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NEWSLETTER

Parole libre & Liberté Vraie

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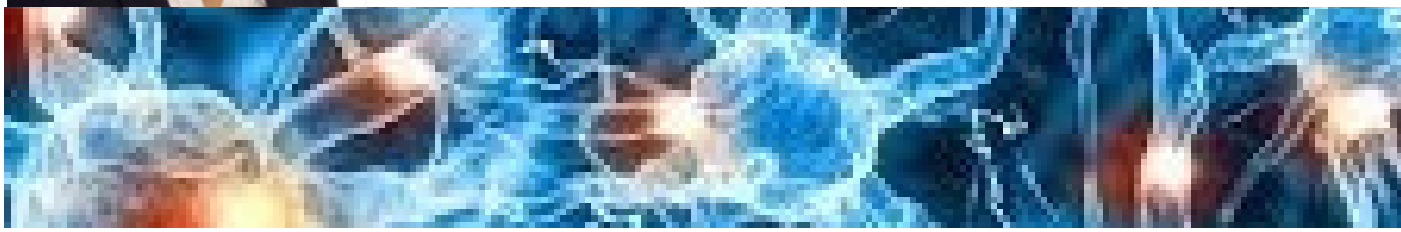

Biometric Passport: PACE Protocol and e-Gate

According to an article in the Luxembourg newspaper "Virgule", dated September 8, 2026, travelers of Luxembourg nationality encountered difficulties when passing through automated security checkpoints abroad, as the reading of the chip or passport data did not always work smoothly.

Luxembourg authorities have stated that the passport has no technical defects and that it fully complies with all applicable international security standards.

However, they point to the scanning equipment or software at certain foreign airports, which sometimes require updates to accommodate the RFID chip technology—which enables radio-frequency identification and is based on NFC (Near Field Communication) technology—in these new documents. The RFID chip operates at a frequency of 13.56 MHz, in accordance with the international ISO/IEC 14443 standard.

Luxembourg has decided to begin using the PACE (Password Authenticated Connection Establishment) security protocol immediately; this technology is expected to gradually become the international standard for the secure reading of passport microchips. The PACE protocol protects the data read from the passport, and e-Gates read these physical passports at airports. E-gates, or automatic gates, are automated checkpoints that scan passports and verify travelers' identities using facial recognition, as well as fingerprints of both index fingers.

The PACE (Password Authenticated Connection Establishment) protocol is a next-generation cryptographic security protocol used to secure access to the microchips in biometric passports and ID cards. It is gradually replacing the older BAC (Basic Access According to Gemini, the PACE protocol has been standardized by the International Civil Aviation Organization (ICAO) to provide maximum protection:

Strong encryption:
Unlike the BAC protocol, whose encryption keys became vulnerable to brute-force attacks, PACE uses asymmetric cryptography, specifically based on elliptic curves.

Anti-skimming and anti-interception:
It prevents fraudulent remote reading of the contactless chip when the passport is closed—for example, inside a bag—because the data exchanged between the e-Gate reader and the chip is fully encrypted.

Authentification :
The e-Gate must first optically scan the machine-readable zone (MRZ) or the access number (CAN) on the document to verify that it has physical access to the passport before establishing a secure channel with the chip.

The global rollout of PACE is therefore ushering in a period of technological transition. This is why, particularly with the recent introduction of new-generation passports such as the with the new Luxembourg passport, introduced on May 11, 2026, several travelers have encountered major issues:

Software incompatibility:
The computer systems at many e-Gates abroad have not yet completed their updates or are incorrectly configured to read this new technological standard.

Reading Failure:
When a passport that strictly uses the PACE protocol is presented at an outdated e-Gate, the chip refuses to communicate or the reader is unable to decrypt the data, thereby preventing the gate from opening.

The implementation of the digital biometric passport, combined with the e-Gate system and cryptographic signatures, makes it possible to verify the authenticity and integrity of the data stored on the chip; it therefore strengthens increased control over the population and enables mass digital surveillance.

However, at the internal borders of the Schengen Area, the guiding principle must remain the absence of border controls, as guaranteed by Article 21 of the TFEU on the free movement of EU citizens.

Can a country make the right to cross an internal EU border contingent on mandatory participation in an automated and clearly disproportionate biometric processing procedure? This is the legitimate question that every European citizen has the right to ask.

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https://www.virgule.lu/luxembourg/des-difficultes-de-lecture-du-nouveau-passeport-luxembourgeoissignalees-dans-certains-aeroports