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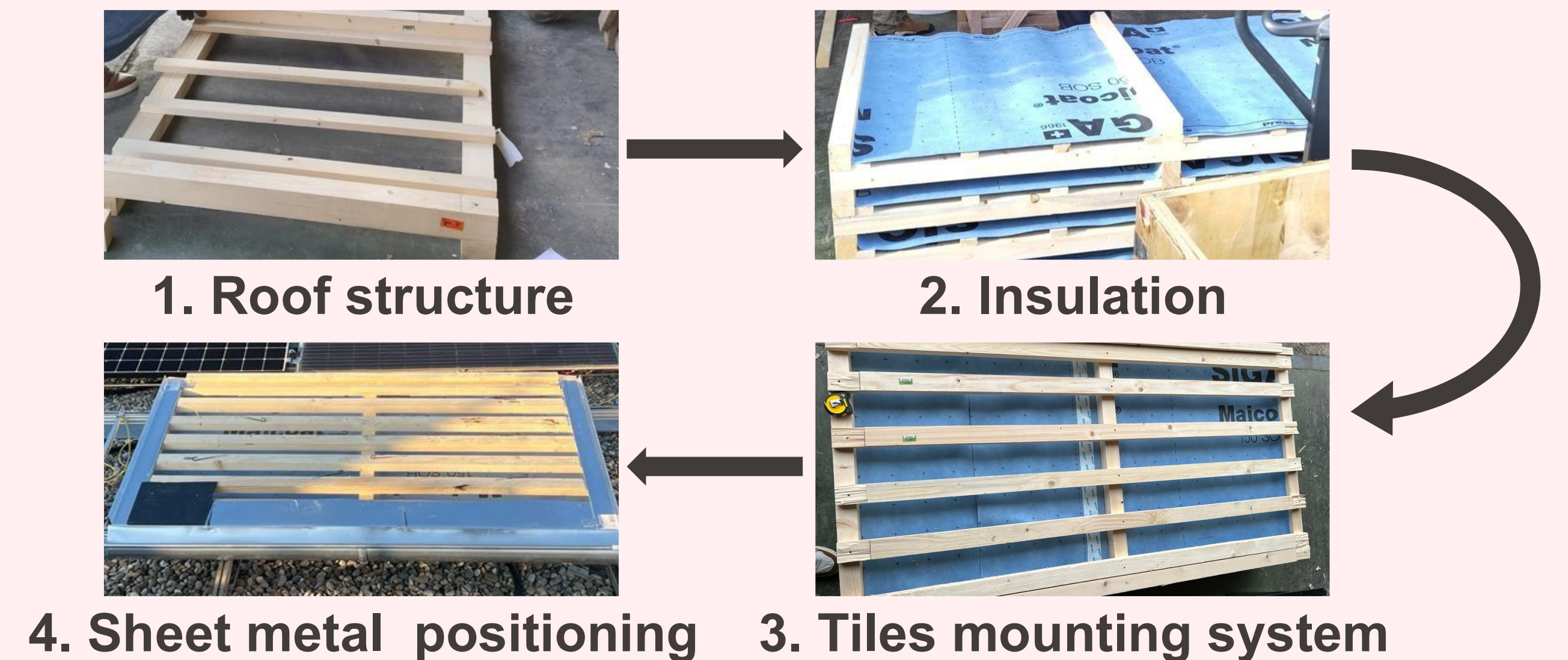
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Introduction

- Context:** PV roof tiles integrated on roofs can show different faults and degradation due to their insulated installation environment.
- Aim:** Analyse the impact of the working environment on performance by creating mock-ups with roof-like structures.

Roof tile type	STC Power (W/m ²)
Classic	147.2
Premium Black	141.9
Heritage	133.2
V-Diamond	84.2

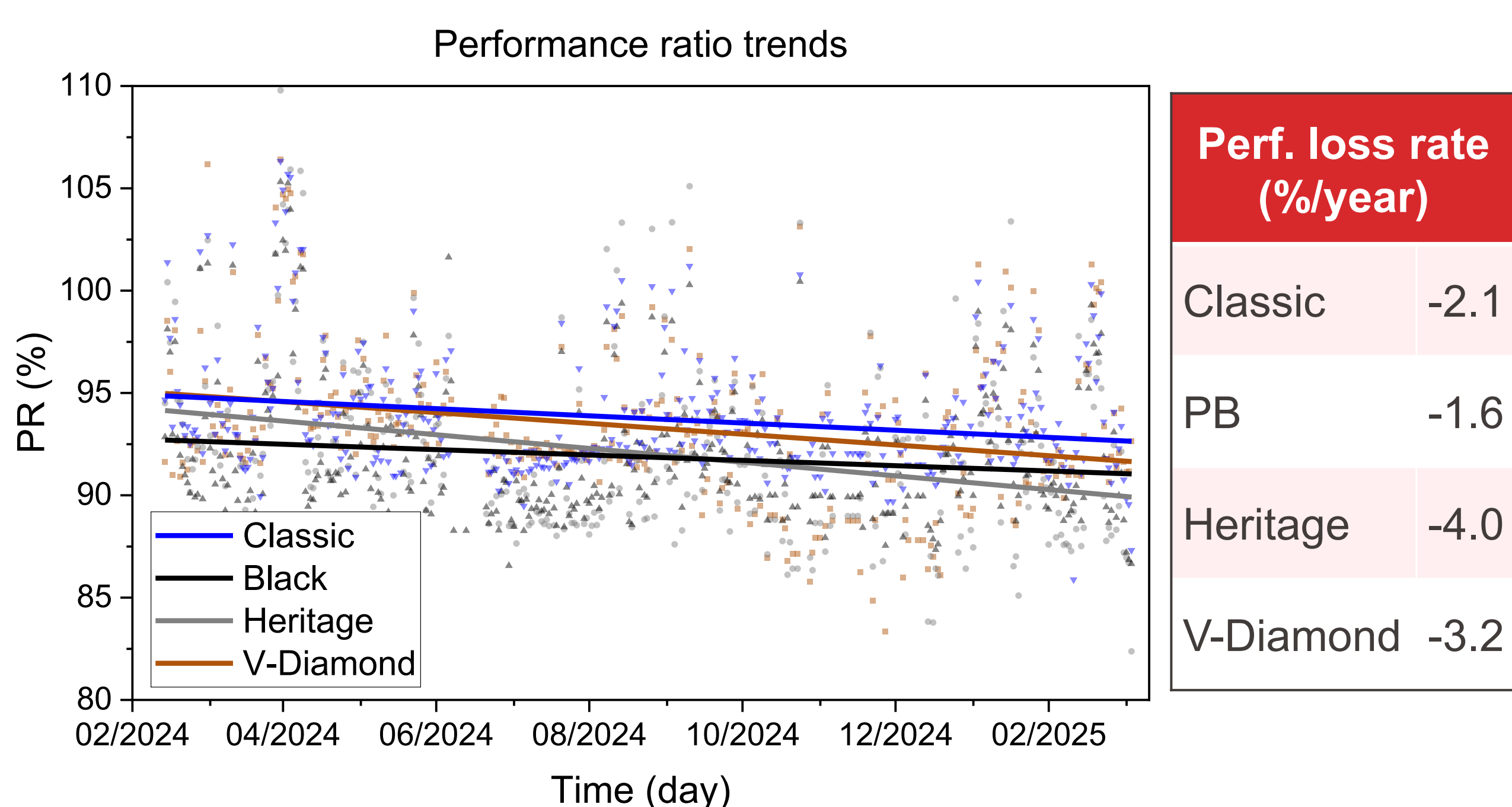
Mock-up preparation



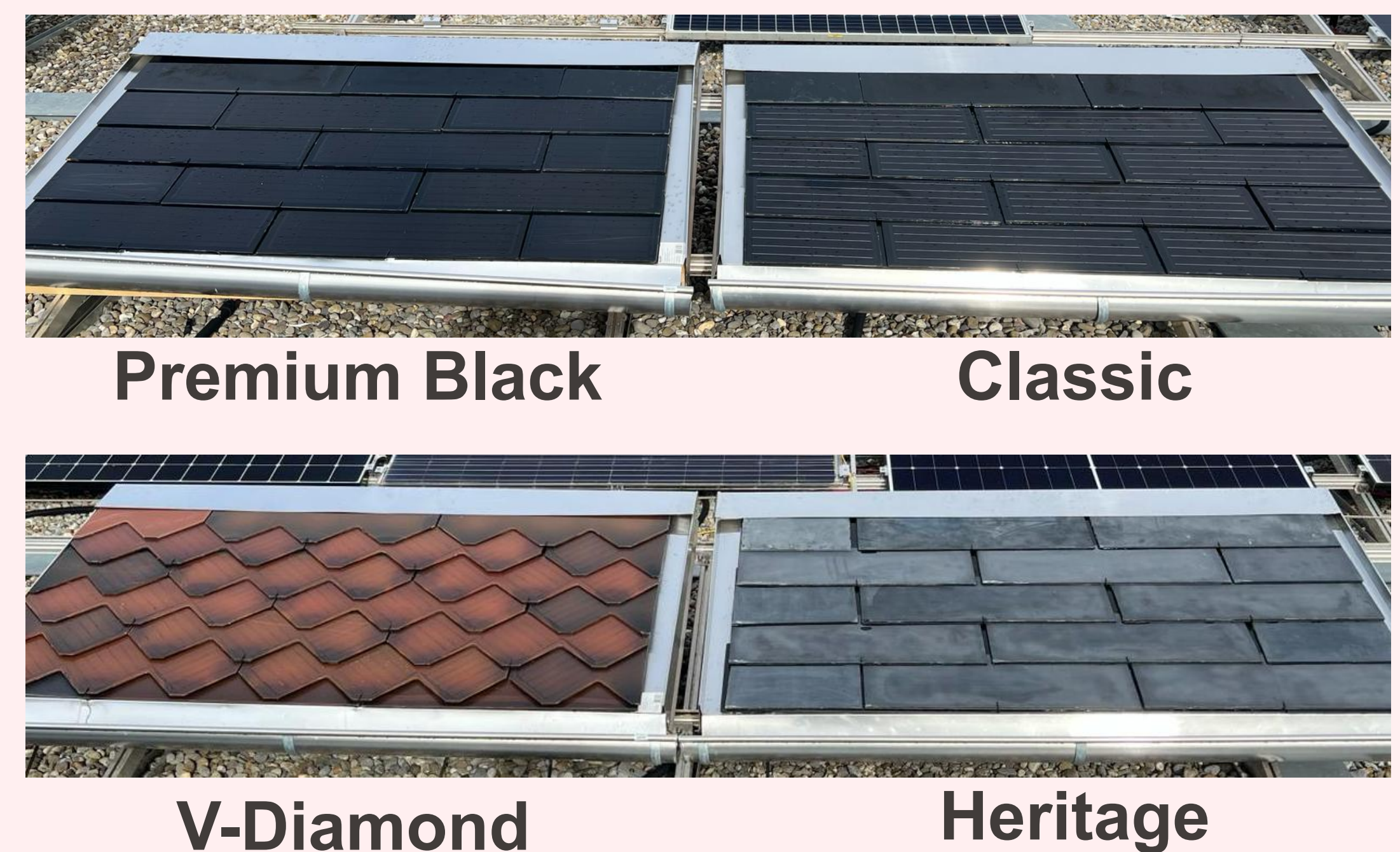
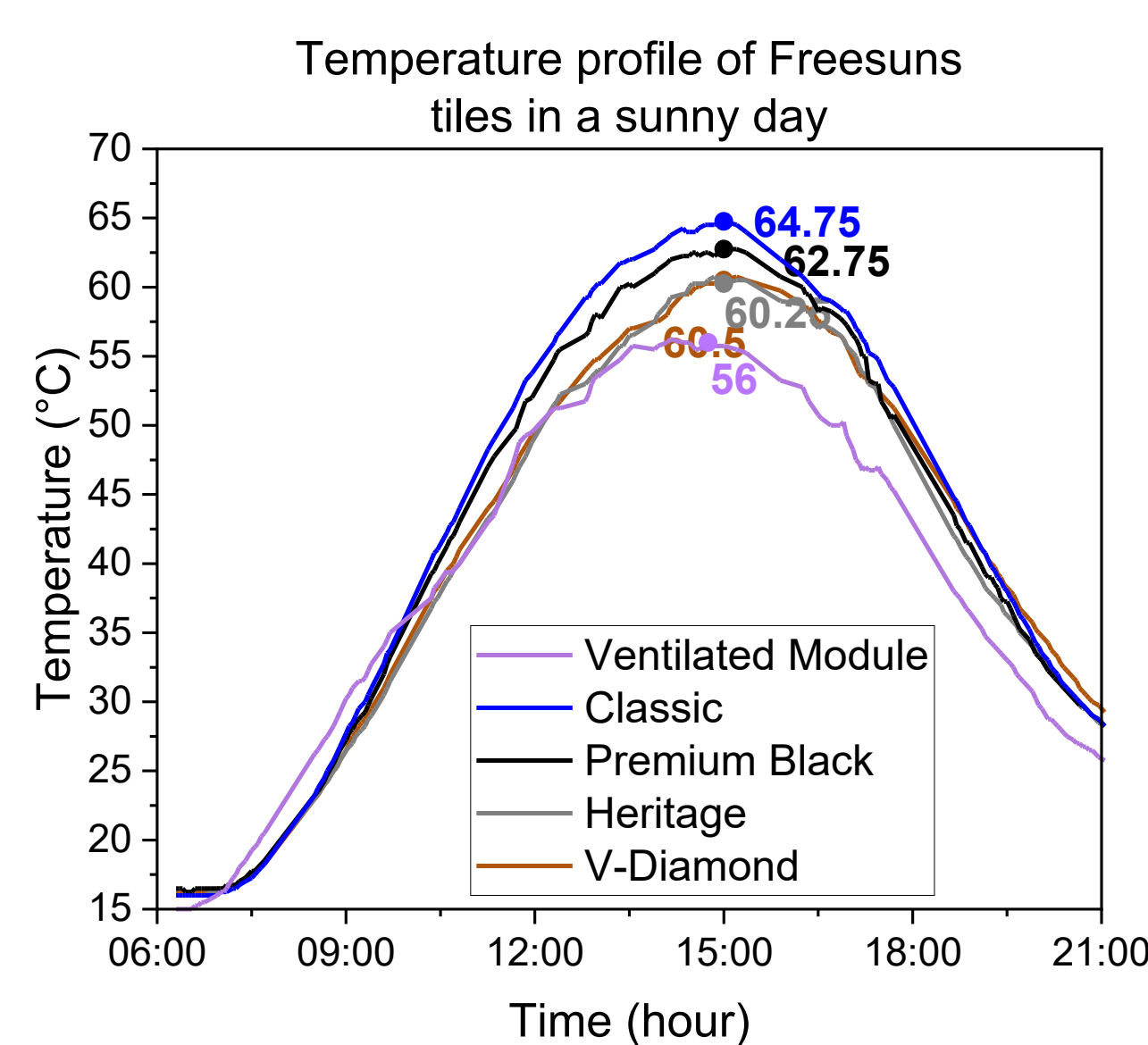
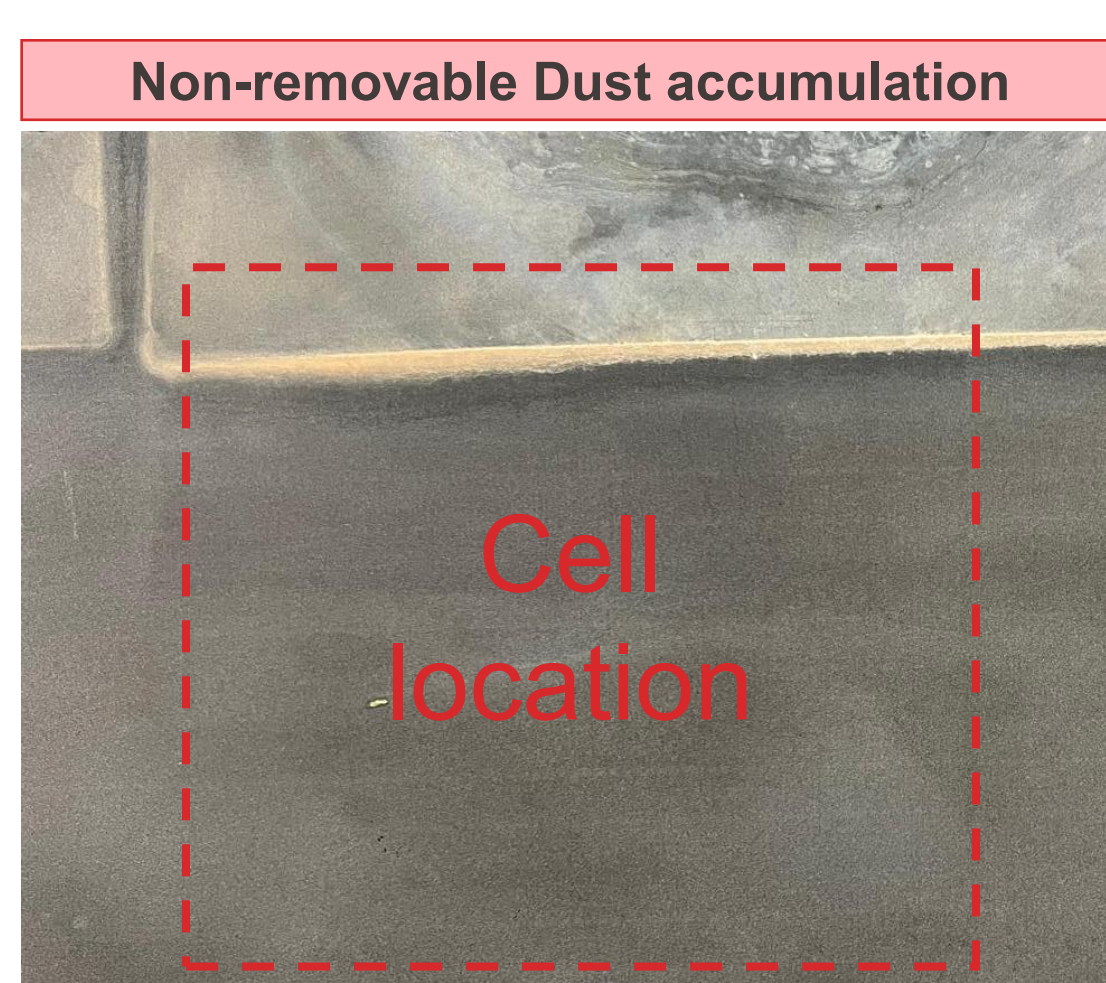
Results

1. Outdoor-level monitoring

- Higher average performance loss rate (PLR)** for coloured product (V-Diamond) and for satinated glass product (Heritage).

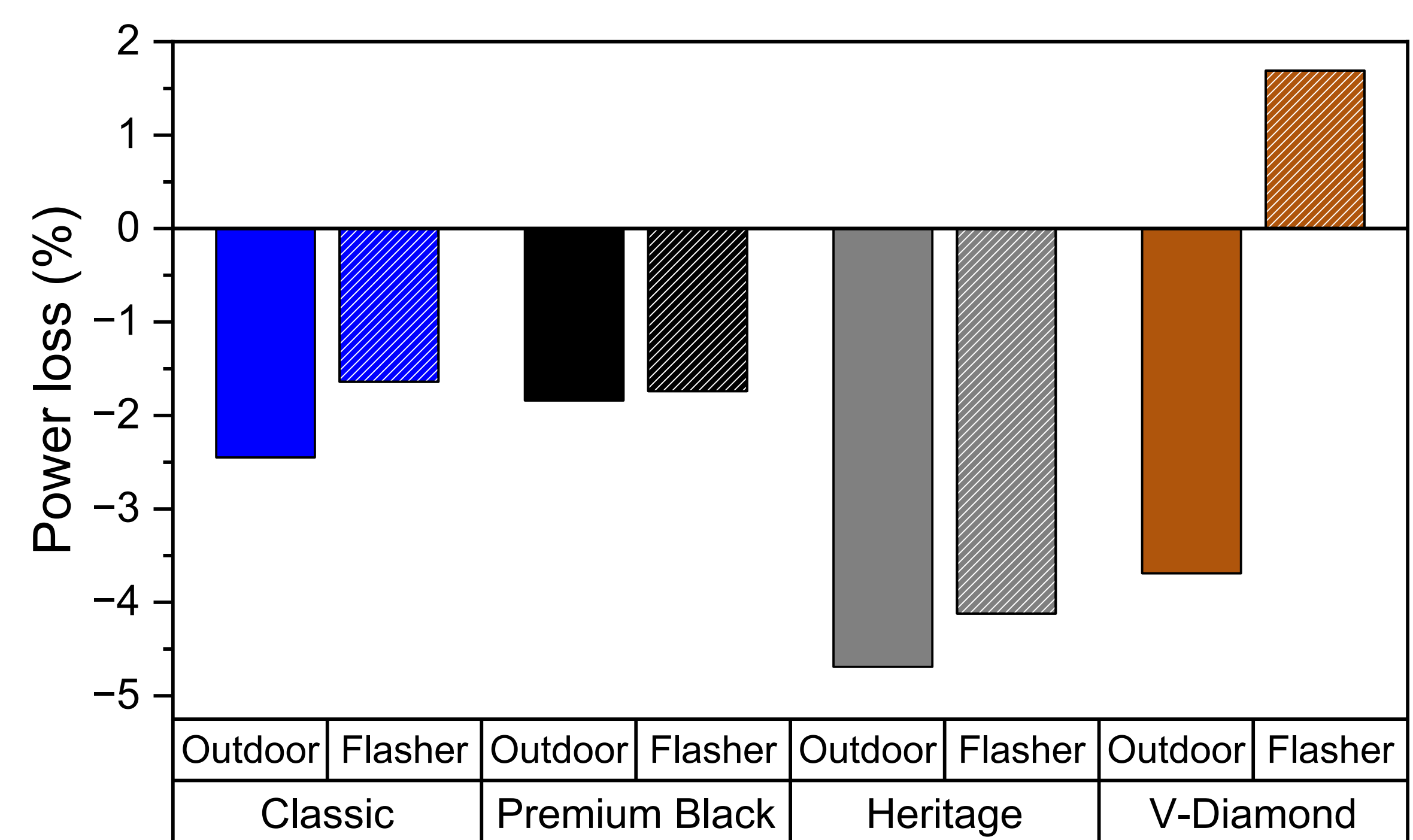


- Heritage:** Accumulation of non-removable dust on structured glass below the overlap location → light blocking on covered cells.
- Temperature:** 4 to 9 °C increase in temperature of roof-like structures compared to a typical ventilated module → may lead to higher degradation rates.



2. Indoor-level measurements

- Indoor and outdoor measurements correlate well, except for the V-diamond system.
- High discrepancy between outdoor and indoor characterization for coloured system → further investigation is required.



Conclusion

- Performance loss rate:** higher degradation of Heritage tiles due to the accumulation of dust on textured glass.
- Higher temperature:** increase in temperatures due to the roof-like structures may lead to additional degradations.
- Deviation between indoor and outdoor testing:** discrepancy in the performance analysis for coloured solutions → further analysis required

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