

SimLas: Environment Simulator for Automotive



Overview

SimLas is a system for developing, calibrating and testing Lidars. The system is designed for reproducible simulation of a dynamic environment, including simulation of surrounding objects by generating echo pulses. SimLas registers the optical signal, emanated by the Lidar and generates an echo signal (or multiple echoes) with controlled parameters:

- Temporary delay
- Pulse duration
- Signal strength

SimLas also monitors the parameters of the Lidar laser pulse

Applications

- Environment simulation for Lidars
- Monitoring of laser pulse parameters
- System testing of Lidar
- Modeling of weather conditions
- Calibration
- Analysis of range and angular accuracy.
- HIL system

Technical Specifications

Parameter	Current Parameters
Optical echo signal generation rate	1 MHz
Temporal resolution of echo pulse	100 ps
Minimal simulation range	10 m
Spatial accuracy of simulation	3 cm
Target reflectivity	0-98% ⁽¹⁾
Optical wavelengths	905 nm, 1060 nm, 1550 nm
Horizontal field of view	30 degrees ^(1,2)
Vertical field of view	20 degrees ^(1,2)
Horizontal angular resolution	0.1 degrees ^(1,2)
Vertical angular resolution	0.1 degrees ^(1,2)

(1) Depends on the configuration

(2) Parameters depend on the model of Lidar, current parameters are for IBEO LUX