

The future is visible  
A new world  
you wear all day



Introduction @ EPIC Espoo

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**BRILLIANCE**

brillianceRGB.com



# BRILLIANCE

The future is visible

## Introduction: Who?

### Tim Tiek (CEO Brilliance)





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## Introduction: Where?



**Brilliance enables the optimal Augmented Reality experience by delivering the ultimate laser light engine**



These laser engines enable our customers to overcome the challenges of miniaturization, integration, image quality and energy efficiency for projection applications such as AR

Our patented silicon-nitride based platform and laser integration are based on >20 years of integrated photonics experience. We offer technical superiority and bring high-quality low-cost volume production to Laser Beam Scanning



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## Enabling every day Augmented Reality



2006



2015



2018



2021



2023

Size, style & useability determine comfort & market acceptance

**Miniaturization essential**

**Outdoor AR: Brightness & Efficiency**



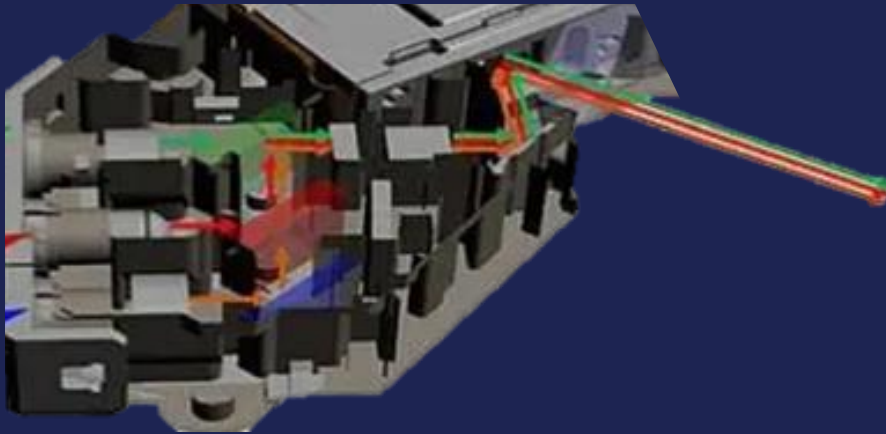


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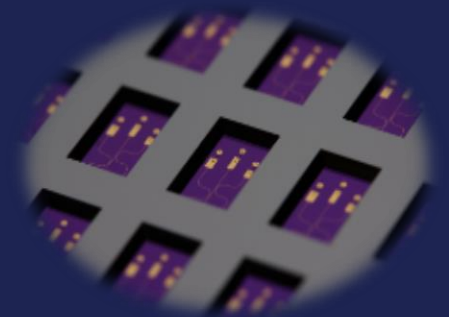
## Status Quo

- Complex & expensive discrete light engine
- Challenges with stability, lifetime & robustness
- Mediocre image quality due to discrete optical performance
- Difficult/expensive to produce in high volume



## Our Solution

- Elegant simple design fully integrated into 1 chip
- Smallest, lightest & most robust solution
- Solving image quality challenges
- Can be mass produced on wafer scale

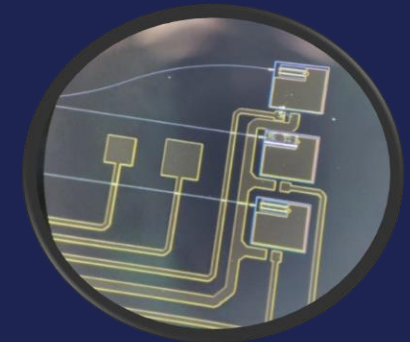
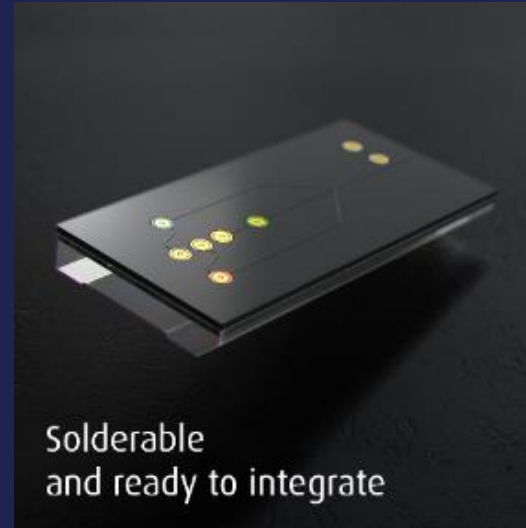
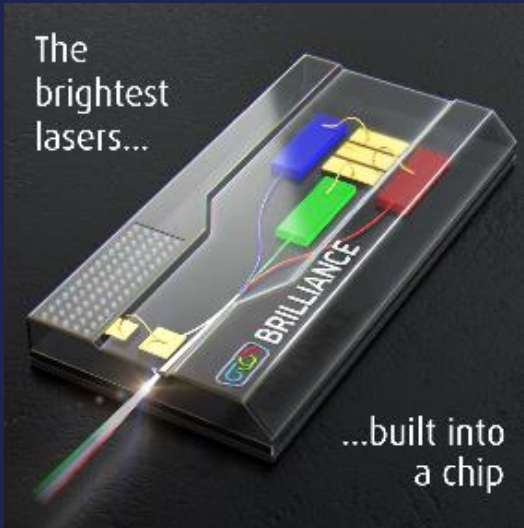




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## The Brilliance Solution



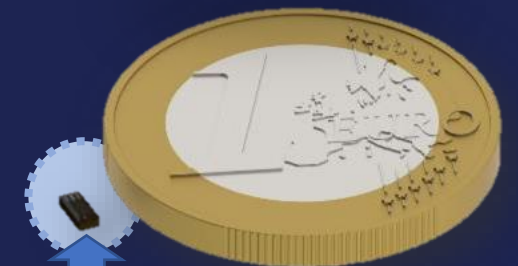
Close-up of chip detail



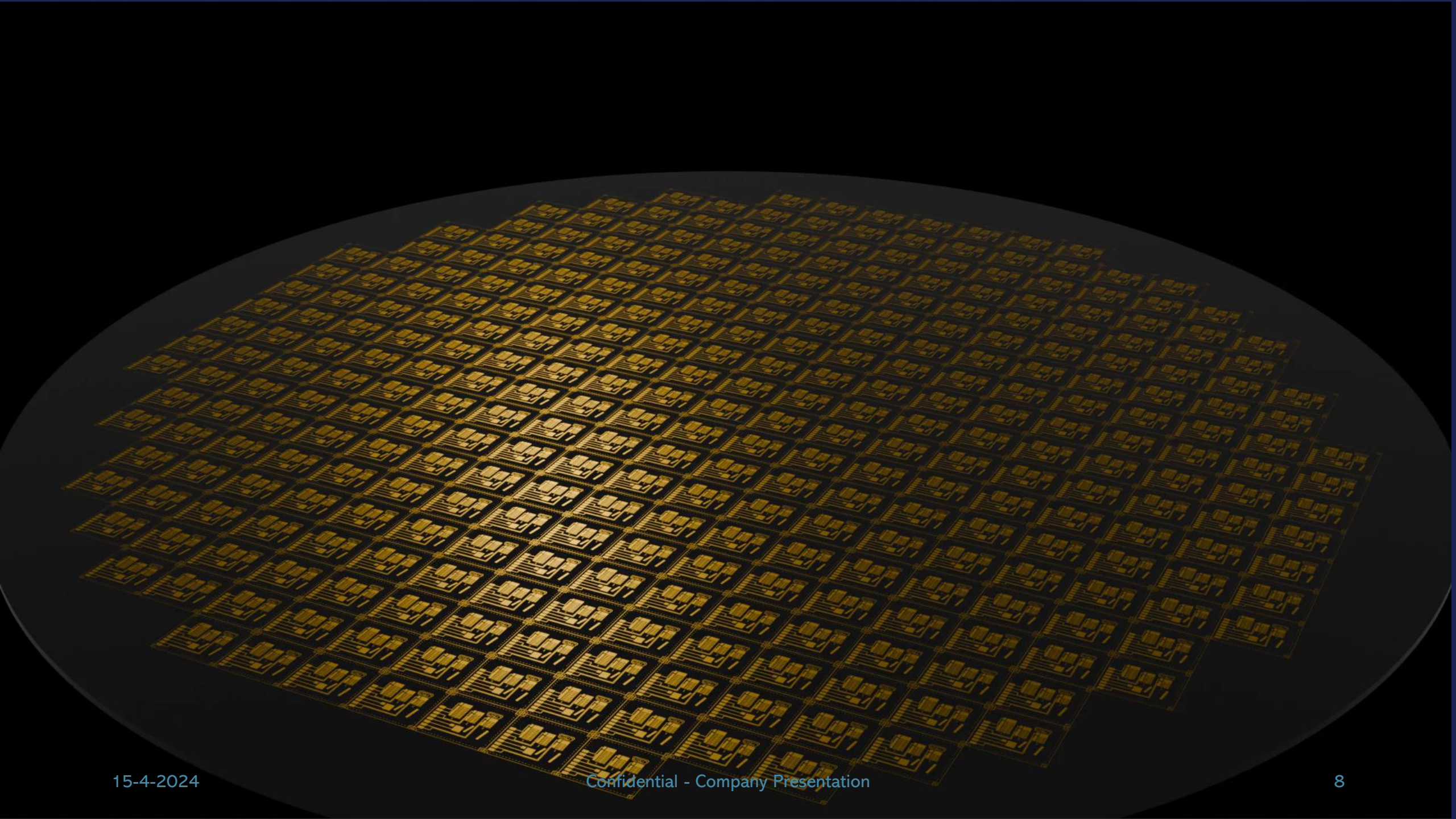
Demonstration hardware

### The Brilliance Light Engine:

- Can be easily integrated into any projection device
- Patented TripleX Integrated Photonics → Superb image quality
- Output power between 1 and 100mW
- Super small size: Only a few mm<sup>2</sup>
- Integrated Photonic design allows customization and control over optical output properties



Impression of final size (2025)





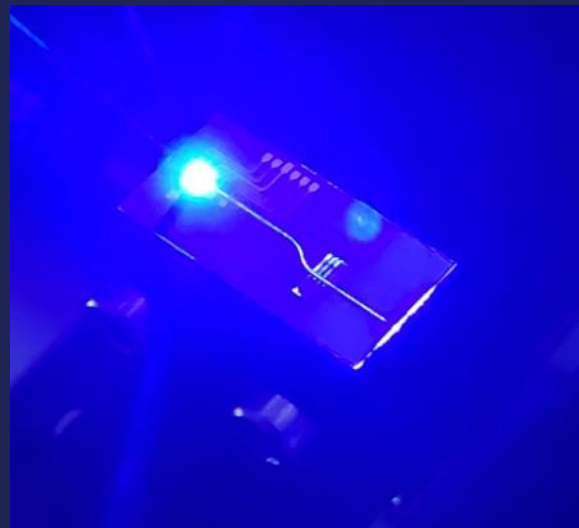
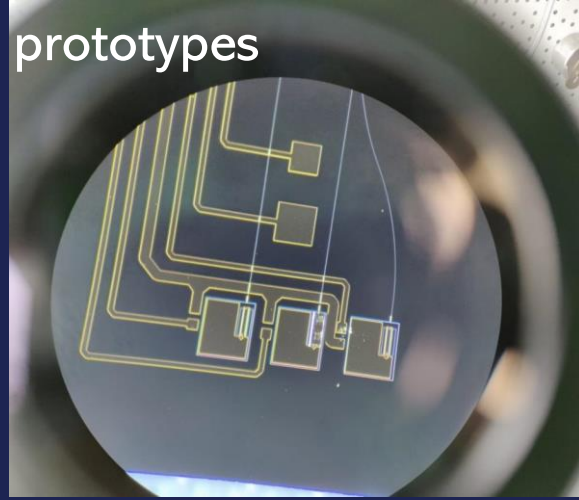


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## Local Foundry & strong ecosystem in NL

Impression of prototypes



Local foundry & ecosystem



Technology partner



Industrialization partner



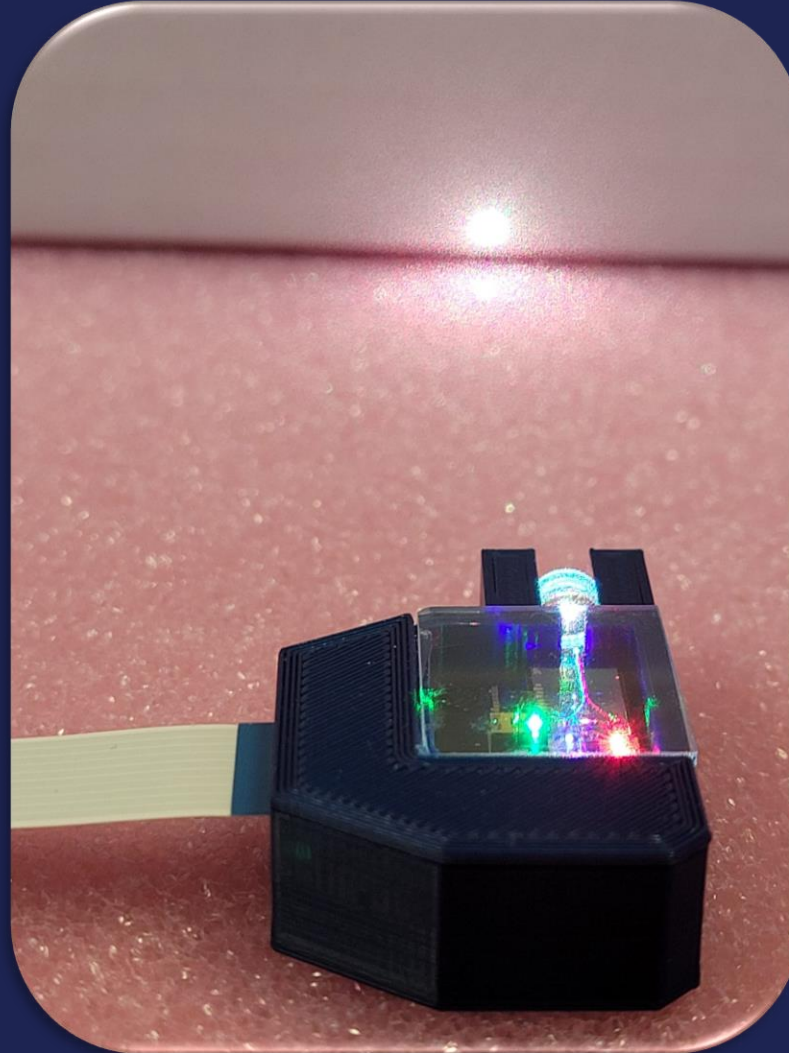
Other Brilliance partners

Brilliance has representatives in US, EU and Israel, and ecosystem partners in Holland Semiconductor, HighTechNL, worldwide integrated photonics community...



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## “Neptune” in July

The next generation Brilliance RGB laser is called “Neptune”.

It offers:

- Fully integrated lasers
- Smaller size (<18mm<sup>2</sup>)
- Optimized output shape – perfect round spot
- >85% efficiency in the optical domain
- Low/medium volume production capable (2025 SOP & ramp-up)

→ Engineering demo kits available per Q3’24

BRL-02a-P-L  
Datasheet

Version 0.92

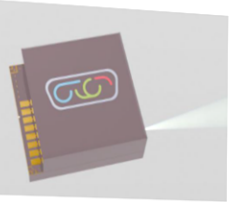
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## Datasheet

### Integrated Miniature RGB Laser

**Applications**

- Augmented Reality headsets
- Automotive HUD
- Automotive lighting
- Fluorescence microscopy
- Metrology
- Other laser beam scanning applications



**Features**

- Maximum optical output power (CW): 35 mW (T<sub>c</sub> = 25°C, 640nm)
- Flat NA over wavelength (Ratio 1:1 +/- 5%)
- Circular Output Beam (Ratio 1:1 +/- 5%)
- M<sup>2</sup> - 1.0 +/- 1% (waveguide mode)
- Red, Green and Blue lasers
- Optional additional IR laser for eye tracking
- Small package 4 x 4.5 x 1.5 mm
- Single mode semiconductor lasers
- Operation temperature: -10~+70°C
- Hermetically sealed
- Optional collimating lens

**Description**

Brilliance miniature RGB laser is the smallest, most robust and most scalable way to work with RGB lasers in projection applications. Optimal performance of the optical output properties, combines with small form factor are unique.

Custom versions with additional PIC functionality or adapted MFD and NA are available upon inquiry.

Confidential - Company Presentation

31-5-2024



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## Thank you for your attention!



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## Brilliance Roadmap

