AER-01 / Design prospectus

# AERA

## Compact solar-assisted lighter-than-air platform



Hardware design

AERA is our compact, solar-assisted lighter-than-air observation platform in development and testing. Its design pairs a portable buoyant body with a small sensing unit for local observation and NODERIQ mission context.

## Observe an area. Keep the source in view.

For portable aerial observation: define a local area, the sensor task and a recovery point before release.

Overall size

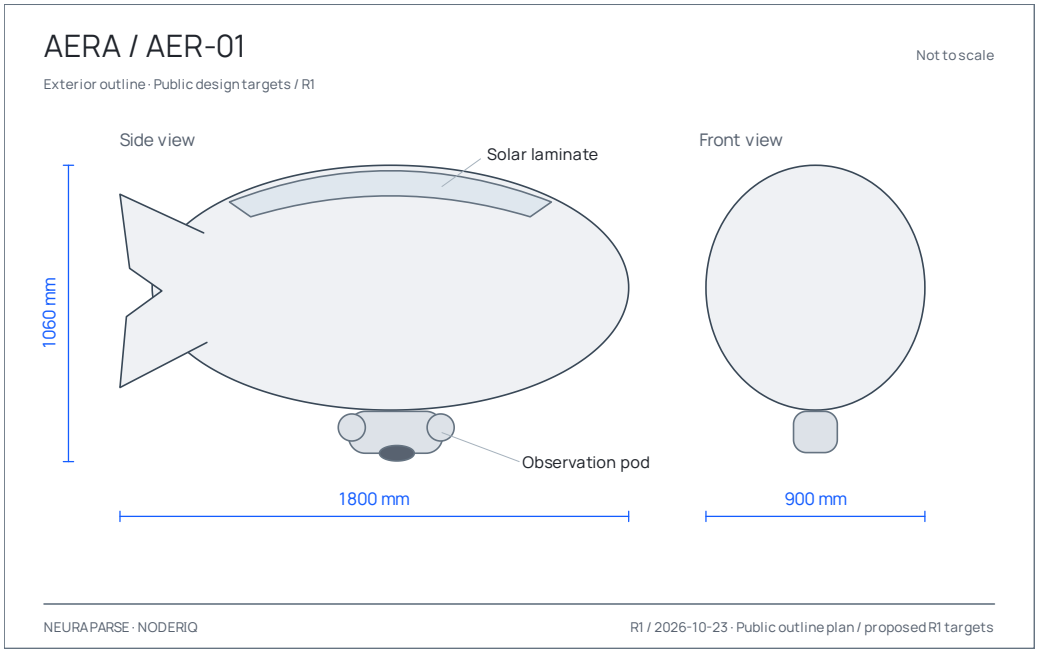
1800 × 900 × 1060 mm

Development and testing

Hardware tests are ongoing.

AERA / Device plan

# Exterior dimensions and a place to prepare.




R1 dimensions are proposed design targets. The drawings describe exterior relationships, not manufacturing details or approved operating clearances.

Design priorities

## Buoyancy and gas selection

Lift comes from gas less dense than the surrounding air. Helium and hydrogen are candidate approaches; the final choice, containment, handling and operating envelope remain subject to engineering and safety qualification.

## Solar-assisted sensing

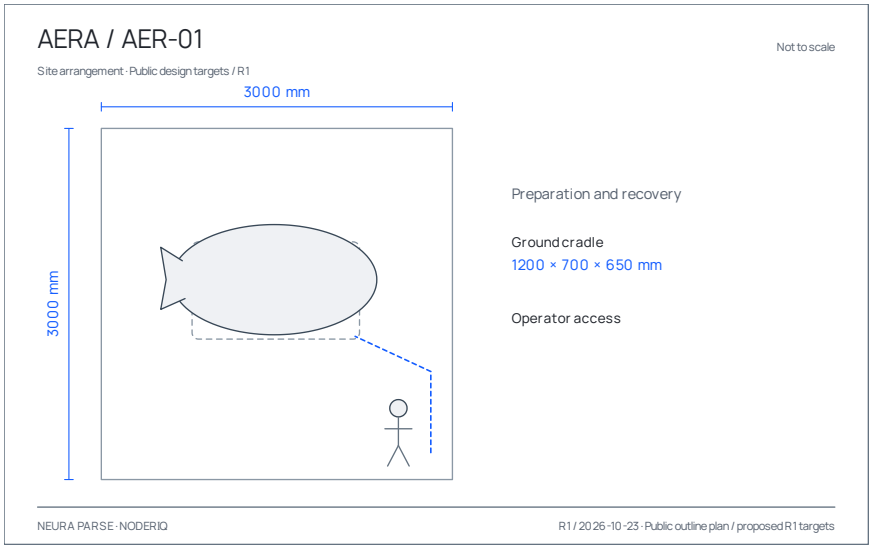
Solar collection supports the intended energy system. Payload demand, storage, propulsion, wind and day-to-night conditions must be evaluated together before setting an endurance claim.

## Mapping and delivery

Retain location, capture time and sensor quality. Evaluate local processing, communication delays and recovery of retained observations after a link returns.

AERA / Site and routine

# AERA ground handling




Ground cradle

1200 × 700 × 650 mm

Site allocation

3000 × 3000 mm

Planning space only; the actual site and operating clearance require assessment.

01

## Define the observation

Select an area, sensor, monitoring question and operator-approved mission boundary.

02

## Check platform readiness

Assess lift configuration, weather, energy and recovery conditions against the tested operating envelope.

03

## Collect and locate

Associate each observation with position, capture time and source quality; make delayed data visible.

04

## Review and recover

Review the returned record in mission context and follow the planned recovery and maintenance process.

AERA / Evaluation and next steps

# From an observation to a decision.

## Intended uses

### Mapping and satellite context

Connect local observations to a geographic reference and, where available, licensed satellite map layers. Capture time, location, source and resolution need to stay visible when comparing observations.

### Environmental observation

Observe defined areas over time: vegetation, water boundaries, agricultural plots or changes in a landscape. Choose and test the sensor and ground-reference method for each question before interpreting a change.

### Timely field data

Bring useful observations into the mission while they are still relevant. Delivery depends on sensing, processing and connectivity. A lost link or an old frame must remain visible to the operator.

### Observation with a purpose

Choose the area, collection frequency and sensor for the question. Assess site access, noise, wildlife sensitivity and unnecessary repeat visits as part of each proposed monitoring plan.

## Built towards NODERIQ

The intended connection brings device observations into NODERIQ mission context. NowFlow provides the workflow and human review layer; NeuraOS provides the edge execution foundation. Hardware integration is part of the testing work.

### Hardware tests are ongoing.

Neura Parse is developing and testing these devices for intended use with NODERIQ. The current pages describe the device direction and planned uses. Detailed operating specifications and acceptance results will follow the relevant tests.

The test programme must establish the operating envelope, observation quality, energy budget, connection recovery and return behaviour. Published results will need to support any later coverage, endurance, latency or environmental performance claim. NODERIQ integration and physical operation each require acceptance.

## Reference and next discussion

neuraparse.com/products/noderiq/devices/aera
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Technical context and sources: NASA / Scientific Balloon FAQs · ESA / Earth observation