



SCRAMBLUX



The SCRAMBLUX Instrument: A new approach to LiDAR testing and qualification

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The SCRAMBLUX Instrument for LiDAR Testing

SCRAMBLUX has built a LiDAR agnostic test instrument

Our Mission is to deliver a Metric and an Instrument that can follow the LiDAR throughout it's entire lifecycle as the Single Test Standard for LiDAR characterization.



Production
(Tier 1/Tier 2)

Installation
on vehicles
(OEM)

Aftermarket
and Periodic
Technical
Inspection
(PTI)





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Value Proposition



- **120 x** smaller footprint
- **Direct** Measurements
- **Fully automated**
- **> € 500k** cost saving per year



The BeamScrambler USPs



Ultra-Fast
(CT ≤ 30 sec/LiDAR)

**Compact
footprint**
($\leq 4\text{m}^2$)

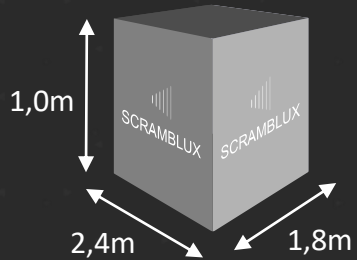
**Direct
OPTICAL
measurement**
of key performance
parameter

Real-World
environmental
testing



The SXI Roadmap

The LiDAR agnostic SXI evolves as the LiDAR market matures



ALPHA

- Prototype System
- Production Line Ready
- Ready to test *your* LiDAR

2024

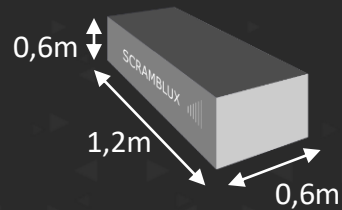
2025

2026

2028++

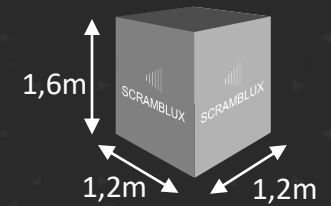
COMPACT

- Dedicated OEM System
- Module in ViL test jigs
- Smaller footprint
- 4D Scene capable



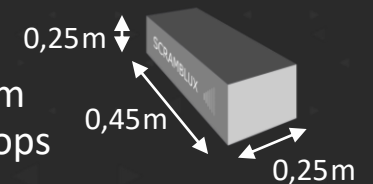
ONE

- Production System
- Optimized for Production Lines
- Extended Features
- Stand-Alone Development System



X

- Ultra-Compact System
- Intended for workshops during PTI
- Man portable
- Size, Cost & Feature Optimized for Aftermarket

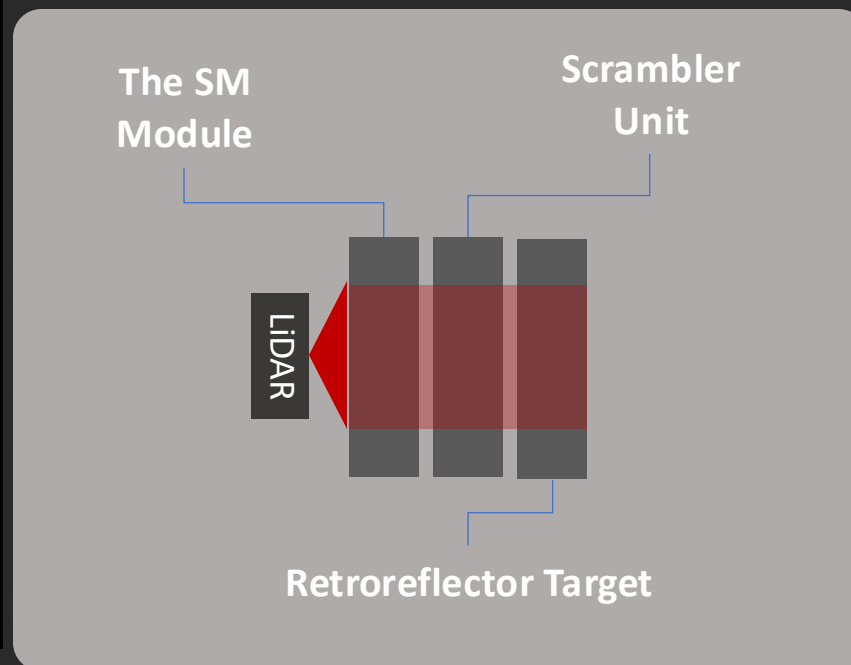


The SXI Alpha

We have built an SXI- α and we offer LiDAR test services in our lab

We have created a “3D Checkered Pattern” test target for LiDARs

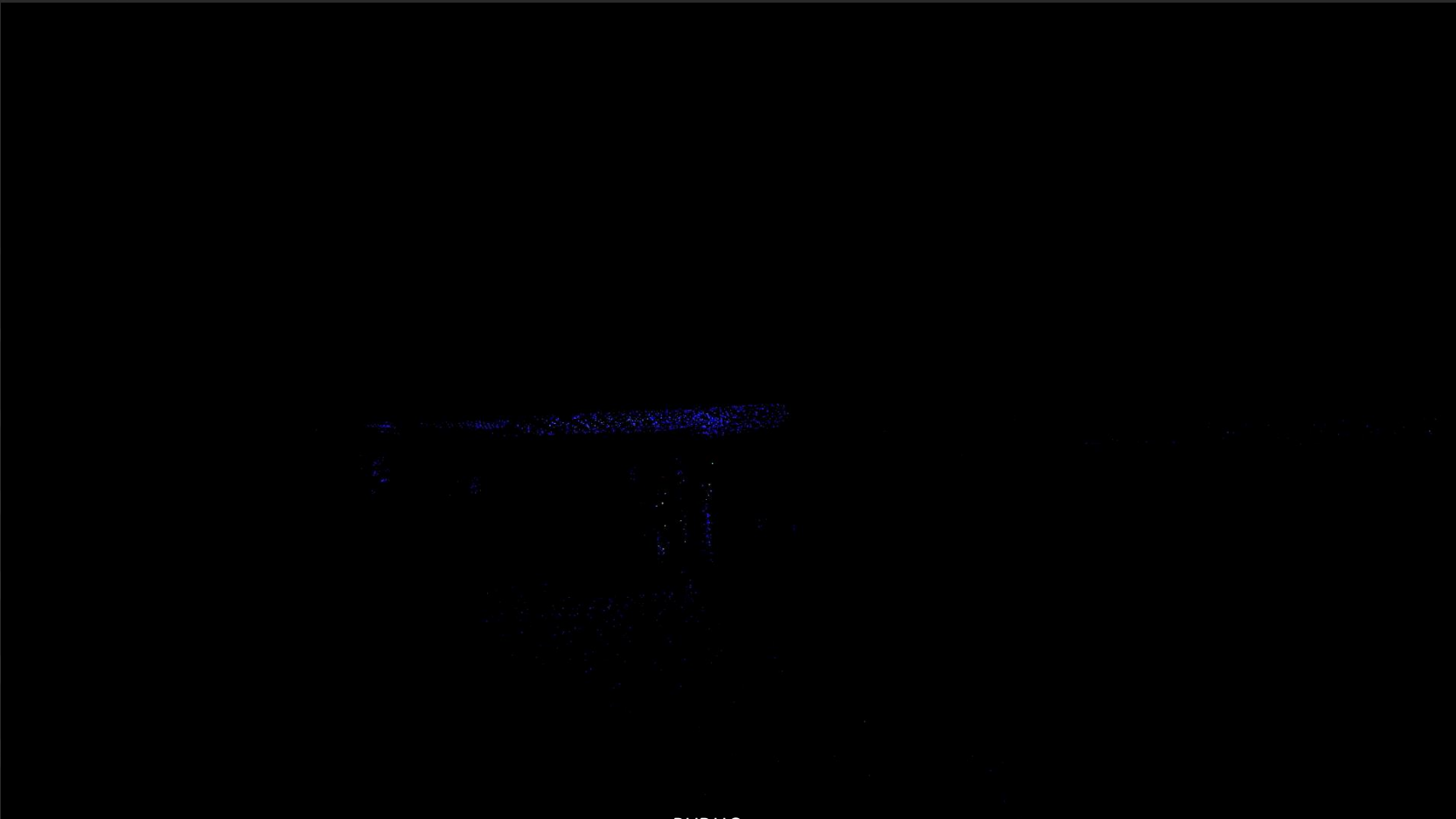
Parameter	Typical	Unit
Accuracy depth	± 0.01	m
Wavelength	905	nm
Repetition	1.64 ± 0.01	m



Next Steps: Exploring the 4:th dimension

Our Instrumentation Deck can have motion in the Target → FMCW & ViL

The evolution of our targets is defined by the industry needs



The 3D Scene Generator LERR



Based on our latest patent, the Scramblux BeamScrambler enables 3D Scene generation which will allow full Sensor Fusion Testing (Camera, Radar, LiDAR).



What's new?

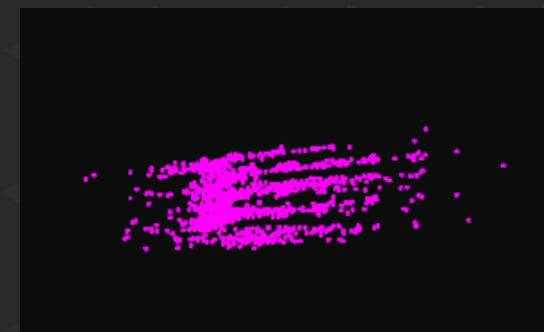
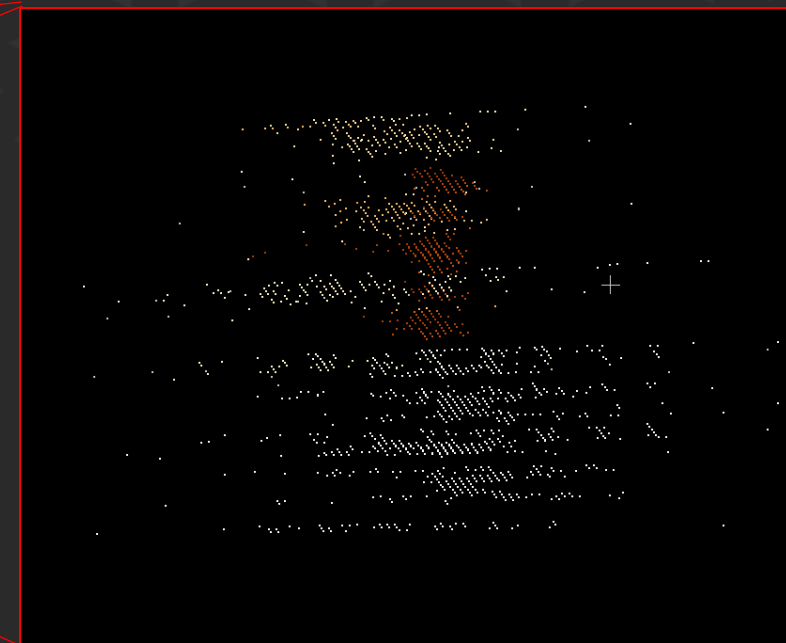
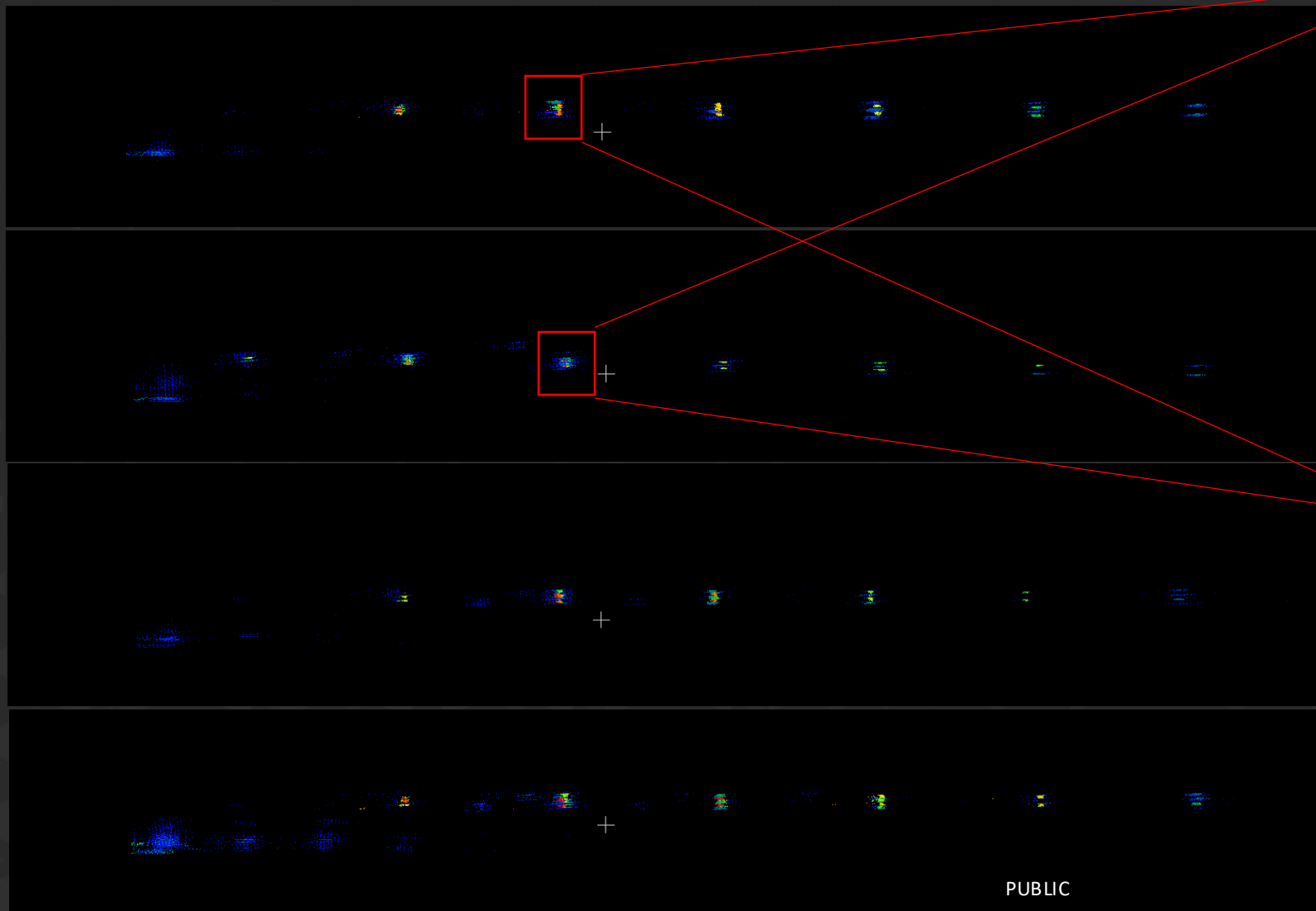
Searching for the SXI targets in the LiDAR Point Cloud can be challenging ...





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... unless, you can *Optically* isolate the SXI



SCRAMBLUX: A LiDAR EoL Test and Calibration Solution



- The SCRAMBLUX Instrument is comprehensive LiDAR End of Line (EoL) **test and calibration solution**
- It enables the use of the **same metric** for testing throughout the life cycle of the LiDAR (Tiers 1,2; OEM; PTI)
- Our new Optical Isolation technique allows for more than “just range measurements” in the SXI
- **We can test YOUR LiDAR** in our lab using SXI-alpha
- Contact us to find out more:
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Thank you for your attention!



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