}$	$1 \cdot 10^{-3}$

Measurement Conditions / Comments

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2019-03-01

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Package Dimensions

Parameter	Symbol	Unit	min	typ	max
Height of Emission Plane	h	mm	3.50	3.65	3.70
Excentricity of Emission Center	R	mm			0.12
Pin Length	L _{PIN}	mm		14	

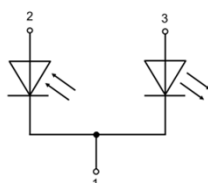
Measurement Conditions / Comments

reference plane: top side of TO header

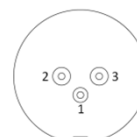
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Package Pinout

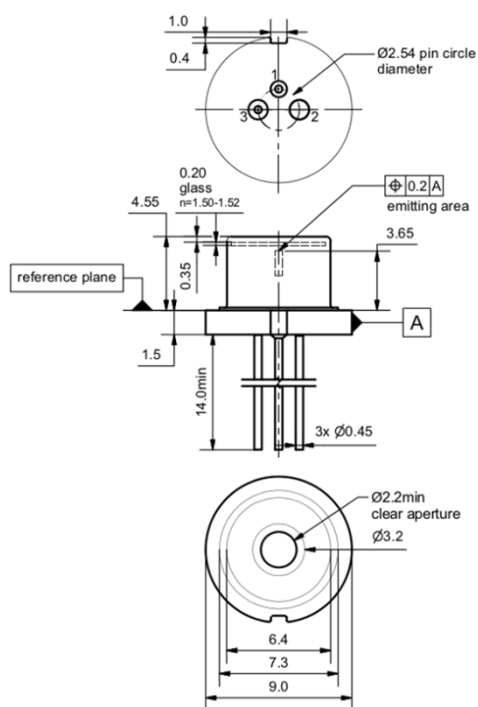
- 1 Laser Diode Cathode, Monitor Diode Cathode, Case
- 2 Photo Diode Anode
- 3 Laser Diode Anode



Bottom View



Package Drawings



AIZ-16-0421-1517

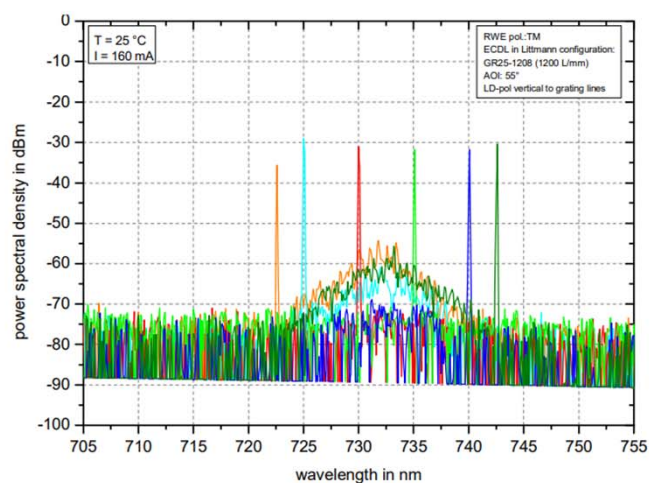
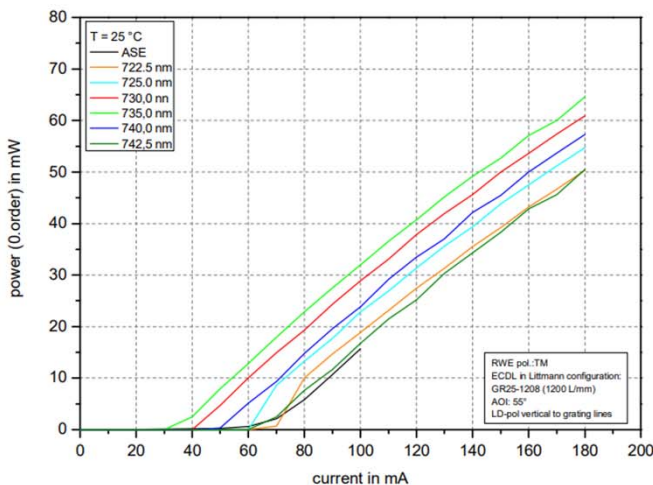
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2019-03-01

GAIN CHIPS AR coated Fabry-Perot Laser

Typical Measurement Results ex-cavity



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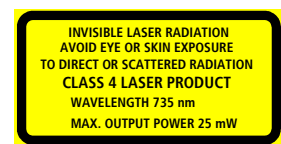
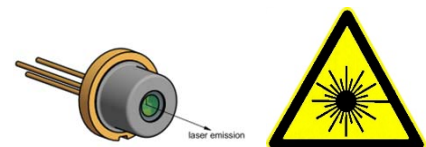
Unpacking, Installation and Laser Safety

Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

The TPA diode type is known to be sensitive against thermal stress. It should not be operated without appropriate injection from a seed laser. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode. The chip should be protected against moisture. A water vapor content below 5000 ppm is recommended for applications with high reliability requirements.

The laser emission from this diode is close to the invisible infrared region of the electromagnetic spectrum. Avoid direct and/or indirect exposure to the free running beam. Collimating the free running beam with optics as common in optical instruments will increase threat to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.



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General Product Information

Product	Application
tunable 760 nm Fabry-Perot Laser	Spectroscopy
for use in an External Cavity Diode Laser (ECDL)	covering wavelengths between
sealed SOT Housing	742 and 775 nm
Monitor Diode	



Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	°C	-40		85
Operational Temperature at Case	T_C	°C	-20		50
Forward Current	I_F	mA			200
Reverse Voltage	V_R	V			0
Output Power (extracavity)	P_{opt}	mW			100

Measurement Conditions / Comments

Stress in excess of the Absolute Maximum Ratings can cause permanent damage to the device.

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_C	°C	15		40
Forward Current	I_F	mA			180

Measurement Conditions / Comments

Characteristics ex-cavity at $T_C = 25^\circ\text{C}$, at BOL
under recommended working condition

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_C	nm		760	
Tuning Range	$\Delta\lambda_{tun}$	nm	742		775
Output Power	P_{opt}	mW		80	
Polarization				TM	
Spatial Mode (transversal)				TEM ₀₀	

Measurement Conditions / Comments

The actual achieved wavelength and power are strongly influenced by the external cavity. eyP gives no guarantee on these parameters.

E field perpendicular to Pin 2 - Pin 3 - plane
Fundamental Mode

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Amplified Spontaneous Emission (ASE)

without external cavity

Parameter	Symbol	Unit	min	typ	max
Divergence parallel (FWHM)	$\Theta_{ }$			10	
Divergence perpendicular (FWHM)	Θ_{\perp}			28	
Monitor Detector Responsivity	$I_{\text{mon}} / P_{\text{ASE}}$	$\mu\text{A/mW}$	1		40

Measurement Conditions / Comments

parallel to Pin 2 - Pin 3 plane (see p. 3)
 perpendicular to Pin 2 - Pin 3 plane (see p. 3)
 $U_{\text{R MD}} = 5 \text{ V}$

Chip Parameter

Parameter	Symbol	Unit	min	typ	max
Cavity Length	L	μm		1500	
Reflectivity at Front Facet	R_{ff}			$3 \cdot 10^{-4}$	$1 \cdot 10^{-3}$

Measurement Conditions / Comments

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GAIN CHIPS AR coated Fabry-Perot Laser

Package Dimensions

Parameter	Symbol	Unit	min	typ	max
Height of Emission Plane	h	mm	3.50	3.65	3.70
Excentricity of Emission Center	R	mm			0.12
Pin Length	L _{PIN}	mm		14	

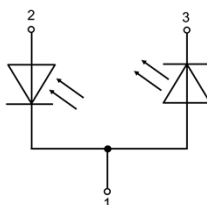
Measurement Conditions / Comments

reference plane: top side of TO header

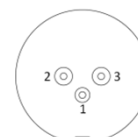
reference: center of outer diameter of header

Package Pinout

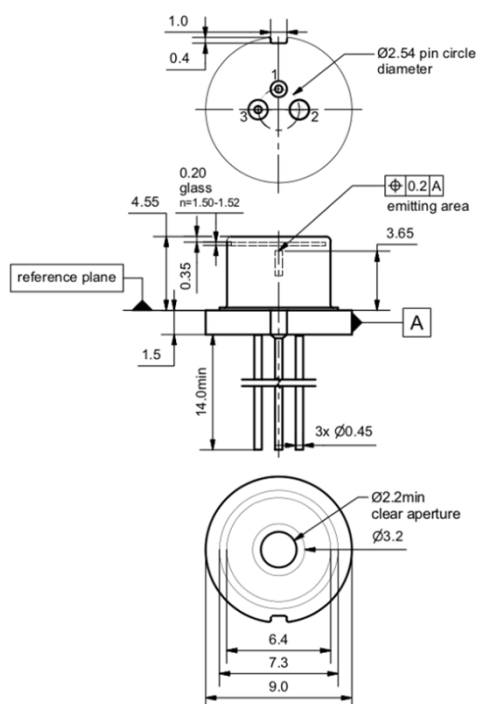
- 1 Laser Diode Anode, Monitor Diode Cathode, Case
- 2 Photo Diode Anode
- 3 Laser Diode Cathode



Bottom View



Package Drawings



AIZ-16-0421-1517

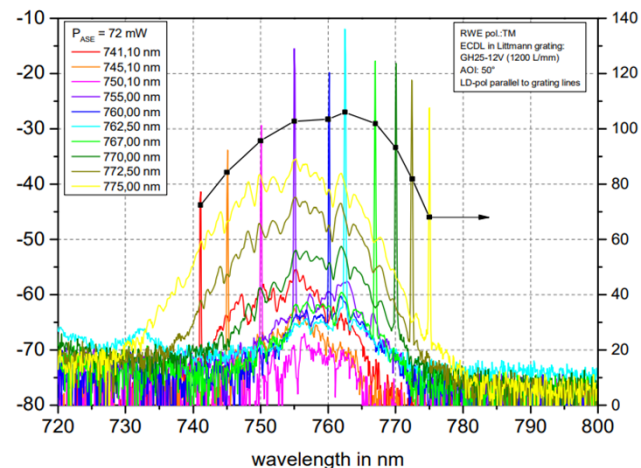
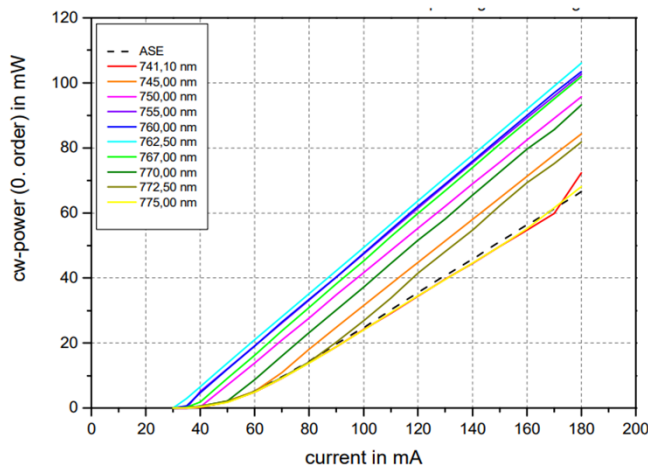
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2019-03-01

GAIN CHIPS AR coated Fabry-Perot Laser

Typical Measurement Results



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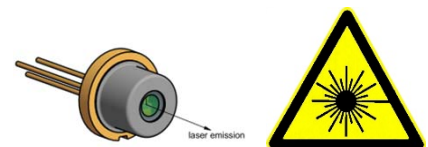
Unpacking, Installation and Laser Safety

Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

The TPA diode type is known to be sensitive against thermal stress. It should not be operated without appropriate injection from a seed laser. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode. The chip should be protected against moisture. A water vapor content below 5000 ppm is recommended for applications with high reliability requirements.

The laser emission from this diode is close to the invisible infrared region of the electromagnetic spectrum. Avoid direct and/or indirect exposure to the free running beam. Collimating the free running beam with optics as common in optical instruments will increase threat to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.



IEC 60825-0



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General Product Information

Product	Application
tunable 790 nm Fabry-Perot Laser	Spectroscopy
for use in an External Cavity Diode Laser (ECDL)	
sealed SOT Housing	
Monitor Diode	

**Absolute Maximum Ratings**

Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	°C	-40		85
Operational Temperature at Case	T_C	°C	-20		50
Forward Current	I_F	mA			200
Reverse Voltage	V_R	V			0
Output Power (extracavity)	P_{opt}	mW			70

Measurement Conditions / Comments

Stress in excess of one of the Absolute Maximum Ratings can cause permanent damage to the device. Please note that a damaging optical power level may occur although the maximum current is not reached.

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_C	°C	15		40
Forward Current	I_F	mA			180

Measurement Conditions / Comments
Characteristics extracavity at 25° C at Begin Of Life
 under recommended working point, with external cavity

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_C	nm		790	
Tuning Range	$\Delta\lambda_{tun}$	nm	760		795
Output Power	P_{opt}	mW		50	
Polarization				TM	
Spatial Mode (transversal)				TEM ₀₀	

Measurement Conditions / Comments

The actual achieved wavelength and power are strongly influenced by the external cavity. eagleyard Photonics gives no guarantee on these parameters.

E field perpendicular to Pin 2 - Pin 3 - plane
Fundamental Mode

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Amplified Spontaneous Emission (ASE) without external cavity

Parameter	Symbol	Unit	min	typ	max
Divergence parallel (FWHM)	$\Theta_{ }$	°		10	
Divergence perpendicular (FWHM)	Θ_{\perp}	°		22	
Monitor Detector Responsivity	$I_{\text{mon}} / P_{\text{opt}}$	μA / mW	1		40

Measurement Conditions / Comments

parallel to Pin 2 - Pin 3 plane (see p. 3)

perpendicular to Pin 2 - Pin 3 plane (see p. 3)

 $U_{\text{RMD}} = 5 \text{ V}$

Chip Parameter

Parameter	Symbol	Unit	min	typ	max
Cavity Length	L	μm		1500	
Reflectivity at Front Facet	R_{ff}			$3 \cdot 10^{-4}$	$1 \cdot 10^{-3}$

Measurement Conditions / Comments

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GAIN CHIPS

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Package Dimensions

Parameter	Symbol	Unit	min	typ	max
Height of Emission Plane	d_{EP}	mm	3.50	3.65	3.70
Excentricity of Emission Center	R	mm			0.12
Pin Length	l_{PIN}	mm		14	

Measurement Conditions / Comments

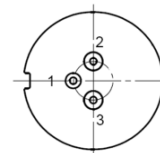
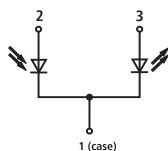
reference plane: top side of TO header

reference: center of outer diameter of header

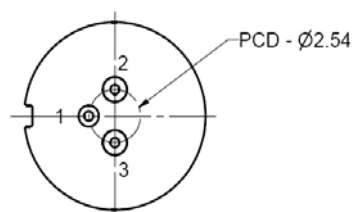
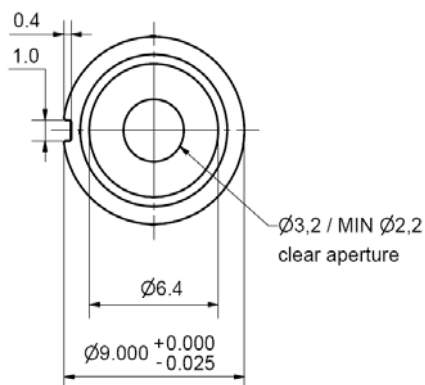
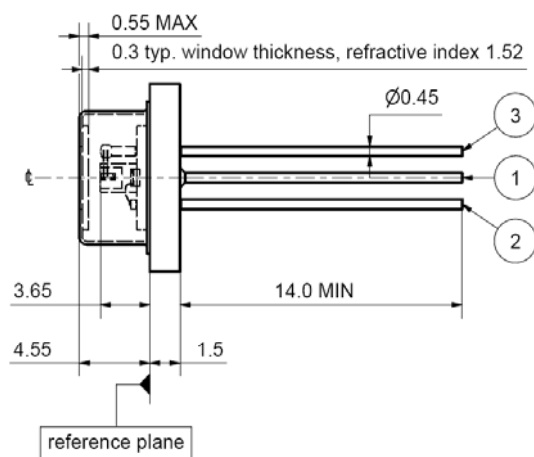
Package Pinout

M-type

- 1 Laser Diode Cathode, Monitor Diode Cathode, Case
- 2 Photo Diode Anode
- 3 Laser Diode Anode



Package Drawings



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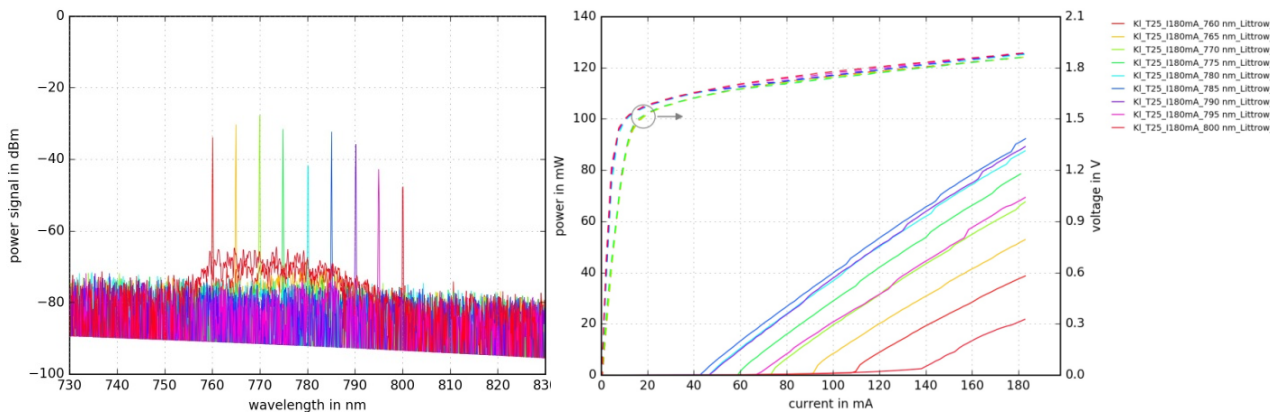
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15.04.2019

GAIN CHIPS

AR coated Fabry-Perot Laser

Typical Measurement Results ex cavity



Unpacking, Installation and Laser Safety

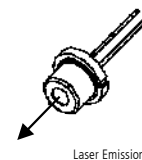
Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

The RWE diode type is known to be sensitive against thermal stress. It should not be operated without appropriate optical feedback from an external cavity. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

The laser emission from this diode is close to the invisible infrared region of the electromagnetic spectrum. Avoid direct and/or indirect exposure to the free running beam. Collimating the free running beam with optics as common in optical instruments will increase threat to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.

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Laser Emission



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