Small Cells

Data Traffic Offload for Hot Spots
One big challenge mobile operators are facing is the growing demand for smartphone-driven data traffic. Often, the user requirements are bound to specific busy hot spots. One possible approach to deal with this is the realisation of small cells. By implementing small cells, operators can provide a capacity increase as well as an enhancement of coverage, thereby improving the customer experience.

Besides the backhaul of the small cell, one of the main challenges is the smooth integration of the site into the urban scenario. Compact antennas which can easily be installed are an important factor. Possible scenarios are mounting the antenna at house walls or existing infrastructure like advertising pillars, signs for public transport, bus shelters, street lights or similar. Another possibility is to hide the antennas completely in existing infrastructure or even in the ground.
Kathrein offers a broad portfolio of different antennas for small cell applications with low visual impact as well as antennas for hidden in-ground installation or installation into ad space. In order to optimise the PIM performance of the system, the latest small cell antennas are equipped with 4.3-10 connectors.

**Main Use Cases of Small Cell Antennas**
- Line-shaped scenarios, e.g. passage in a pedestrian zone, street
- Open places (small or big area), e.g. forecourt, town square, campus areas, event hotspots, park areas

**Antenna Pattern Types**
Depending on the existing infrastructure and street furniture, different antennas are available:
- Omnidirectional
- Bi-directional
- Sectorised, e.g. two-sector, tri-sector
- Directional

The main part of small cell antennas provides dual polarisation for optimised MIMO applications.
Antenna Highlights

**Smartpipe**
- Individually rotatable dipoles for flexible adjustment of up to two sectors
- Wall or pole mounting
- Horizontal or vertical adjustment

**Slimpole**
- Slim design for top-pole mounting
- Omnidirectional or tri-sector types
- Dual polarised for MIMO applications

**Kathrein Street Connect**
- Invisible capacity enhancement solution
- In-ground installation
- Appearance of manhole cover merges with existing infrastructure
- Proven MIMO performance
Small Cells | Antenna Highlights

**Kathrein Inside Connect**
- Small dimensions
- Easy integration into ad space
- Modular concept for flexible antenna set-ups

**VPol Antennas**
- Omnidirectional or bi-directional types
- Small dimensions

**Panel Antennas**
- Short antennas with small cell optimised gain
- Wall or pole mounting

**Macro Light Antennas**
- Omnidirectional, two-sector or tri-sector types
- With integrated GPS module