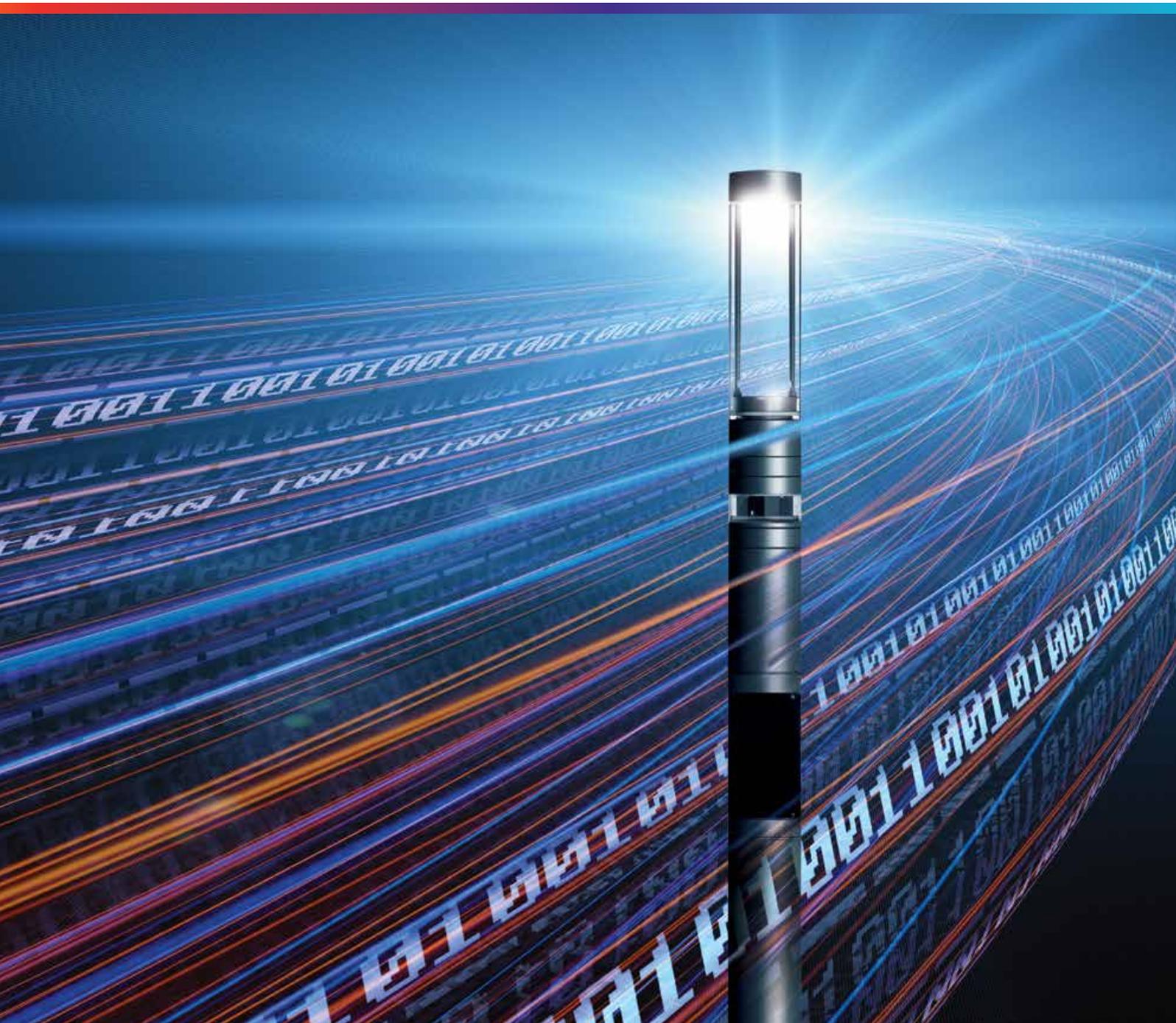


SHUFFLE

Gigabit wireless enabled
smart poles

powered by **Siklu**



Partnering for wireless smart city applications

Schröder and Siklu are building a strategic partnership to bring innovative smart city solutions to the market and leverage lighting infrastructure to create safer, more resilient and enjoyable urban environments.

Designed by Schröder, SHUFFLE is a connected, modular approach to outdoor hardware with plug-and-play rotatable modules that contain pre-certified hardware. This smart lighting column integrates features such as loudspeakers, CCTV cameras, WiFi, intercoms, warning strobes and EV chargers. SHUFFLE is **a completely energy-efficient yet affordable smart city solution** that requires very low maintenance.

Through the partnership with Siklu, SHUFFLE becomes more connected than ever with **wireless fibre connectivity**. Siklu is a leading company in mmWave wireless connectivity radios, bringing high-speed gigabit connectivity to the world. Siklu has unique expertise when it comes to providing field-proven mmWave solutions with carrier-class performance, the longest range on the market, compact and light equipment and extensive point-to-multi-point portfolio operating over the 60Ghz band.

Siklu is continuously looking for new opportunities to change people's lives for the better through the magic of wireless fibre communication systems. The collaboration with Schröder on the SHUFFLE Wireless backhaul enables cities and municipalities to benefit from a street-level gigabit network.

Say goodbye to heavy-duty infrastructure works!

We all need the internet, and fibre optics is one of the fastest modes of transport for information and telecommunications. However, installing lightning speed fibre throughout the city is not that easy and can be cost prohibitive.

It requires bulky and expensive infrastructure work. Moreover, with lease lines from private companies, cities are locked in costly partnerships.

With its Wireless backhaul module, SHUFFLE provides an opportunity for cities and municipalities to take charge of multi-gigabit networks and not have to wait on private companies.

SHUFFLE enables cities to **repurpose the existing lighting infrastructure to provide fibre-like citywide connectivity**. There is no need to wait anymore for a carrier to lay new fibre optic lines or put up with the lengthy and expensive permitting process and trenching work – which often disrupts traffic and disturbs residents.

City administrators take advantage of a multi-gigabit network that can grow with the city needs, new applications or geographic expansions. Infrastructure is one of the primary ways that towns and cities can make themselves more competitive. Build the right network at the right time, and new residents, jobs and businesses will come!

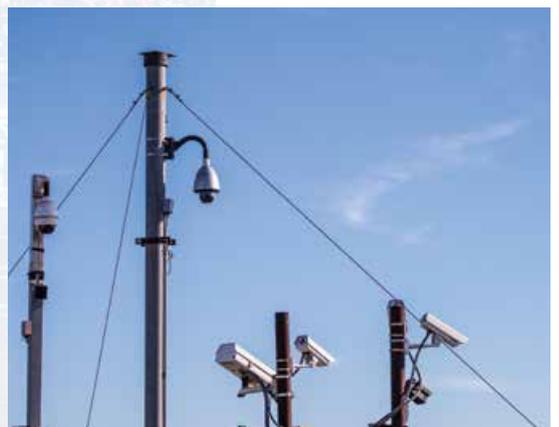
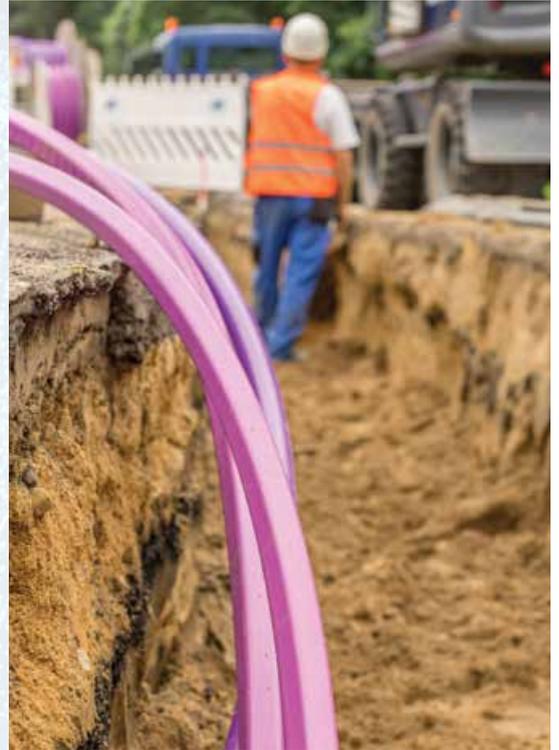
Save streets from cluttering

Our streets are becoming more and more overloaded with cumbersome pieces of technology and hardware.

All might be there for the better, but their physical presence obstructs the urban landscape and diminishes the overall experience for people.

According to Gestalt psychologists, people perceive entire patterns or configurations, not merely individual components. This means that they evaluate the visual quality of streetscapes and cities as a whole. Today urban planners are more concerned about the damage that these objects (commercial signs, communication or security hardware, etc.) are causing to the urban landscape.

SHUFFLE offers multiple technologies in one eye-pleasing column. This smart design reduces clutter in public spaces while bringing an elegant touch to outdoor living spaces.





SHUFFLE: the first wireless smart column

Schröder works with partners to transform ideas into concrete solutions. We favour cooperation between companies than competition.

Someone said that innovation is taking two things that exist and putting them together in a new way. We can't agree more. What we offer is greater than the sum of its parts. Through our collaboration with Siklu, we designed the first wireless smart column.

This breakthrough makes SHUFFLE **independent from physical wiring for lightning-speed connectivity**. More than ever, it can support city's day to day operations.

With gigabit wireless fibre infrastructure in place, cities of all sizes can easily add and manage smart city applications.





Speed and reliability for city services

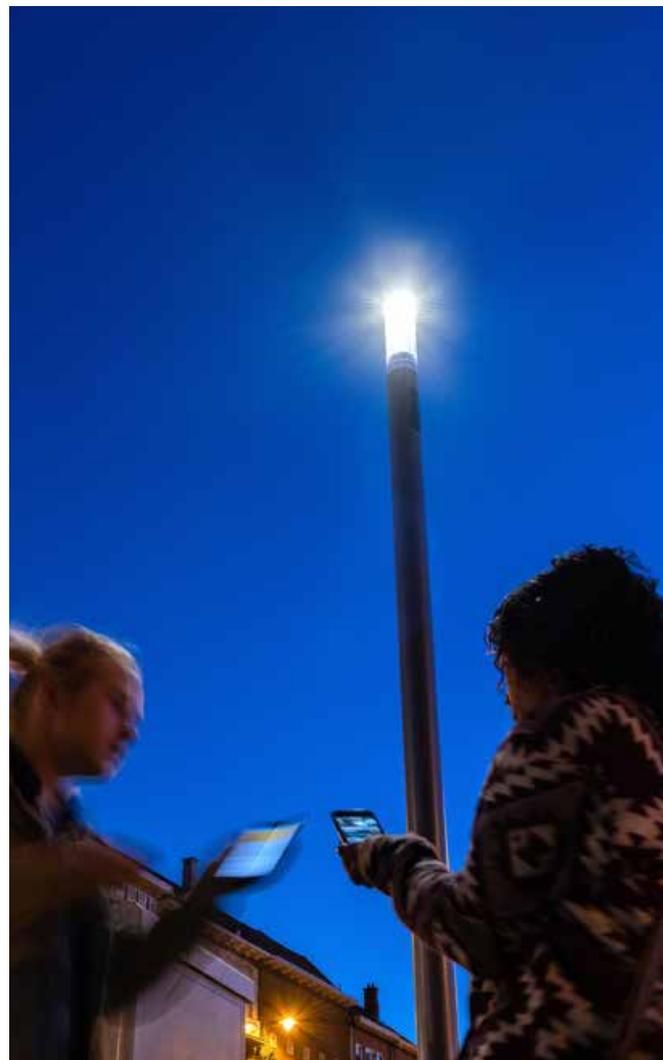
Using the unlicensed 60GHz V-Band, the SHUFFLE Wireless backhaul uses pencil-beam auto-aligning antennas, together with high free-space-loss, to ensure easy deployment and excellent spatial isolation with interference-free performance.

It provides highly secure connectivity with multi-gigabit capacity supporting, e.g. high bandwidth video streaming with low latency and high reliability. All at a low cost and very easy to install.

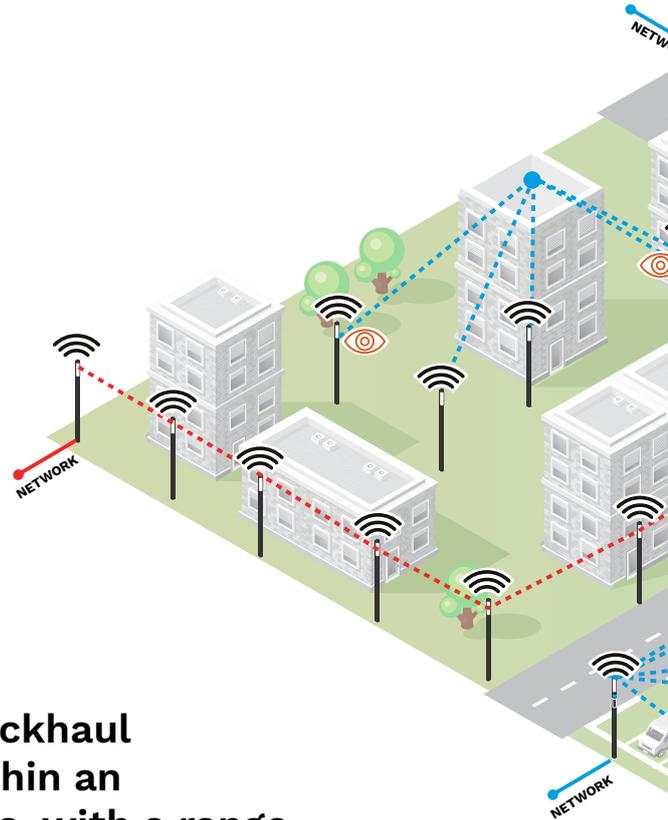
In the current SHUFFLE portfolio, the Wireless backhaul module can be associated with cameras (180° camera modules, QuadView or PTZ cameras on our bracket specially designed for SHUFFLE) to deploy a wireless HD video surveillance network. It can also be associated with WLAN modules and provide a citywide public WiFi coverage.

It is ready to offer additional **opportunities for smart city applications** such as air quality and traffic monitoring, smart parking, gunshot detection, etc.

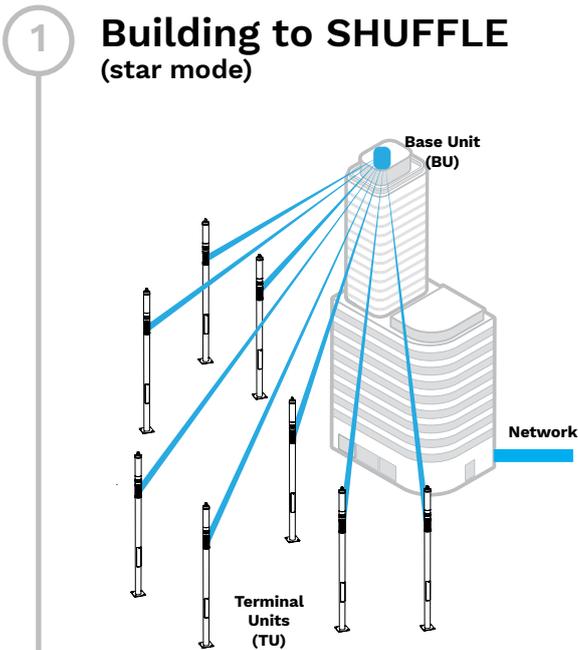
The SHUFFLE Wireless BackHaul system consists of two types of modules. A module that serves as an access point (Base Unit) and another as an end-point station (Terminal Unit). The Base Unit module connects up to 8 Terminal Unit modules. Thanks to its versatile modular system, a SHUFFLE can integrate both a Base Unit and a Terminal Unit.



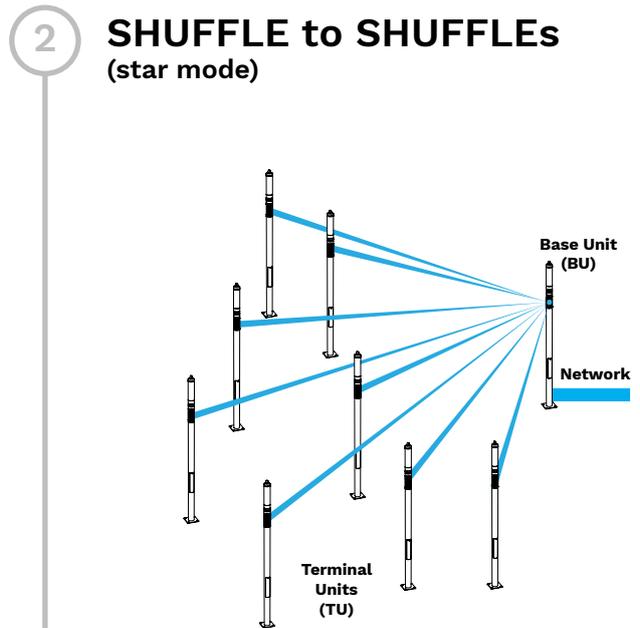
4 typical layouts



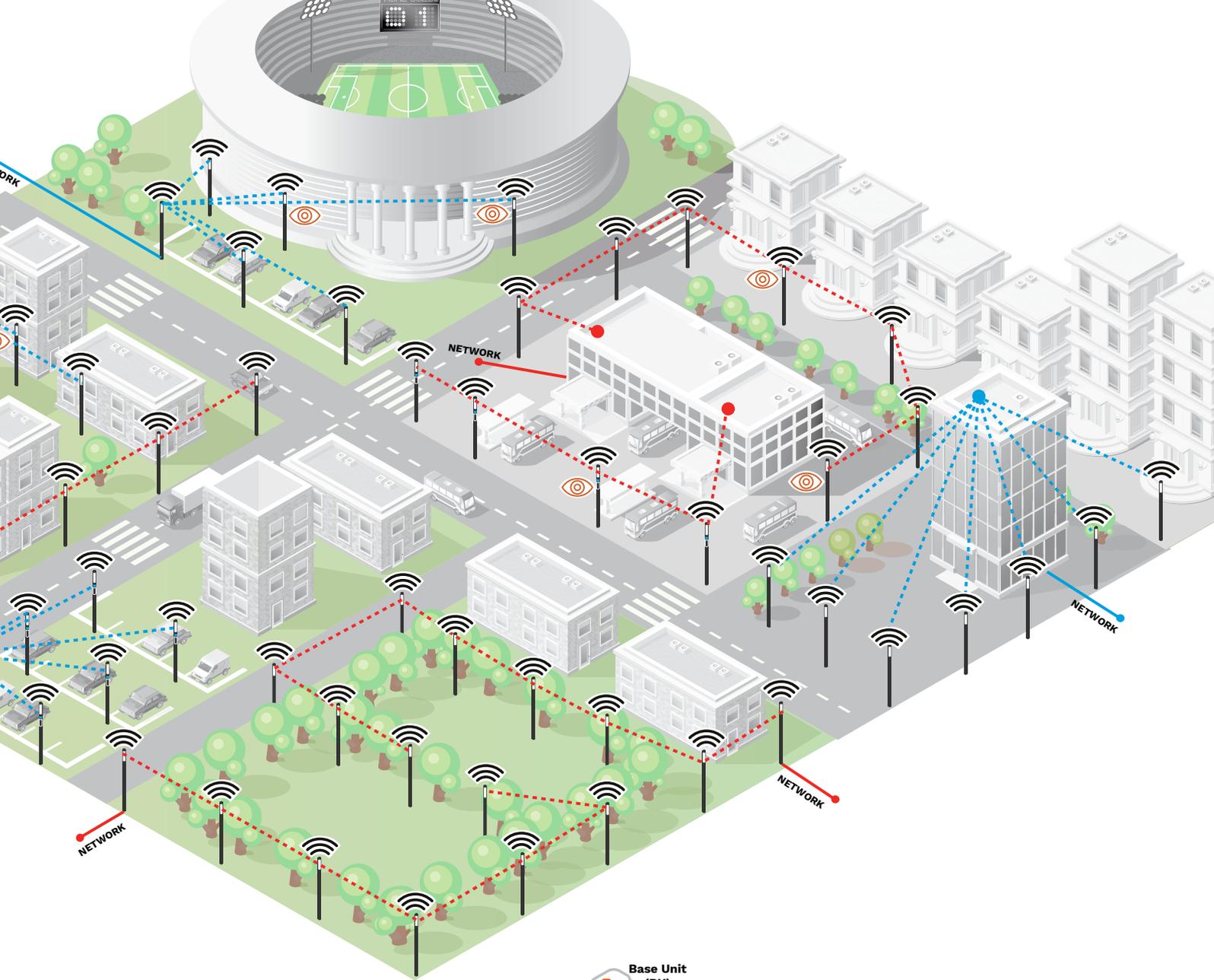
The SHUFFLEs equipped with Wireless backhaul modules communicate in a 90° sector within an unobstructed line-of-sight between radios, with a range of up to 400 metres. Four typical designs are possible.



The Base Unit is mounted outdoor, on a side of a building or on a rooftop. It connects to 8 SHUFFLE (Terminal Units) installed within a range of max. 400 metres.

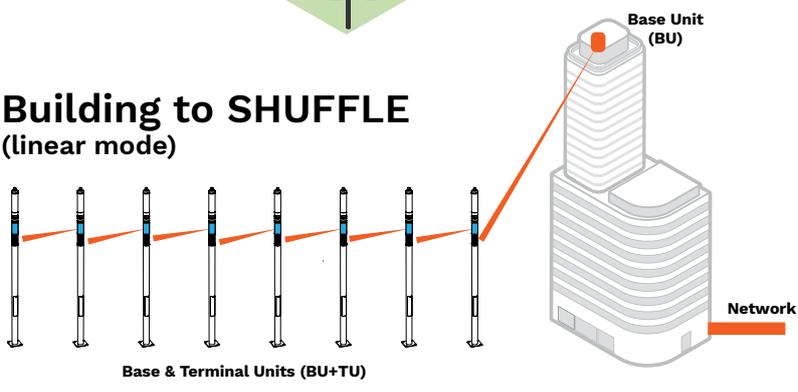


The Base Unit is integrated in a SHUFFLE. This one connects to 8 SHUFFLE (Terminal Units) installed within a range of max. 400 metres..



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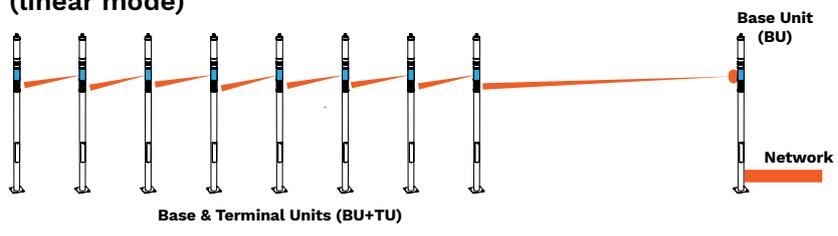
Building to SHUFFLE (linear mode)



The Base Unit is mounted outdoor, on a on a side of a building or on a rooftop. It connects to one SHUFFLE (Base and Terminal Units) that itself connects to another SHUFFLE having the same hardware (BU+TU) and so on, in a daisy chain layout. The spacing between two SHUFFLEs can reach up to 400 metres (max).

4

SHUFFLE to SHUFFLES (linear mode)



The Base Unit is integrated in a SHUFFLE. It connects to one SHUFFLE (Base and Terminal Units) that itself connects to another SHUFFLE having the same hardware (BU+TU) and so on, in a daisy chain layout. The spacing between two SHUFFLEs can reach up to 400 metres (max).

Schröder

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