Prysmian Group

xsMobile

Value Innovation for your Wireless Network

xsMobile

Fibre To The Antenna

PRYSMIAN

Draka

Introducing *xsMobile*: Fibre To The Antenna

xsMobile is an extensive optical fibre-based passive portfolio of cables and connectivity products which enables mobile operators to upgrade their network grids easily, quickly and cost-effectively.

Incorporating Prysmian's experience in Fibre To The Home (FTTH) and its unique fibre innovation, *xsMobile* consists of different product solutions for three applications: standalone small-cell antenna towers, roof-top antenna towers and Distributed Antenna Systems (DAS) for in-building FEMTO-cell deployment. Our focus is to ensure costs are kept under control during roll-out.

The technology offers three access types for outdoor and indoor FTTA deployment, as well as backhaul solutions – incorporating the latest fibre technologies – to quickly offload the bitstream.

xsMobile family of products and solutions

xsMobile

Value Innovation for your Wireless Network

xsMobile
Antenna Tower **Solutions**
A full 'plug & play' solution to upgrade and build FTTA mobile towers.

xsMobile
Roof Top Antenna **Solutions**
Upscale your network easily with a 'plug & play' indoor system for roof-top antenna towers.

xsMobile
Distributed Antenna System **Solutions**
VertiCasa^{xs}: FTTA technology for your DAS network to connect FEMTO cells.

xsMobile
Backhaul **Solutions**
For a scalable mobile network; a flexible high-speed backbone network is required.

Supported throughout by *BendBright*^{xs} fibre technology

BendBright^{xs} at core

Prysmian Group – Linking the future

As the worldwide leader in the cable industry, Prysmian Group believes in the effective, efficient and sustainable supply of energy and information as a primary driver in the development of communities.

With this in mind, we provide major global organisations in many industries with best-in-class cable solutions, based on state-of-the-art technology. Through two renowned commercial brands – Prysmian and Draka – based in more than 50 countries, we're constantly close to our customers, enabling them to further develop the world's energy and telecoms infrastructures, and achieve sustainable, profitable growth.

Drawing on over 130 years' experience and continuously investing in R&D, we apply excellence, understanding and integrity to everything we do, meeting and exceeding the precise needs of our customers across all continents, at the same time shaping the evolution of our industry.

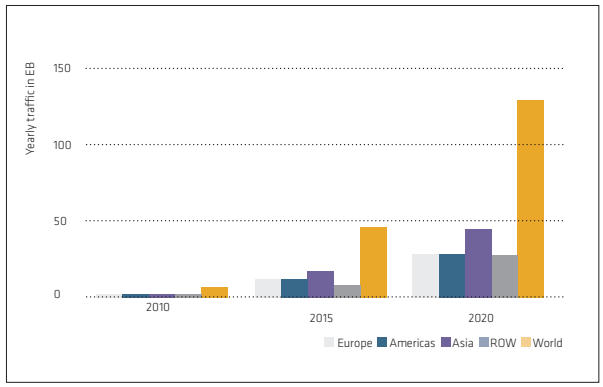
Meeting the demand for mobile broadband access

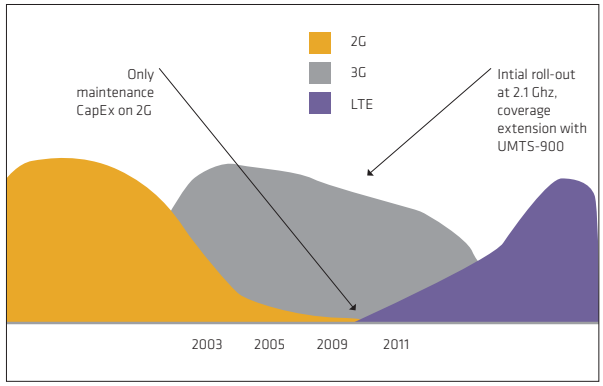
The global mobile broadband market is growing fast: the number of mobile broadband subscribers grew to 500 million during 2010 and doubled to 1 billion by the end of 2011. Unsurprisingly, the importance of broadband access to today's economy is undeniable. For example, one of the first utilities restored after the 2011 tsunami in Japan was its mobile telecoms infrastructure. And as the number of mobile devices with voice, data and video services rises, so too does the demand for a smart, sophisticated mobile network grid.

Equipped with new 4G/LTE-enabled smart phones and tablets, customers demand greater bandwidth and Quality of Services (QoS). But while new apps and mobile video streaming services are ready for use, lack of 4G/LTE coverage and an insufficient mobile network infrastructure have caused a bottleneck.

Acknowledging this fact, mobile operators have looked to deploy smaller cells and fit-for-purpose technologies. A full fibre-based mobile network infrastructure offers potential savings in both Capital Expenditure (CapEx) and Operating Expenses (OpEx), compared to traditional coaxial cable-based solutions.

QoS is a key success factor in this new service provision, creating a competitive edge. To be able to deliver QoS, the mobile network infrastructure needs to be state-of-the-art, with 3G, 4G, or in some cases, LTE technology enabled. These new technologies require a more dense fibre infrastructure; an infrastructure built on FTTA and a fast backhaul connection to offload the bitstream.

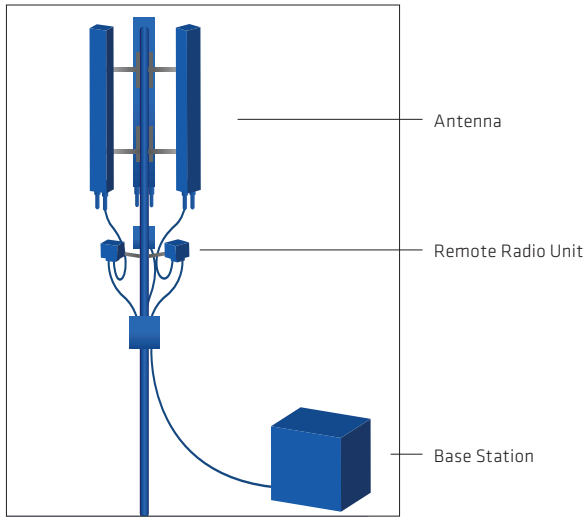




xsMobile antenna towers

The antenna towers used by 4G and LTE networks are smaller and basically consist of three parts:

- **Base station equipment**
  Passive rack equipment to connect the mobile backhaul network to the tower.
- **Feeder cabling**
  Fibre-based communication and power connection from the base station to the splitter box.
- **Jumper cabling**
  Two optical fibre connections from the splitter box to the remote radio head.



Feeder and jumper cabling: pre-terminated

From base station to the remote radio, short cable assemblies (typically 3-10m) connect the active equipment to the radio head. Pre-terminated cables for antenna tower cabling save installation time and cost, adding flexibility to the network. Prysmian Group offer pre-terminated kits at standard lengths.

Feeder cabling – remote radio heads need power cabling and (fibre) communication cabling, 8 (4x2) optical fibres. Depending on the architecture of the antenna tower, the feeder cabling can be combined power/communications cabling (hybrid solution) or separated (pre-terminated splitter connection). Prysmian Group has tailored feeder cable solutions according to major mobile operators specs.

Jumper cabling – for 4G/LTE technologies 2 optical fibres per head are required. To enable quick, reliable installation these 2 FO jumper cables are pre-terminated. These products are mounted with different connectors on each side, as all remote radio head equipment has dedicated connectors.

Feeder and jumper cabling

Base station equipment

The base station is located at the base of the tower, or for DAS and roof-top towers in the basement of the building. We supply a wide range of standardised, quick connection rack-and-drawer systems.

Either included in a 19" rack set up or a wall-mounted cabinet, our *xsMobile* base station equipment includes patch cords/pigtails and splitters. This portfolio is widely used in Fibre To The Home deployments around the world.

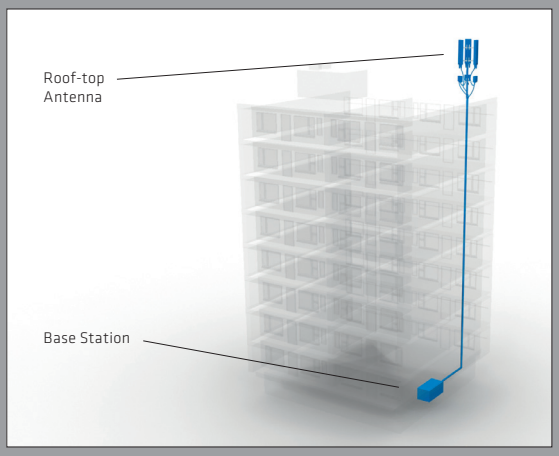
Base station equipment

xsMobile roof-top antenna towers

Many small-cell antenna towers are deployed in urban areas – typically alongside high-speed fixed broadband connections (Fibre To The Building or FTTB).

To reduce costs and speed up broadband deployments, fixed and mobile operators are sharing backhaul connections, with special cabling needed to bring the fibre connection from the basement to the roof-top.

xsMobile incorporates indoor cabling with low smoke zero halogen (LSOH) cables, meeting the latest standard for indoor wiring. Secondly, for faster installation and reduced costs the cable is pre-terminated and easy to install.



Base station equipment

As in our small-cell tower offering, *xsMobile* roof-top antenna applications also include the base station equipment. This is located in the basement of the building, close to the building fibre termination point.

Pre-termination: quick, easy and reliable

Pre-termination of indoor cabling is in greater demand than ever; in all types of applications an industrially connectorised cabling solution is used to create reliable 'plug & play' indoor wiring.

Particularly in optical fibre connections, the splicing and connectorisation of fibres is labour-intensive and costly. Secondly, the quality of the 'in-field' splice depends on the quality of the installer.

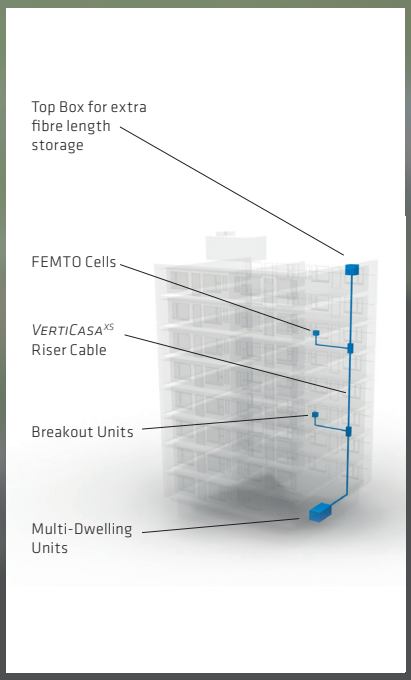
Both of these issues can be eliminated by using pre-terminated cables. The connector is terminated in an industrial environment and proof-tested accordingly. To provide you with these benefits, Prysmian provides a wide range of pre-terminated cable in pre-set lengths.

xsMobile Distributed Antenna Systems

Imagine sitting in a football stadium watching your team score the winning goal against its arch rivals. You'd probably want to share this with the world via Facebook, Twitter or some other service. But imagine 60,000 people doing this at the same time, bringing the mobile network to a total shutdown. For you, it would be an annoyance – but for security officers or medical staff it could be a disaster.

Or, have you ever experienced a weakening mobile signal when you enter a building?

For these reasons, DAS are using small cellular base stations called FEMTO cells to increase capacity. Our *xsMobile* DAS solution is aimed at these applications, meeting the challenge of 3G/4G signals being weakened by the structure of buildings and increasing capacity for an enhanced mobile signal.

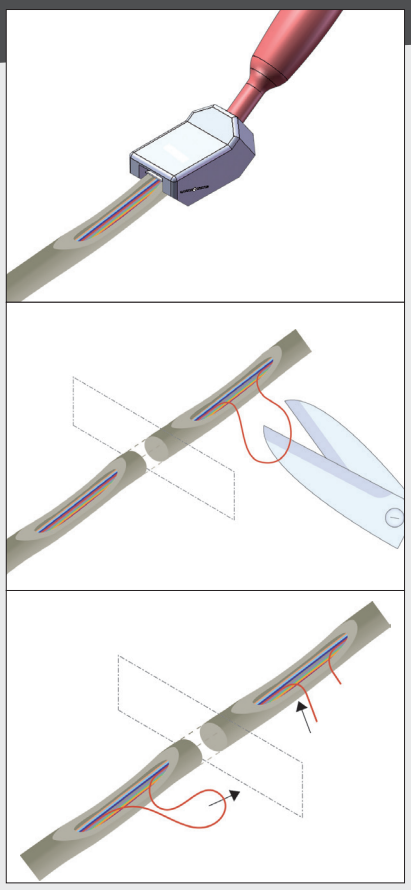


FEMTO cells

In many cases, FEMTO cells are placed in buildings or stadiums with no legacy network. However, as the bandwidth demand may increase over time, flexibility is needed. Through our expertise in FTTH, we have developed a cabling system with maximum flexibility; *VertiCasa XS*.

Installation is simple. You install the cable in a riser or a ring topology and extract a fibre at the point the FEMTO cell is needed. Meaning maximum flexibility and cost efficiency. *VertiCasa XS* includes cable, connectivity products and tools. Find out more at our website: **www.prysmiangroup.com**

Fibre access breakout



Prysmian Group *VertiCasa XS*

Extractable Easy Strip Fibre Units (ESFU) are protected by a Low Smoke Zero Halogen (LSOH) covering:

- A range of supporting connectivity products for cable breakout, splicing and customer termination
- Latest bend-insensitive fibre technology supplied in *VertiCasa XS* cables
- Re-enterable system
- Reduced fusion splicing time, cost and power loss
- No need for skilled labour

The latest optical fibre technology applied to a new optical cable and connectivity products allows easy installation of the *VertiCasa XS* system in different scenarios: mid-size buildings (typically buildings of up to 10 floors); high-rise buildings (10 floors or more); low-rise/high occupancy buildings, offices/open spaces.

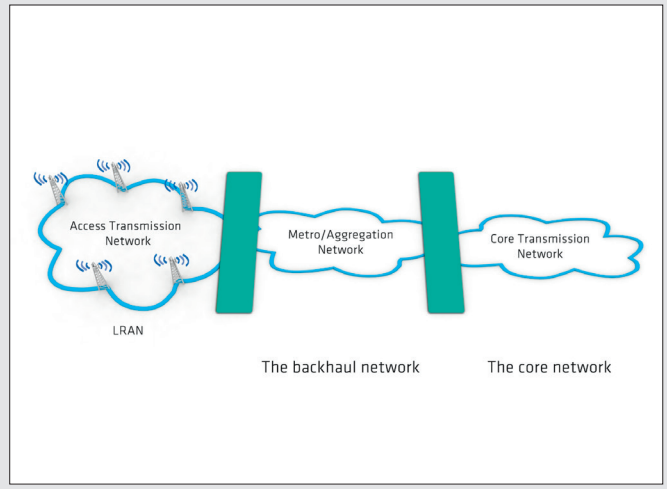
xsMobile backhaul solutions

The backhaul network consists of the 'last mile' between the base station and the Base Station Controller (BSC) or Radio Network Controller (RNC), as well as the transport network between the BSC/RNC and the core network.

Deployment in the access transmission network demands backhaul connections, especially the pressure on the 'middle-mile' connection - the High RAN (HRAN). The higher-layer backhaul network between the first aggregation point or POC and the core network need fixed network upgrades.

Technologies in the core network are using all wavelengths available to have the maximum output on a network. This trend is moving into the backhaul network too; but to make full use of these wavelength technologies, a high-quality optical fibre is required. This is in addition to maximum flexibility, to be able to add a cell tower wherever there are issues in the network.

Bending of standard optical fibres and water penetration ('OH-peak') have a negative effect on the available wavelength spectrum – bending disrupts the U-band, 'OH-peak' the E-band. Prysmian Group has the answer: *BendBright*^{XS} fibres.



BendBright^{XS} at core

Cell tower density: smaller cells

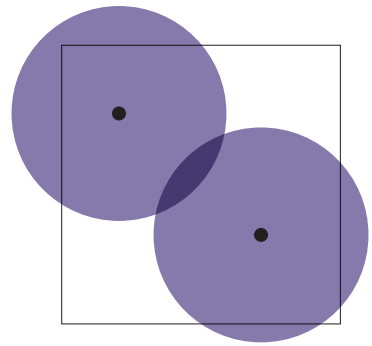
The current trend in mobile infrastructure is Long Term Evolution (LTE), driven by the increased demand for mobile data. LTE deployment is mainly 'deploy-on-demand', moving from macro-cells to smaller cells.

By deploying small cells, operators can meet capacity requirements at a lower cost than fully deploying macro-cells.

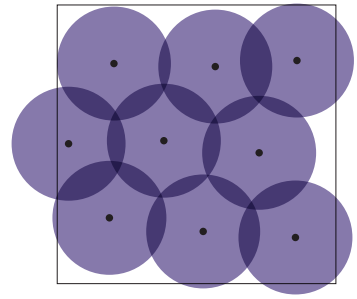
4G/LTE technologies also drive the need to upgrade backhaul, which weighs heavily on mobile network operations – sometimes representing up to 40% of network costs. Given cost considerations, operators are thinking of the possible reuse of existing FTTH infrastructure.

Moreover, the configuration of the future RAN architecture with small cells and remote radio head (implying a long distance of several kilometres of backhaul) will favour the use of fibre.

Small cell deployment – more efficient, more flexible



Legacy mobile network range



Next generation 4G/LTE mobile

Linking communications to communities

Cable solutions to support the development of the world's telecoms infrastructure

As the world's largest producer of telecoms cables, supporting the infrastructures of many of the world's leading telecoms operators, the Prysmian Group delivers optical fibre and copper cabling solutions that help link communications to communities around the globe.

Covering voice, video and data transmission, we are a world leader in the production of optical fibre, offering unique and fully owned technology. Our portfolio sets the benchmark in global innovation, and is the outcome of continuous multi-million euro investment in R&D and production in more than 30 facilities worldwide.

Prysmian Group Viale Sarca 222, 20126 Milan, Italy
Email: telecom@prysmiangroup.com Tel: +39 02 6449 3500

www.prysmiangroup.com

Prysmian Group

PRYSMIAN

Draka