



# **FunnyTech21 i-DMS**

## **Redefining In-Cabin Safety with Vision Intelligence.**



[www.funnytech21.com](http://www.funnytech21.com)



# The Unforgiving Environment of a Moving Vehicle



Constant Vibration &  
Motion Artifacts



Shifting Light & Shadow  
(Sunlight, tunnels, glare)



Natural Driver Movements  
(Head turns, adjustments)

Standard remote photoplethysmography (rPPG) fails here.  
We engineered i-DMS to succeed.



# Validating Performance: Real-World vs. Reference

## Reference Standard: Polar H10



- Contact-based ECG
- Clinical-grade accuracy
- The established benchmark

## Test Device: i-DMS



- Non-contact rPPG (camera)
- Engineered for in-vehicle reality
- Measures facial blood flow changes



# A First Glance at the Data Can Be Misleading





# We're Asking the Wrong Question.

## The Academic Question

“Is the camera a perfect replica of an ECG chest strap?”



## The Engineering Question

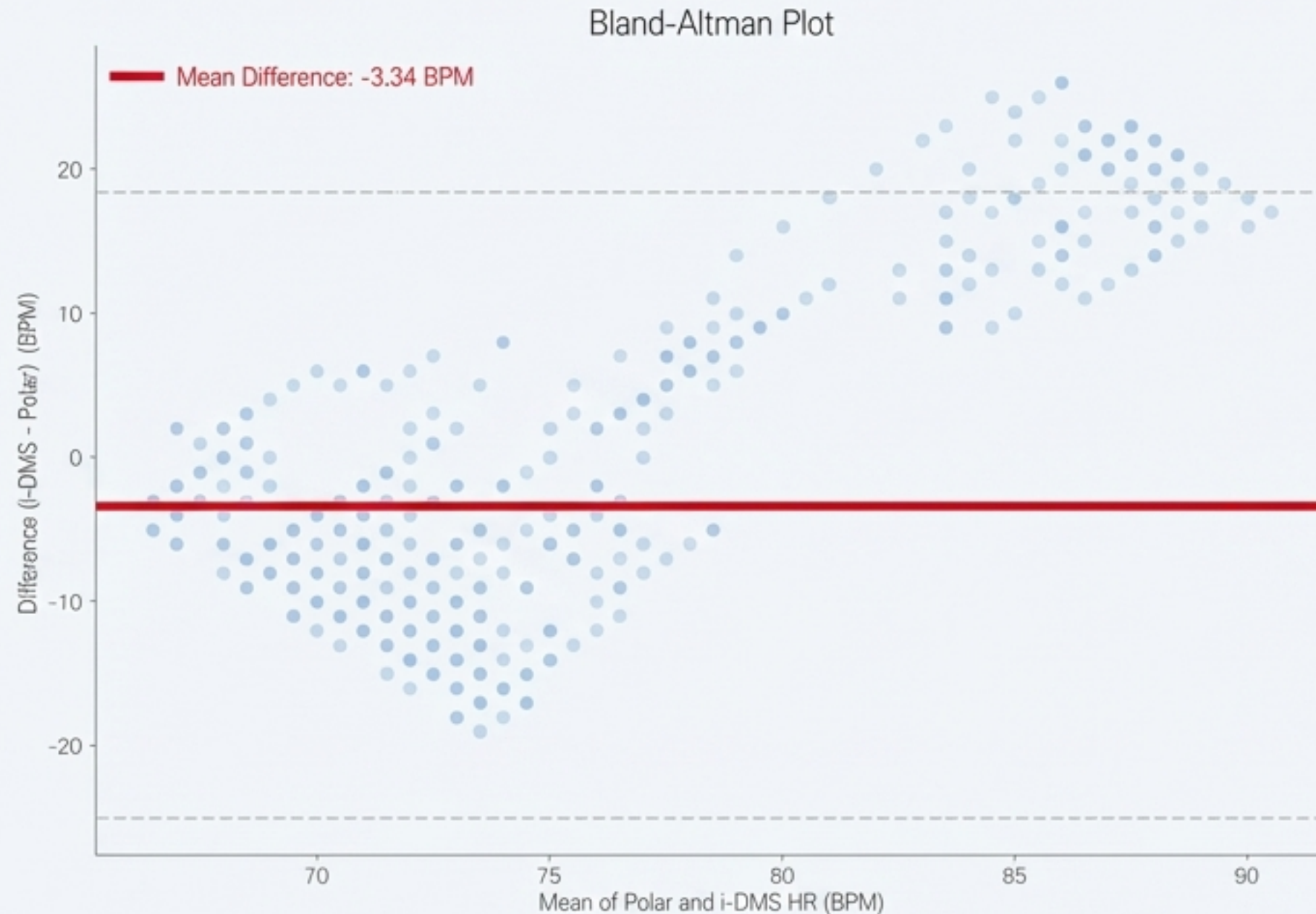
**Does it reliably detect physiological changes that indicate driver risk?**



For driver safety, the trend is more important than the beat.



# The Foundation: Exceptional Long-Term Trend Accuracy



## -3.34 BPM

### Mean Error (i-DMS vs. Polar)

An average difference of only 4.4%. Ideal for monitoring sustained changes in driver state like drowsiness or stress.



Meeting and Exceeding the Industry's Toughest Standards

# 10.09 BPM

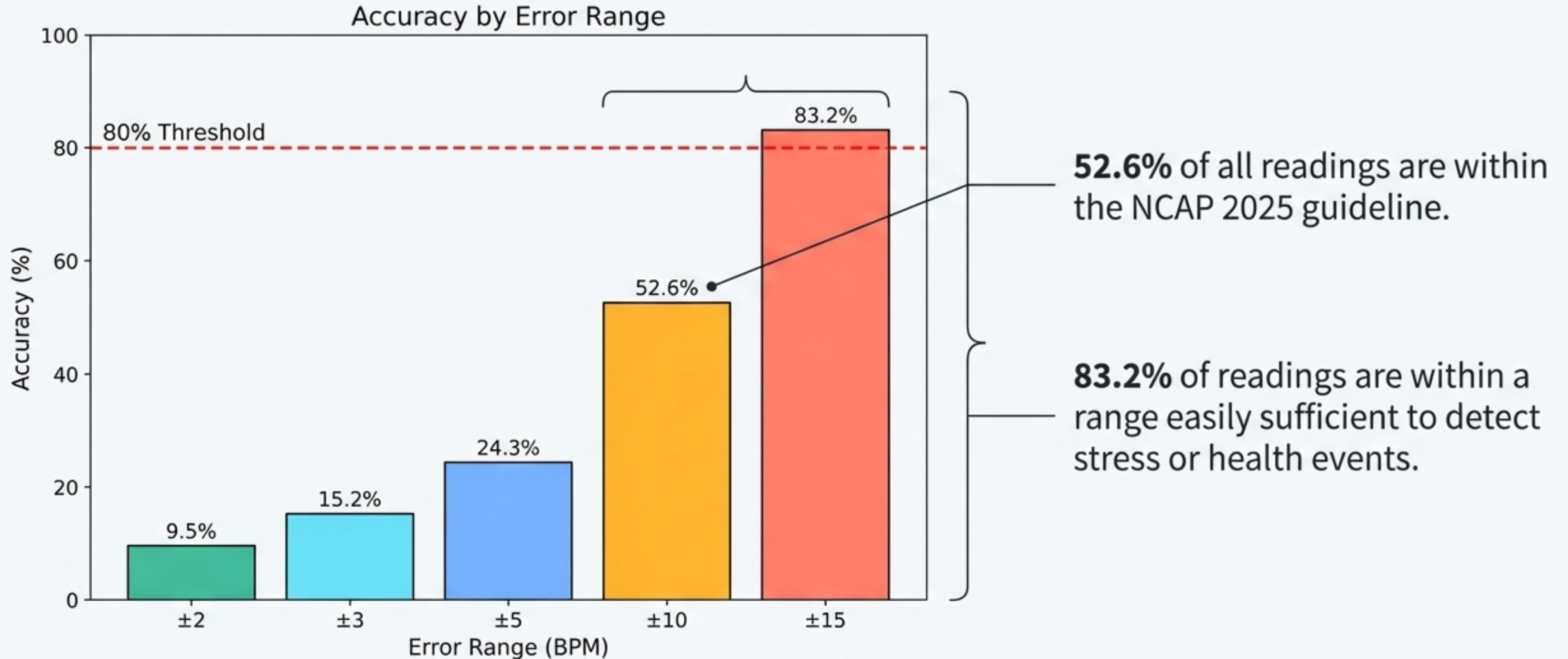
Mean Absolute Error (MAE)

In-Vehicle Academic Research Benchmark: 8-15 BPM MAE

**FunnyTech21 i-DMS: 10.09 BPM MAE**

NCAP 2025 Guideline:  $\pm 10$  BPM Acceptable ✓

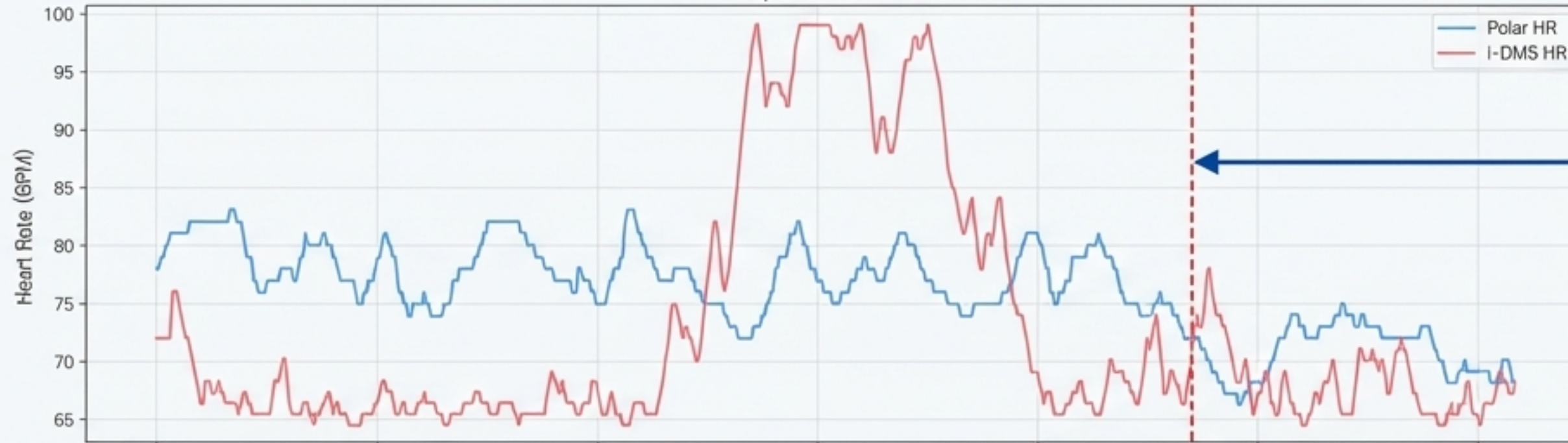
# Accuracy Where It Counts: Detecting Significant Change





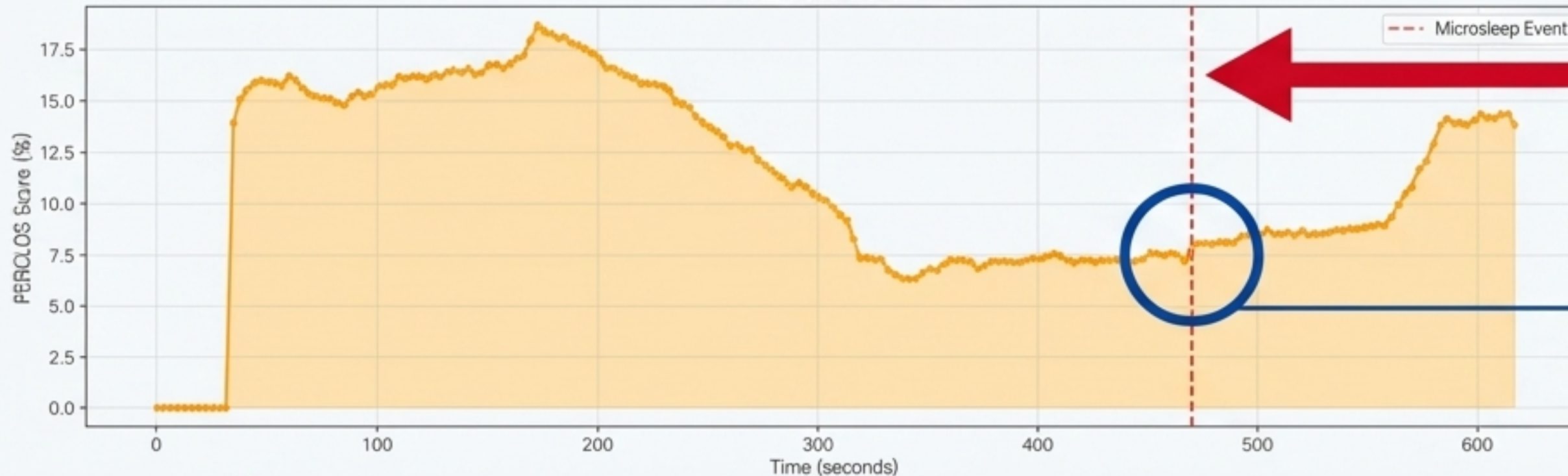
# From Data to Detection: A Real Microsleep Event Captured

미이크로슬립 이벤트 발생 시점과 심박수  
Microsleep Events and Heart Rate



Heart rate data provides a rich physiological context for the event.

PERCLOS 점수 추이  
PERCLOS Score Over Time



**\*\*NCAP 2025 Event Triggered\*\***

PERCLOS score crosses drowsiness threshold (>8%)



# The i-DMS Advantage: Seamless, Smart, and Safe



## Non-Invasive

Zero driver effort. No wearables, no pairing. Just drive.



## Real-Time

Instant-on monitoring from the moment the vehicle starts.



## Multi-Signal Fusion

A holistic view of driver state, combining Heart Rate, PERCLOS, Gaze Tracking, and more.



## OEM-Ready

A robust, practical, and validated solution engineered for simple integration.





# Engineering for Reality.

The i-DMS delivers the validated, reliable, and practical performance required to power the next generation of driver safety.

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