Reducing phantom braking with thermal imaging

LYNRED delivers a reliable and effective solution meeting FMVSS 127 requirements for automakers. The company, now conform to automotive IATF 16949 quality standard, is the first thermal imaging player in Europe to be conform to this standard and will showcase its innovations at CES 2026.

Grenoble, 5 January 2026. With over 7,300 pedestrians and 3,400 car passengers in rear-end collisions killed in the United States in 2023, road accident statistics remain a major issue on American roads. Based on this observation, regulations are evolving to strengthen their role as a safeguard for road safety. Governments are addressing the issue to update regulations and develop technologies capable of solving the problem.

Under FMVSS 127, the National Highway Traffic Safety Administration (NHTSA) mandates that by September 1, 2029, all new passenger cars and light trucks sold in the U.S. must be equipped with both Forward Collision Warning (FCW) and Automatic Emergency Braking (AEB) systems, including Pedestrian Automatic Emergency Braking (PAEB). The standard requires that pedestrian detection and automatic braking must function day and night, at high speeds, and low beams.

However, while current technology may meet the requirements in certain conditions to avoid collisions with pedestrians, they are also prone to generating false positives, responsible for the ‘phantom braking’ phenomenon already known in the automotive sector.

In the USA, as in France, cases of untimely automatic braking in recent vehicles equipped with driver assistance systems known as ‘phantom braking’, are drawing increasing attention. In the USA, more than 1,600 complaints have already been recorded across different brands and models, representing a total of 1 million vehicles*. In France, the Department of Transportation has launched an online questionnaire on cases of phantom braking and a technical investigation with manufacturers, with findings expected by the end of 2025.

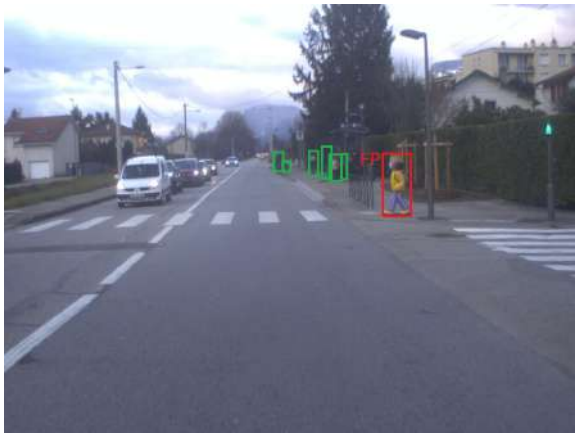
Insufficient current systems to prevent the phenomenon

Two factors appear to drive these malfunctions:

- The widespread adoption of Automatic Emergency Braking (AEB), mandatory in all new cars since 2022 in Europe.

- Adverse various conditions that compromise the sensor's detection capabilities, causing both false obstacle detection and failures to detect real obstacles.

Relying solely on radar and visible-light cameras, current systems have reached their performance limits when visibility conditions are not perfect: false positives (incorrectly detected pedestrians or obstacles) and false negatives (real pedestrians not detected). Both represent safety hazards that can be mitigated with thermal imaging.



False positive generated by the visible camera system (red box)


Same obstacle not detected as a pedestrian, thanks to thermal imaging system

Thermal imaging: a proven, reliable solution

When combined with visible-light cameras, thermal imaging detects real obstacles via heat signatures and covers all FMVSS 127 scenarios, [delivering significantly better results than visible-light imaging alone]**:

- **Night conditions**: visible-thermal fusion improves average precision by 36% compared to visible alone.

- **Partially occluded scenario**: visible-thermal fusion improves average precision by 19% compared to visible alone.

- **From a distance (beyond 50m)**: visible-thermal fusion improves average precision by 32% compared to visible alone.

Easy to deploy, thermal imaging delivers more robust and reliable results. By operating at wavelengths far different from visible light, it provides complementary, higher-performance detection and passive operation (less than 1 watt), reducing both false positives and false negatives, particularly under extreme driving conditions (night, rain, fog, glare, etc.).

LYNRED: a key player in automotive thermal imaging, now conform to IATF 16949

As the European leader mastering both the design and production of thermal imaging sensors, LYNRED offers a competitive, high-volume compatible, “design to cost” solution that meets automotive standards.

In addition, the company has obtained a letter of conformance in accordance with the automotive certification scheme for IATF 16949, in November 2025.

After three years of work involving nearly 200 employees in the automotive sector, this letter of compliance certifies that LYNRED has established and applies a Quality Management System for Design and Manufacturing of thermal image sensors in the standard of the automotive industry.

LYNRED is the first player in thermal image technology to be conform to this standard in Europe.

“Compliance with the IATF 16949 standard demonstrates our ability to meet the highest expectations of the automotive industry while strengthening the trust placed in us by our customers and partners. This achievement is the result of our collective commitment and the exceptional dedication of the LYNRED teams, whom we proudly recognize today," said **Alexandre Tondu, LYNRED’s Director of Quality.**

In addition, in order to meet the demand from the automotive market, LYNRED has just modernized its factory and doubled its clean room production area from 4,000 to 8,000 m². This major investment, known as CAMPUS, amounts to more than €100 million and constitutes a strategic industrial facility, unique in Europe, enabling LYNRED to support all its partners in their future challenges.

“*We have more than doubled our manufacturing capacity thanks to the recent factory extension. We have developed a dedicated automotive-grade bolometer product line,*

currently being evaluated by several Tier-1 suppliers and OEMs. Now, thanks to IATF 16949 certification and to our technical and industrial expertise, we are ready to supply this demanding market," explains **Nadia Souhami, Director of LYNRED's Bolometer Products Division.**

LYNRED will be present at CES from January 6 to 9, 2026 (Business France Automotive - French Pavilion, booth 4131, LVCC West Hall).

**Source : Journal Officiel du 29 juillet 2025*

***Study conducted by Neovision, 2020*

About LYNRED

LYNRED, alongside its subsidiaries LYNRED USA, LYNRED Asia-Pacific and New Imaging Technologies (NIT), is a global leader in designing and manufacturing high quality infrared technologies for aerospace, defense and commercial markets. It has a vast portfolio of infrared sensors that covers the entire electromagnetic spectrum from near to very far infrared. Its products are at the center of multiple military programs and applications and are key components in many top brands in commercial thermal imaging equipment sold across Europe, Asia and North America. LYNRED is the leading European manufacturer for IR detectors deployed in space.

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