

BluGlass Laser Diode Update

- **Laser Diode Product Update**

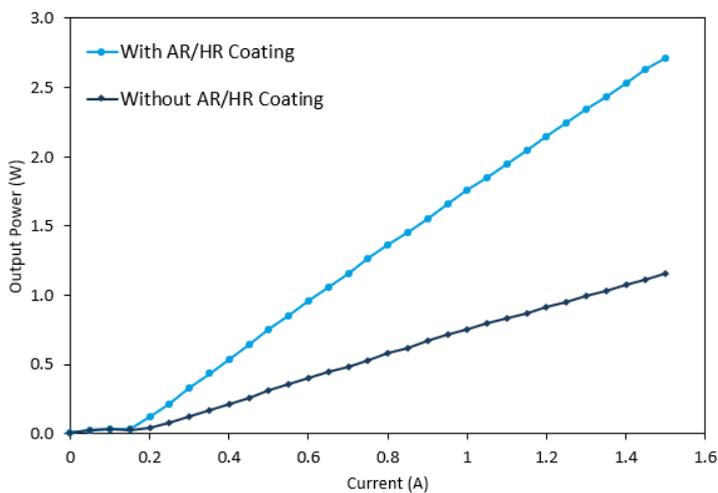
- BluGlass' 405nm lasers have successfully completed the next manufacturing step - optical coating
- Initial tests of unpackaged, coated devices demonstrating target performance
- The Company remains on track to provide sample products to customers in early 2021

Australian semiconductor technology developer, BluGlass Limited (ASX:BLG) is pleased to present an update on its laser diode business with the recent demonstration of strong output power of its standard 405nm laser design.

Laser Diode Product Progress – 405nm coated, unpackaged lasers performing in line with target specifications

BluGlass has advanced the development of its first standard laser diode product, with successful completion of the optical coating step of the manufacturing process of several 405nm laser devices. The Company's 405nm laser design has demonstrated strong initial performance results in line with our target specifications.

405nm Light Output with/without AR-HR Coating



Unpackaged device
 10µm x 1200 µm ridge
 Pulsed Measurement using 5% Duty cycle and 500ns pulse width

LIV Data at 0.5 A operating current		
Parameter	Uncoated	AR/HR Coated
Light Output Power (W)	0.31	0.75
Voltage (V)	4.4	4.5
Conversion Efficiency (%)	14.1	33.6

LIV Data at 1.0 A operating current		
Parameter	Uncoated	AR/HR Coated
Light Output Power (W)	0.76	1.76
Voltage (V)	5.9	6.0
Conversion Efficiency (%)	12.9	29.3

For lasers to achieve optimal performance, the two edge surfaces of the device are coated with specialty optical materials – one to achieve maximum light reflection called the highly-reflective (HR) coating. This is effectively a mirror surface that allows the light to reflect brightly back and forth. The other coating is designed to let the light pass through, while ensuring very little light is lost (the anti-reflective (AR) coating) and to ensure that all light emission occurs from one end.

These specialist AR and HR coatings result in a significant improvement in the light output measured from the device. BluGlass' 405nm laser output power has more than doubled with the addition of these specialist coatings and are demonstrating strong initial performance specifications in-line with expectations for an unpackaged device.

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74 ASQUITH STREET
 SILVERWATER NSW 2128
 P + 61 (0)2 9334 2300
 F + 61 (0)2 9748 2122

WWW.BLUGLASS.COM.AU

BluGlass Laser Diode Manufacturing Steps



These devices are now in the process of being packaged at BluGlass' facility in the US, before further burn-in testing and performance measurements can be completed. At this point, the devices can be tested according to industry standards and generate the final commercial specification of the BluGlass 405nm product design. Additional laser diode designs of other wavelengths and product specifications are also progressing through our development pipeline and various manufacturing steps.

The Company remains on track to provide sample products to customers in early 2021 to meet its technology, manufacturing and commercial milestones in line with its published roadmap.

This announcement has been approved for release by the board.

About BluGlass

BluGlass Limited (ASX: BLG) is a global leader commercialising a breakthrough technology using Remote Plasma Chemical Vapour Deposition (**RPCVD**) for the manufacture of high-value semiconductor devices such as **laser diodes**, next generation **LEDs** and **microLEDs**. BluGlass has invented a new process using RPCVD to grow advanced materials such as gallium nitride (GaN) and indium gallium nitride (InGaN). These materials are crucial to the production of high-efficiency devices used in next-generation devices from lighting, displays, virtual reality systems and industrial cutting and welding.

RPCVD's unique low temperature, low hydrogen growth platform offers many potential benefits to electronics manufacturers over existing growth techniques; including higher efficiency, lower cost, greater substrate flexibility and has the potential to enable novel applications.

In 2019, BluGlass launched its direct-to-market Laser Diode business unit to exploit its unique tunnel junction technology capability in the high-value and high-margin laser diode market. BluGlass expects to launch its first laser diode commercial product in 2021. **Contact:** Stefanie Winwood +61 2 9334 2300 swinwood@bluglass.com.au