



SMART  
CITIZEN



# TELECOMMUNICATIONS INFRASTRUCTURE

DYCTEL joined the SICE Tecnología y Sistemas group in 2002 and this led to the acquisition of a significant amount of knowledge in the telecommunications sector, as well as a team of professionals with an extensive track record in the sector.

As a result of this integration, two companies specializing in telecommunications joined the group:

- **Sistemas Radiantes F. Moyano**, a specialist in radio frequency, including the metal structures which support these systems.
- **TELSA**, a specialist in corporate IT networks, creating large multi-service networks based both on structured cabling and wireless technology.

These two teams, united under SICE, provide the group with a wide range of solutions in the telecommunications market, endorsed by many leading testimonials in the Spanish market.

From the outset, SICE has created telecommunications infrastructures linked to its infrastructure control systems. Copper and fibre optic cable networks, wireless systems with licensed and unlicensed frequency bands, satellite communication systems, or communication networks supported by operators.

That experience acquired over time meant that it could take the plunge and become an integrator for client-dedicated communication networks such as TETRA networks, or fibre proprietary networks.

## MULTI-SERVICE NETWORKS

Through its subsidiary TELSA, the SICE group is an integrator of the main structured cable solutions such as Systimax, Brand Rex, Panduit, TE and Corning, amongst others. Two of its key example projects are the new BBVA financial city and the Madrid City Council, in the Cibeles Palace of Communications.

Offers staff which are certified in the most advanced intelligent management systems, both in a corporate environment and a data centre environment, having integrated solutions for more than 17.000 ports.

Also highlights the installation of the latest-generation WiFi networks with comprehensive management, and implementation of the top security protocols.

## RADIATING SYSTEMS AND TOWERS

Through its subsidiary **Sistemas Radiantes F. Moyano**, the SICE TyS group manufactures radiating systems for all commercial frequency bands, from radio transmission to mobile telephone bands.

It manufactures towers, antenna fastening systems and camouflage systems for antennas and towers, providing all types of lattice, tubular and guyed tower solutions.

It has supplied over 5.000 towers to domestic and international telecommunications markets, some with heights of over 200 metres.

Spectrum of solutions offered includes the following::

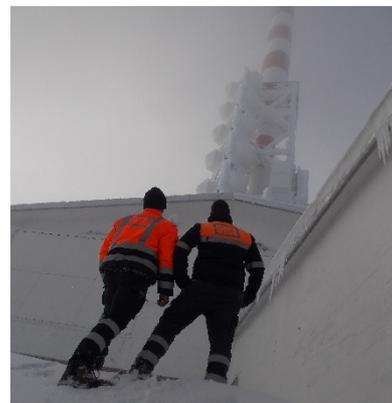
- **Lattice towers:** Self-supporting and/or braced towers of all heights and geometry.
- **Tubular towers:** Self-supporting towers with heights up to 50 metres, specially designed to minimise their visual impact.
- **Camouflaged systems:** Camouflaged systems that are permeable to radiation across all frequency bands. The insides of these systems are used for the installations of antennas and radio equipment, and the outside for advertising.
- **Medium wave antennas:** Design, manufacturing, installation and maintenance of medium wave antenna systems. Adaptation to forthcoming changes in technology that will allow them to survive the changeover to digital medium wave, also known as DRM.
- **FM antennas:** Complete solution for any type of coverage that may be necessary; the company's product is integrated with those produced by cable and transmitter manufacturers. SICE offers a full range of antennas, filters and combiners with powers of up to 300 kW.
- **UHF antennas:** As with the case of FM antennas, this solution provides any type of coverage that may be necessary; the company's product is integrated with those produced by cable and transmitter manufacturers. SICE offers a full range of antennas, filters and combiners for this purpose.
- **Mobile telephone antennas:** Production of inside, outside and camouflaged antennas that are quick and easy to install, allowing operators to economize when rolling out their networks.
- **Special band antennas:** Manufacturing of TETRA band antennas for special communications, for use by armies or closed security groups.

## EMPLACEMENTS FOR OPERATORS

The SICE group manages turnkey projects, rolling out communication networks, and constructing sites both in urban and rural locations.

The group has built more than 5,000 emplacements sites for various operators, both in urban locations, with low visual impact solutions and camouflage of radiating systems, or in rural locations, where more importance is placed on independent energy management and optimisation solutions.

In addition, SICE carries out municipal arrangements for obtaining spaces for rolling out micro-cells, whose services include the planning, execution and maintenance of the networks' infrastructures.



## OUTSIDE PLANT

SICE carries out design, installation and fibre optic network testing for outside plants, both for operators (FTTH and FTTN networks) and for infrastructure management companies (DGT and ADIF, amongst others), for which it relies on highly qualified staff, as well as the installation equipment and methods required to complete these tasks.

As part of operator solutions, it installs fibre to the node networks (**FTTN**), with experience working for leading operators, carrying out the laying and splicing of the fibre as well as the required civil works and permit management.

SICE also offers turnkey projects for fibre to the home infrastructure (**FTTH**), including engineering, permit management, installation, testing and commissioning of the work infrastructure, with the ability to install PON technology fibre networks.

