umlaut

IP500 - New IoT infrastructure for a smart eco system

IP500 perfomance tests & enabling new IoT technologies with umlaut

IP500

DAFÜR

umlaut

I-ITWK

IP500 performance tests.

IP500 – Performance Tests.

Tests under real conditions

- In extensive tests under real conditions, the companies DAFÜR in Darmstadt and umlaut in Aachen together with the Leipzig University of Applied Sciences (HTWK Leipzig) have tested the properties and performance of IP500 technology. The aim was to verify potential advantages for particular IoT use cases and applications.
- Test results have proven that IP500 as an IoT radio platform combines and fulfils the required characteristics: security, robustness and high performance as the most promising candidate for industrial applications and commercial buildings.
- Following slides I will provide more details about methodology and insights of our IP500 robustness test.

IP500 – Performance Tests.

Robustness Test by umlaut

- umlaut test environment:
  - For this project, a canopy in the dimension of an aircraft cabin has been built up with the goal to test best performing technology in terms of robustness and tolerance to interference.
  - Goal was to simulate user data traffic via different technologies in interfered environment, in order to understand which technology provides best performance.
- Results:
  - Direct comparison between IP500 and SmartMeshIP reveals that Packet Error Rate (PER) value of IP500 is lower with more devices being active.
  - Overall Packet Error Rate performance of IP500 is much better compared to other technologies.

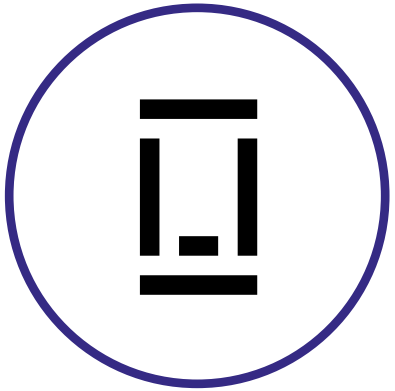
IP500 – Test results.

Summary & Conclusions

- A radio-based IoT networking of sensors and actuators could not be realized on a large scale in commercial buildings so far. The reason for this was that certain conditions had to be created first.
- If we look at the entire IoT wireless network, security, robustness and redundancy can be divided into three areas:
  - the physical radio layer (frequency, band and modulation),
  - the networking layer (network topology, routing, encryption) and
  - the infrastructure (IoT platform, IoT gateway, database structure, repeaters, wired devices i.e. switches).
- Compared to other wireless networks, IP500 scores with the following advantages:
  - high range of coverage,
  - low energy consumption,
  - high security in the transmission,
  - superior robustness,
  - low overall latency performance allowing high number of sensors as part of the solution,
  - low infrastructure costs due to continuous scalability

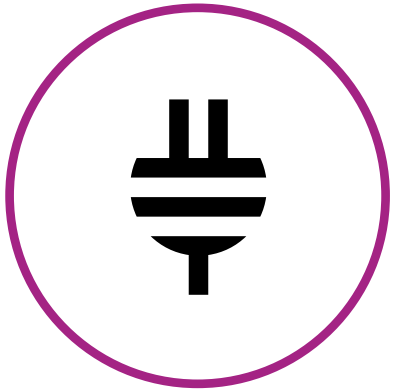
Our goals at umlaut.

Umlaut is empowering your IoT mission.
focusing on existing gaps which new IoT solutions are closing



Consulting

Advising, product development, engineering and implementation services for your IoT ecosystem and projects



Testing

Benchmarking, identification of weak points, optimization of devices and network capabilities network and devices

Certification

Enabling new technology networks to meet global or local standards and market demands.

End-to-end consulting in the smarty city ecosystem.
Our range of customers and services.

Municipal Utilities, Industry | E-Charging stations | Cities and communities | Car2X, Logistics | Real estate industry | Parking area operator | Public Buildings

end-to-end support from the concept phase to the roll-out

Market analysis
- Technology evaluation
- Business Case analysis
- RFQ support

Data connectivity
- Optimization of the roll-out
- Designing Connectivity
- Network planning

Security
- Identification of weak points
- Security check for components
- Analysis of data security

Monitoring
- Network coverage
- Quality assurance & technical review
- Benchmarking Devices & Network

IP 500.promising new technology for IoT ecosystems

Extremely Robust, even in difficult environment	**High Security Standard:** Fulfilling all VdS specifications	**High Transmission range:** High In- and Outdoor	**Low latency** even in difficult environment	**Low Energy-Consumption:** High bandwidth with low power consumption

Contact Info.

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