UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 6-K

Report of Foreign Private Issuer
Pursuant to Rule 13a-16 or 15d-16
under the Securities Exchange Act of 1934

For the month of December 2025

Commission file number: 001-41334

RAIL VISION LTD.

(Translation of registrant's name into English)

15 Ha'Tidhar St
Ra'anana, 4366517 Israel
(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

Form 20-F ☒   Form 40-F ☐

CONTENTS

Attached hereto and incorporated herein is the Registrant's press release issued on December 15, 2025, titled "Rail Vision Granted Key Patent in Europe for Advanced AI-Based Railway Collision Avoidance System."

The first three paragraphs in the press release attached as Exhibit 99.1 are incorporated by reference into the Registrant's Registration Statements on Form F-3 (File Nos. 333-271068, 333-272933, 333-277963 and 333-278645) and Form S-8 (File Nos. 333-265968, 333-281329 and 333-286652), filed with the Securities and Exchange Commission, to be a part thereof from the date on which this report is submitted, to the extent not superseded by documents or reports subsequently filed or furnished.

EXHIBIT INDEX

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Rail Vision Ltd.

Date: December 15, 2025

By: */s/ Ofer Naveh*

Name: Ofer Naveh

Title: Chief Financial Officer

Exhibit 99.1

R◄ Rail Vision

Rail Vision Granted Key Patent in Europe for Advanced AI-Based Railway Collision Avoidance System

The patent reinforces Rail Vision's global IP protection building on previous approvals in regions including the United States, Japan, and India

Ra'anana, Israel, December 15, 2025 (GLOBE NEWSWIRE) – Rail Vision Ltd. (Nasdaq: RVSN) ("Rail Vision" or the "Company"), an early commercialization stage technology company seeking to revolutionize railway safety and the data-related market, today announced that the European Patent Office has granted a patent for its innovative railway collision avoidance method and system.

This newly granted European patent covers an innovative approach utilizing forward-looking single-spectrum or multispectral electro-optical imaging, combined with a novel system architecture and advanced scene analysis powered by deep learning. The technology employs a unique Convolutional Neural Network (CNN) process to first accurately determine the railway path ahead of the locomotive or train. A secondary object detection CNN then analyses the vicinity of the identified path to detect potential obstacles in real time.

The system generates critical alarms for a wide range of hazards, including railway switch occurrences and states, obstructions, impending end-of-rail effects and various types of obstacles. The patented technology delivers advanced scene understanding, providing essential decision support for locomotive drivers in manned operations and enabling fully automated decision-making for driverless trains.

The patent reinforces Rail Vision's global IP protection strategy, building on previous approvals in regions including the United States, Japan, and India. It further solidifies the company's position as an innovator in transforming railway operations with AI, big data, and advanced sensor technologies.

About Rail Vision Ltd.

Rail Vision is a development stage technology company that is seeking to revolutionize railway safety and the data-related market. The company has developed cutting edge, artificial intelligence based, industry-leading technology specifically designed for railways. The company has developed its railway detection and systems to save lives, increase efficiency, and dramatically reduce expenses for the railway operators. Rail Vision believes that its technology will significantly increase railway safety around the world, while creating significant benefits and adding value to everyone who relies on the train ecosystem: from passengers using trains for transportation to companies that use railways to deliver goods and services. In addition, the company believes that its technology has the potential to advance the revolutionary concept of autonomous trains into a practical reality. For more information, please visit https://www.railvision.io/

Forward-Looking Statements

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