

NACIONĀLAIS  
ATTĪSTĪBAS  
PLĀNS 2020



**EIROPAS SAVIENĪBA**

Eiropas Reģionālās  
attīstības fonds

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I E G U L D Ī J U M S T A V Ā N Ā K O T N Ē

## NEW GENERATION WAVEFRONT SENSORS BASED ON THE METHOD OF CODED DIFFRACTION PATTERNS

**Project number: KC-PI-2017/105**

**Project scientific leader: Dr. Phys. Sergejs Fomins.**

**3.10.2020.**

### **Project implementation – 01.10.2019. – 31.12.2019.**

Project team has continued to improve the performance of the prototype. This includes algorithm optimization, as well as optimization of optical mechanical components. Efforts have been made to reduce the number of optical elements of the system without losing performance.

Phase recovery algorithm parameters has been adapted to real encoded measurements, including performance testing with simplified optical elements under different conditions, and driving adaptive corrective optics.

Work has been carried out on identifying and correcting systems intrinsic aberrations. Simplified image capture block control was introduced and focusing approaches. The required sensitivity and potential operating parameters of the image sensor have been identified.

A theoretical approach for using the sensor in multiple EM ranges has been started.

Work on technical descriptions and drawings of technology is ongoing, considering the latest technical and algorithmic solutions. Measures are being taken to strengthen intellectual property rights in cooperation with patenting authorities.

Conferences for adaptive optics and cosmic technologies have been visited. Team strengthened pre-existing networks of scientists and business, new contacts has been established. Contacts with the local space observatories has been maintained.