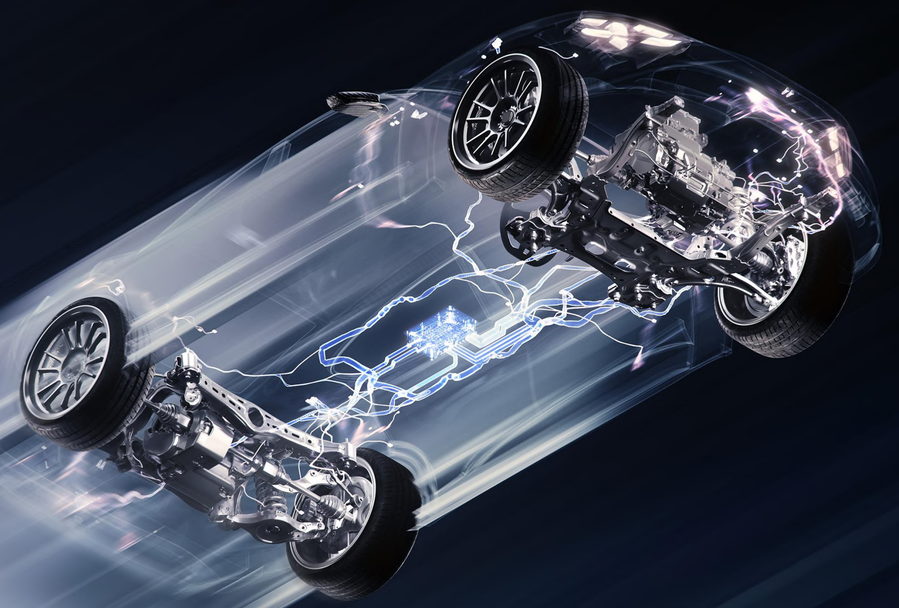
mobileye™

Enabling Eyes-Off Highway Driving with Mobileye Imaging Radar™



Yaniv Avital
Senior VP, Radar General Manager

November 2025

Mobileye's Vision: Solving Autonomy and Step-Change in Road Safety*

Moving from Hands-On / Eyes-On to Hands-off / Eyes-off and No-driver

ADAS

EYES-ON / HANDS-ON

Front Camera (1V)

- Driver Assist safety features
- Cloud Enhancement with REM

Surround ADAS (6V5R)

- ENCAP 2028+ 5 Star
- Hands Off on Highways

Gen 1: 1xEQ6H (2026)

SuperVision™

HANDS-OFF / EYES-ON

- "Vision Zero" - comprehensive safety covered by full-surround sensing.
- Hands Off, point-to-point navigation.

Surround Camera (optional radar)

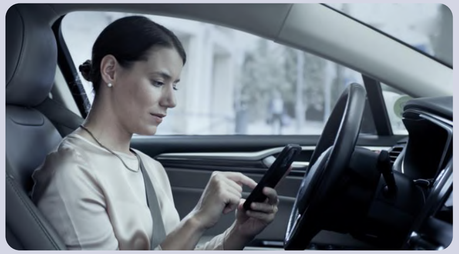
Gen 1: SV52 (2022)

Gen 2: SV62 (2026)

Gen 3: SV71

Chauffeur™

EYES-OFF



- Giving back time to the driver.
- Safer than a human driver.
- Gradual Eyes Off ODD expansion.

Surround Camera + Radar + Lidar (imaging radar for extended ODD)

Gen 1: CH63 (2027)

Gen 2: CH72

Drive™

NO DRIVER IN THE CAR

- Enables Driverless business models for optimal utilization of the vehicle as a resource

Surround Camera + Imaging Radar + Lidar

Gen 1: DR64 (2027)

Gen 2: DR72

*Availability and performance is subject to product's and vehicle's specifications, manual, ODD and law.
Mobileye Surround ADAS™, SuperVision™: Driver to be engaged and ready for takeover. Mobileye Chauffeur™: When needed, driver to be engaged and ready for takeover.

Highway drive in High Velocity – The Challenge

Driving on the Highway in high velocity requires:

- **High confidence detection of far static objects:** cars on the side-lane, a motorbike in a traffic jam, lost cargo on the road, etc.
- **Detecting of objects, with high RCS difference, on same Range bin:** Hazards Near the Guardrail, Pedestrian near a vehicle/truck, etc.
- **Late reveal - Late Cut out and Cut in, Critical Timing:** A kid running after a ball between parked cars, a static object on the road before lead vehicle, etc.
- **Driving through Tunnels and Construction Zone:** low RCS objects, no structured arrangement, multiple high RCS reflections, etc.

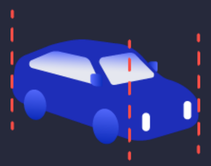
True Imaging Radar for Autonomous Driving

Superior Probability Of Detection

+ Enhanced Azimuth & Vertical Resolution
+ Very High Dynamic Range (100dB)
+ Very low Side Lobe Level (>40dBc)
+ Limit multipath impairments (Antenna, algo)

Enable Highway Pilot, Urban Pilot and Autonomous Parking

Detecting motorcycles beyond 200m even in dense & close traffic



Very low lateral error allowing accurate bounding box

Contour detection 500K PPS

Hazard cue, e.g. detecting a rimless tire @ 130m

Detecting remote low RCS targets in presence of strong close targets

Enable very short 360° coverage

*Above specifications may be modified and updated by Mobileye.

Imaging Radars Portfolio

- Designed Internally from Si to System Level
- Massive MIMO – 1536 (BSR)/384 (BSRC) Virtual Channels
- High Angular Resolution ~0.28°x1.6° (BSR) ~0.45°x2° (BSRC)
- State of the Art RF High Sensitivity, Ultra-low Phase-noise LO
- Unique Dense Antenna Array and Signal Processing for dealing with Multipath and SLL
- Separated RX and TX RFICs for reduced leakage – enabling short range detections
- High sampling bandwidth – enabling High Dynamic Range and high SNR based decisions (1.1GHz band at 11bits)
- 20 fps, multi-scans enabled, scan parameters flexibility
- Radar Signal Processing proprietary acceleration

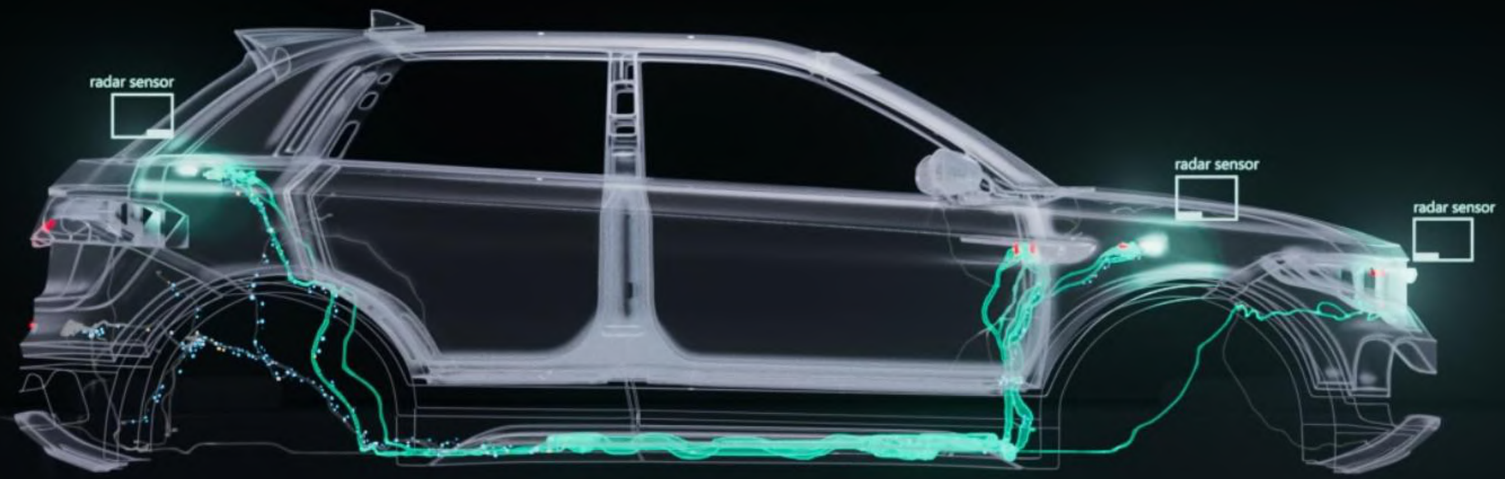
Summary

- ✓ Introduction of Hands Off and Eyes Off AD on the Highway in high velocity mandates reliable Sensing
- ✓ The use cases consist the long tail of challenging scenarios like detection of a far object near a road guardrail
- ✓ Mobileye Chauffer™ [1] is designed to deliver a reliable sensing
- ✓ The Imaging Radar will be a key enabler for affordable Consumer AD
- ✓ The Imaging Radar architecture is critical to deliver the KPI required in highway autonomy

[1] Mobileye Chauffeur™: When needed, driver to be engaged and ready for takeover

mobileye™

Thank you!



The product is subject to change