

## Domobios Circular Barrier Detector: Professional Bed Bug Monitoring

The Domobios circular detector is a passive mechanical device designed for detecting and mitigating bed bug infestations. It has been evaluated in an independent laboratory for the two medically important species, *Cimex lectularius* and *Cimex hemipterus*. No insecticides or chemical attractants have been added.

The operation is based on two complementary mechanisms: a catch by back contact on an internal adhesive surface, and a smooth plastic peripheral ring that forms a mechanical barrier. This ring limits the climbing of the pins if the adhesive loses effectiveness, for example in the presence of dust. The device thus combines a monitoring function with a physical barrier function.

The performance has been validated in independent laboratories according to standardized comparative protocols. Detailed test reports can be sent to professional partners upon request.

The studies mentioned in this sheet can be consulted online via the articles and technical documents deposited on Zenodo: <https://zenodo.org/records/18630357> and <https://zenodo.org/records/18662503>

### 1. Laboratory Validation – United Kingdom (2017)

In a first independent study conducted in the United Kingdom in 2017 on *Cimex lectularius* (4 replicas), the circular detector caught an average of 57.5% of insects after 16 hours. Under the same experimental conditions, a standard interceptor device reached 39.2%, respectively.

These results show a higher capture capacity than the standard device compared to the tested experimental conditions.

### 2. Laboratory Validation – Czech Republic (2025)

A second independent study, conducted in the Czech Republic in 2025 on *Cimex hemipterus* (4 replicas), showed that the circular detector captured an average of 65.8% of insects after 24 hours and 80.8% after 48 hours. Under the same conditions, the compared device caught only about 0.8% of the insects. The observed difference was statistically significant ( $p < 0.01$ ).

### 3. Pheromone Trap Comparative Study (2020)

An additional comparative test, conducted in 2020 in an experimental area on *Cimex lectularius*, showed a 97% attraction to the circular detector and a capture rate of 75%, while the pheromone attractor comparison attraction device had a very low attraction level.

### CONCLUSION

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These experimental data indicate that the Domobios circular detector has a documented catching capability under controlled conditions for the two main species of bed bugs, *Cimex lectularius* and *Cimex hemipterus*, while integrating a mechanical barrier that restricts climbing.

Since 2020, the Domobios circular detector has been marketed to professionals and is a documented mechanical device suitable for early detection and monitoring of contaminations in a professional context.