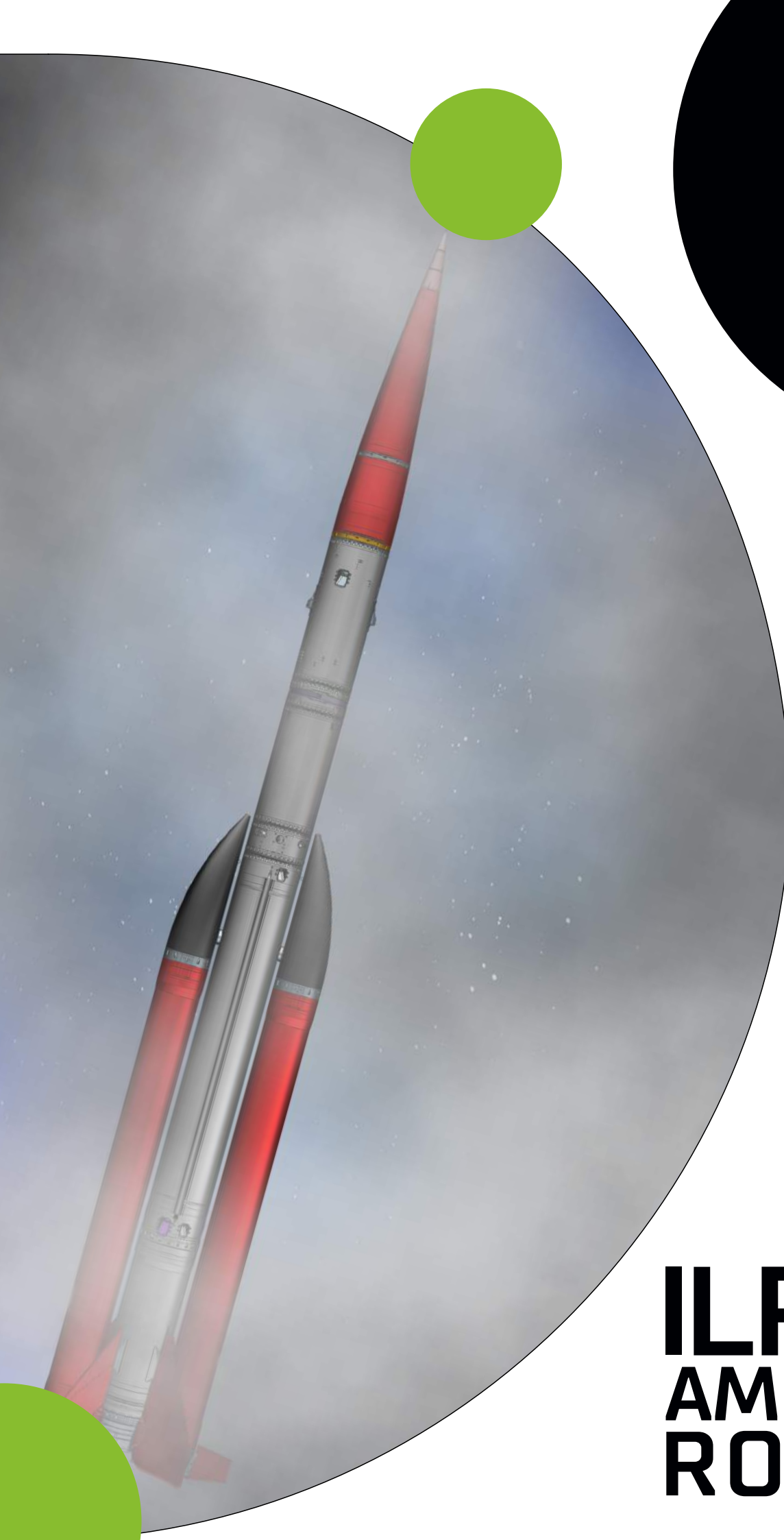




Łukasiewicz
Institute
of Aviation



Microgravity,
Atmosphere Sounding,
Technology Validation
and Astronomy

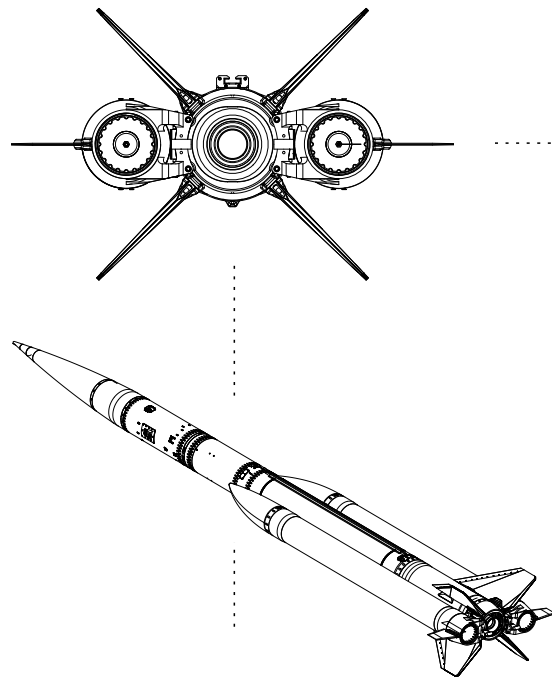
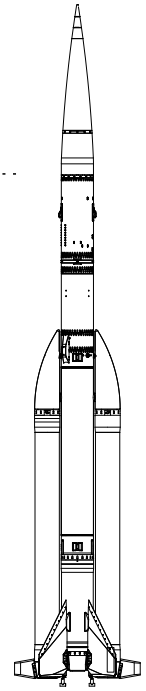
ILR-33 AMBER 2K ROCKET

CHARACTERISTICS

The ILR-33 AMBER 2K rocket is a suborbital vehicle designed by the Łukasiewicz Research Network – Institute of Aviation. It is offered as an autonomous product, as well as a research platform. The main stage is propelled by a hybrid rocket motor and is assisted by two solid rocket strap-on boosters, which enable adapting the mission to specific payload needs.

Main advantages:

- World's first rocket utilizing H₂O₂ of concentration exceeding 98% (hydrogen peroxide 98%+).
- Innovative hybrid rocket motor.
- Cost effective suborbital flight.
- Flexibility – possibility of adjustment to wide range of missions.



Examples of application:

- Microgravity testing (200 s of 10-2 g).
- Validation of avionic systems.
- Attitude Control Systems verification.
- 1U, 2U, 3U CubeSats qualification.
- Booster separation mechanism tests.
- On-ground infrastructure testing, e.g. radars.
- Cost-effective atmosphere sonding.

TECHNICAL INFORMATION

ILR-33 AMBER 2K

Parameter	Value
Length	4,6 m
Main core diameter	230 mm
Apogee	100 km
Maximum velocity	1300 m/s
Payload	10 kg
Maximum G-force	14 g
Microgravity duration (10 ⁻³ g, 5 kg)	150 s

BOOSTERS

Type	Solid rocket motor
Maximum thrust	2 x 16 000 N
Burn duration	6 s
Combustion chamber	Composite structure

MAIN PROPULSION

Type	Hybrid rocket motor
Oxidizer	Hydrogen Peroxide (HTP 98%)
Fuel	Polyethylene
Maximum thrust	4 000 N
Burn duration	40 s
Combustion chamber	Composite structure



The Łukasiewicz Research Network – Institute of Aviation

offers a wide range of specialized research, engineering services and products. We provide comprehensive solutions, ranging from dedicated analyzes, simulations, engineering design, through the selection, testing and certification of materials and structures, to rapid prototyping and additive manufacturing.

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