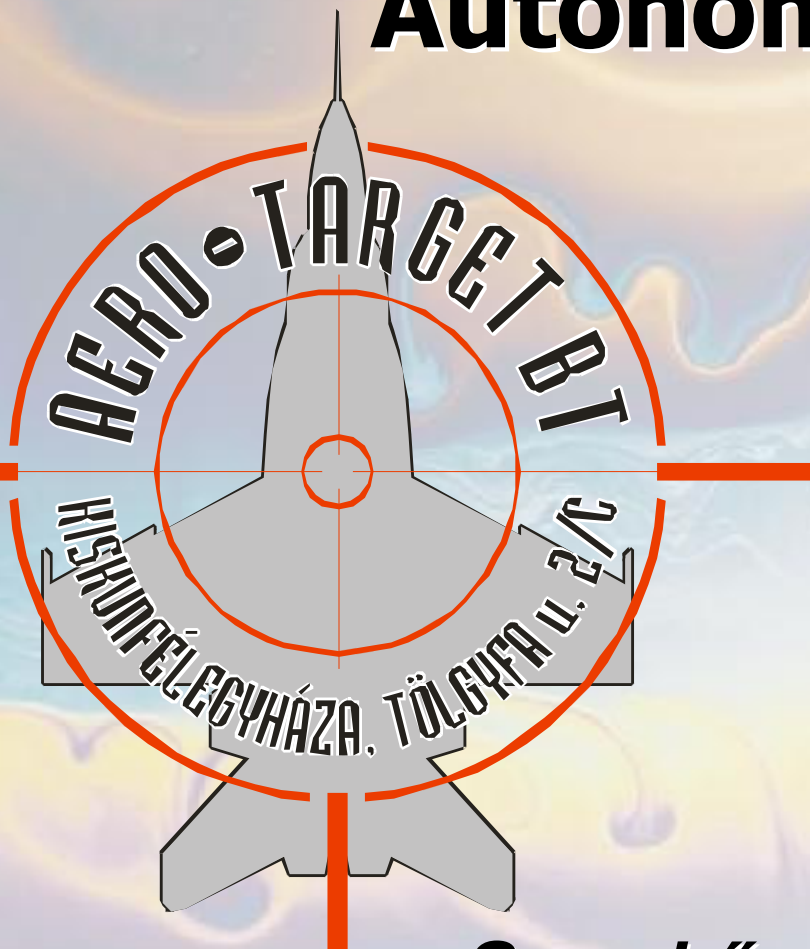




ZRÍNYI MIKLÓS NATIONAL DEFENCE UNIVERSITY



Autonomous Flying of UAV



Miklós T. KONCZ

AERO-TARGET BT.

Kiskunfélegyháza Tölgyfa u. 2/c

Hungary

www.aerotarget.atw.hu

**Szendrő, UAVNET Regional Workshop
23th of September 2005.**



Introduction of AERO-TARGET BT.



Görög György Rábel András

Independent, Hungarian

Development

Manufacturing

Service

Maintenance





Introduction of AERO-TARGET BT.



mistral.mpg





MGR-30, Meteor-3





MGR-30R, Meteor-3R





MGR-30R, Meteor-3R



- Purpose: artificial air target, carrying special payloads in modular nose cone
- Application: simulation of target for air defence weapon systems in training and live fire exercise or on the battlefield to reveal enemy's radar positions
- Targeting aims: Luneberg lens, LASER reflective foil, up-to four one minute flares or maximum two pieces of two minutes flares
- Action radius: maximum 40-60 km (total route)

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- Endurance: 30-40 minutes
- Weight of the payload including fuel: 4 kg
- Maximum altitude: 2-3 km

Endurance: 30-40 minutes

- Flying velocity: maximum 130-140 km/h, nominally 100 km/h (depends on the wind)
- Wing span: 2.7 m
- Length: 1.8 m
- Empty weight: 11 kg

- Propellant: internal combustion engine, volume 30 cubic cm
- Fuel: methanol, castor oil and additives

Control: PCM RC, GPS based autopilot system with infrared flight stabilisation system and optional video transmission

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- Take off: catapult with winch
- Landing: special reinforced disk
- Wind speed limit: 40 km/h
- Weather condition: all European weather conditions, except heavy rain, snow or fog and fully covered sky by clouds

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BALTI-2-2005, Hungarian Tactical Firing, 16th-22th of June 2005, Poland Ustka





**BALTI-2-2005, Hungarian Tactical Firing,
16th-22th of June 2005, Poland Ustka**



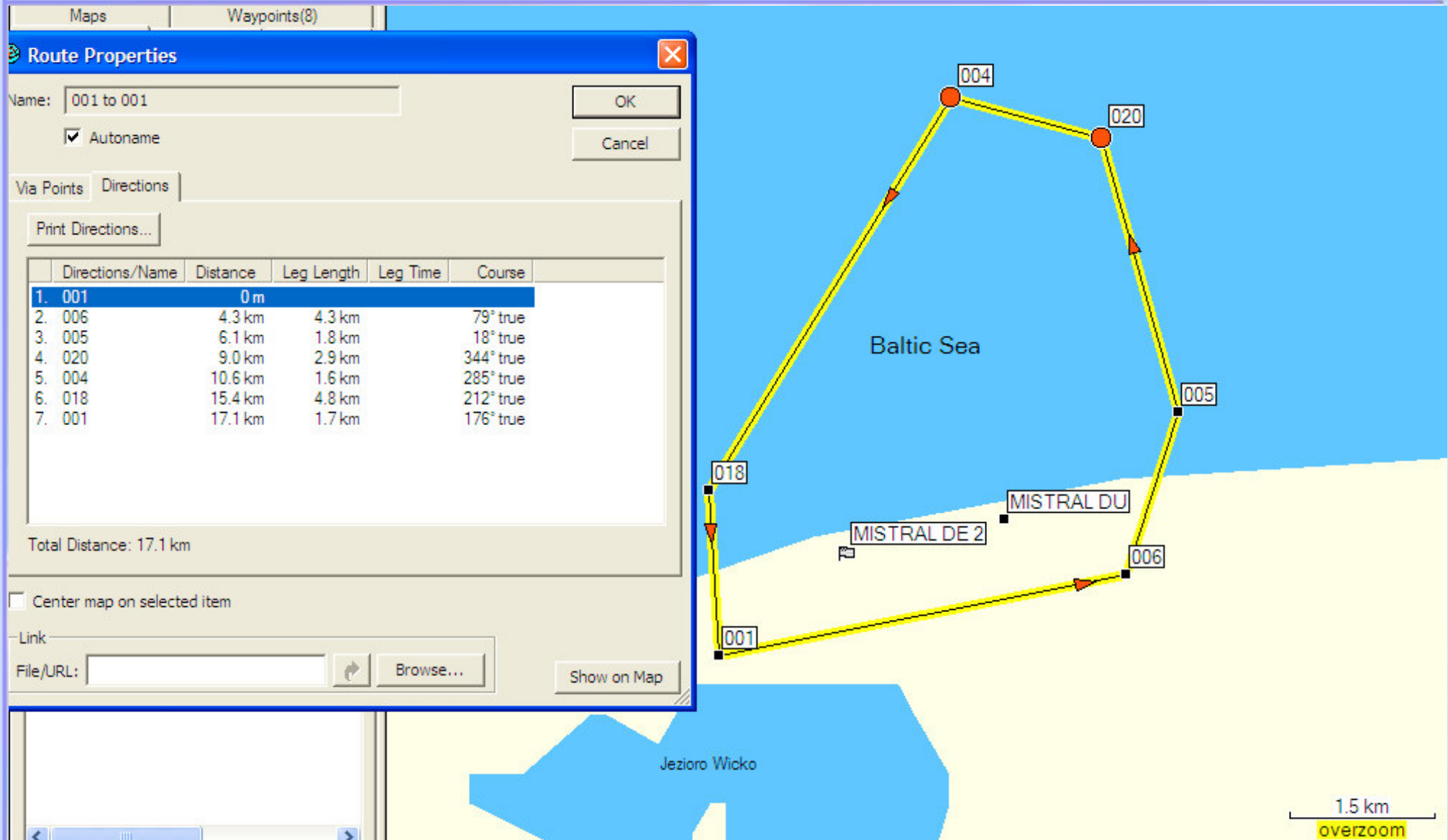
“LENDÜLŐ KARD (Swinging Sword) - 2005”

Crisis Treatment Airdefence Operation

- **Part III. Intensive preparation for livex at Kecskemét airbase in two phase**
- **Part IV. BALTI-2-2005, Hungarian Tactical Firing, Poland Ustka**
- **The sum total of flight hours with the Meteor-3R is 60.**
- **Only one Meteor-3R lost.**



The Flight Path

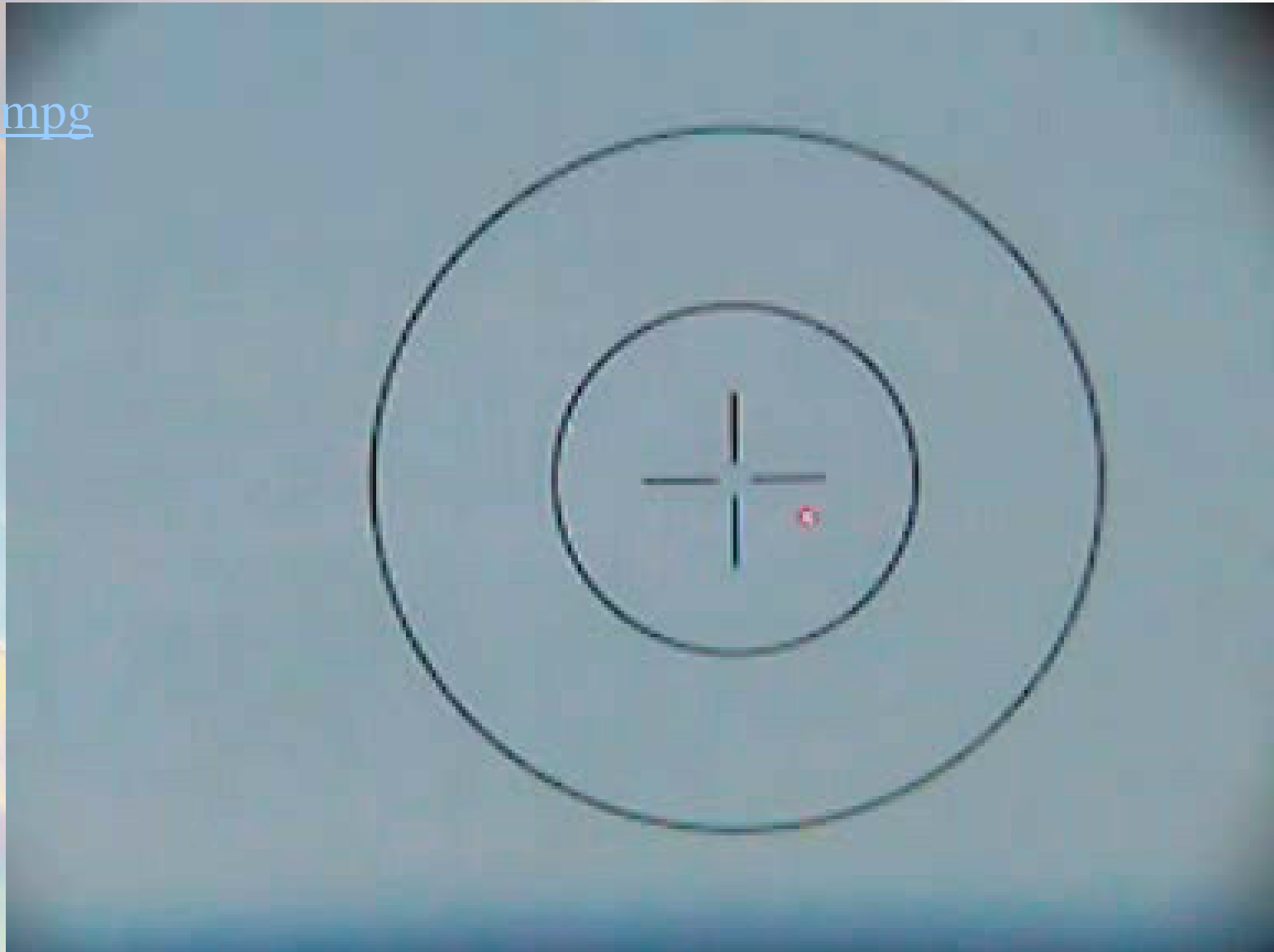




MISTRAL & Meteor-3R



[shooting.mpg](#)

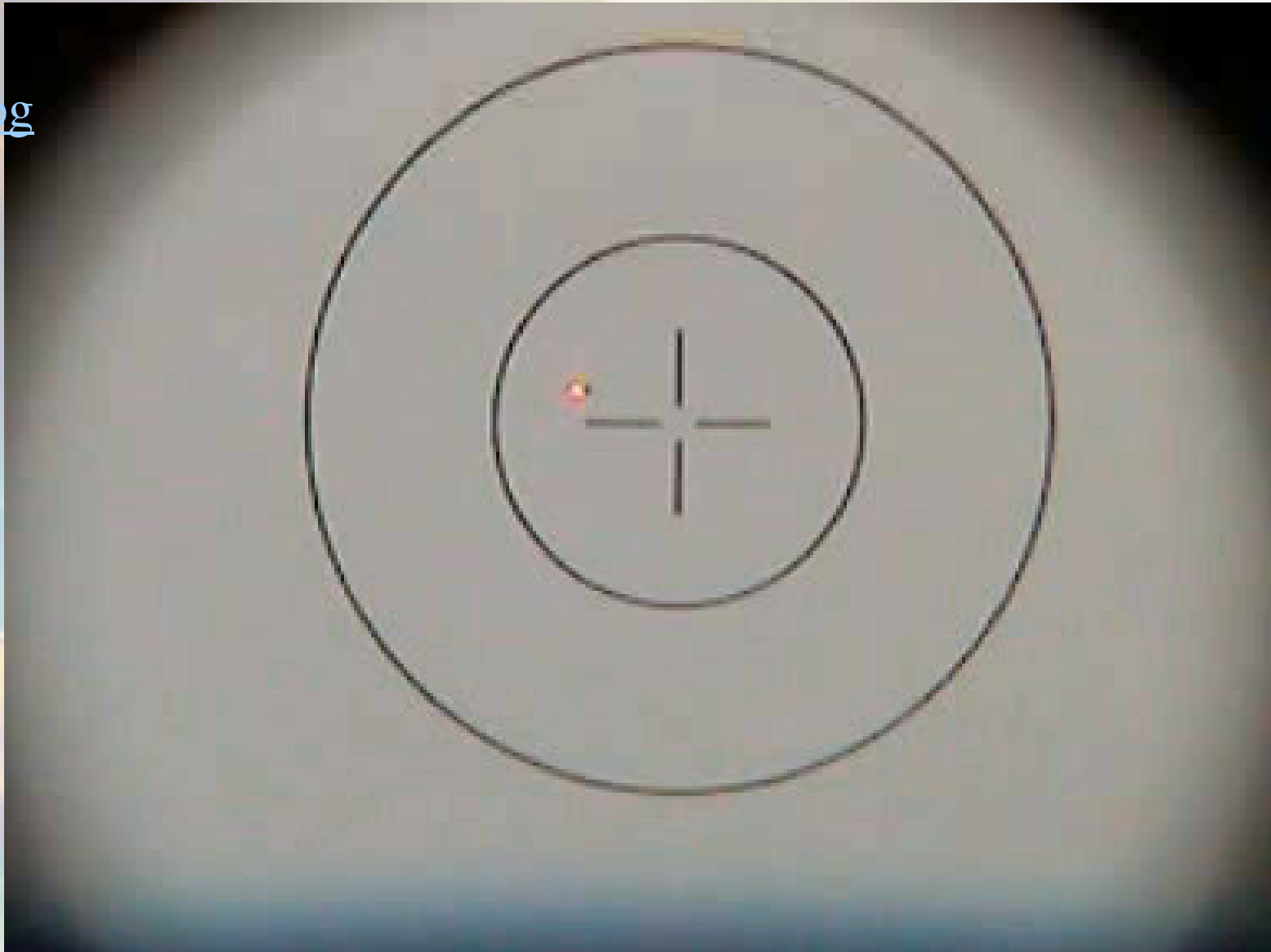




IGLA's & Meteor-3R



igla.mpg





Comparison of Low Cost Target and Personal Drones



Target Drone

Personal Drone

Price sensitivity	*****	*****
Hungarian R&D	***	***
Reliability, safety	*****	*****
Preparation time	**	*****
Action time	*****	*****
Crew	2-5 (simultaneous start)	maximum 2
Launch	manual, wrench, rope	auto, rubber rope, hand
Landing, recovery	manual, landing skid	automatic, deep stall
User interface	*	*****
Waypoints number	***	***
Routes store	*****	*
Go this direction	*	*****
Uploadable route	**	***



Comparison of Low Cost Target and Personal Drones



	TARGET DRONE	PERSONAL DRONE
OSD telemetry	**	****
Good quality		
Video transmission	*	*****
Transmission range	***	*
Data telemetry	****	***
Custom telemetry data	**	****
Digital camera	X	***
Data logging	**	****
Size, weight	**	*****
Modularity vs. integrity	*****	**
High precision		
flight stability system	*	****
Fast response (Control)	** (****)	****
Maintenance	**	****
Production quantity	***	*
Complexity, requirements	**	****
Profitability	***	*



Pictures from the Hortobágy National Park





Candidates for Autopilot Application





Thank You for Your Attention!!!



AERO-TARGET BT.

***6100, Kiskunfélegyháza
Tölgyfa u. 2/c***

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