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## **Telephone Service.**

During 1991 there were 1,237,810 telephone line applications, of which 119,820 were for Ibercom integrated business communication lines. Average usage per line grew by 4.1%, as opposed to 2.3% the year before.

At year-end, the basic telephone network had 13,264,360 local lines in service, representing a rise of 5.3% over 1990, and a telephone density of 33.5% lines per 100 inhabitants. In addition, there were 370,500 Ibercom lines in service at the end of 1991, 45.0% up on the previous year.

## **Modernization.**

During 1991 Telefónica installed 1,120,024 new subscriber lines, practically all of which were digital. Out of this total, around 400,000 were digital lines installed to replace dismantled analog lines, clear evidence of the company's effort to modernize the network.

By the end of 1991, there were 2,644,000 trunk lines in transit exchanges, 14.4% more than at the end of 1990. Digitization also rose from 59.6% to 75.2%, signifying a considerable contribution to the improvement of the service.

In 1991 11 new domestic digital transit exchanges came into operation, which together with the extensions carried out on another 36, allowed us to increase capacity to the equivalent of 268,207 new trunk lines, with digitization of switching equipment reaching 84%, 19% higher than in 1990. This enabled us to increase the traffic capacity of the transit network by almost 11% in 1991. We also continued the process of connecting all the transit network exchanges through Digital Transmission Systems, mainly with optical fibre cable.



Digital telephone exchange on La Cartuja Island, Sevilla.



Telephone booth with new design features at the EXPO site.



Dynamic Network Management Centre at the Alcobendas (Madrid) international exchange.



1991 was a highly significant year for the construction and consolidation of the international network, with the bigger projects practically completed. Digitization reached 45%, and there was a net growth of 3,300 international circuits.

During the year the Barcelona-Castellbisbal and Sevilla-Pineda international exchanges came into service, both of them equipped with the latest digital technology. With 16,200 and 12,800 trunk lines respectively, these exchanges complete the structure planned for the Spanish international network. Their integration into the Dynamic Network Management Centre at Madrid-Alcobendas signified a leap forward in the modernization and improvement of network management.

As for international land communications by optical fibre cable, the following deserve special mention: the completion and inauguration of a new system between San Sebastián and Bayonne, the connection between Badajoz and Elvas, the systems which link the Barcelona and Seville international exchanges with their respective Satellite Communications Centres and the connection of the Madrid international exchange with new international links.

During 1991 the process of development and modernization of the network continued with the incorporation of new technology software packages into the switching exchanges of the three present systems. We also continued to update the analog exchanges, replacing their control systems with electronic registers in order to offset the shortcomings of this type of technology. In the field of transmission, we introduced the MIC continuous current signalling system, which allows the connection of analog and digital exchanges. We also put into operation in Tres Cantos an experimental system which takes optical fibre right to the home. In the area of radio communication we introduced new digital radio trunk line systems of 140 Mbit/s.

New CRAT software for the protection of installations brought about a marked improvement in the alarms and services systems. This new software enables the situation and movements of unmanned or semi-manned telephone installations in any province to be remotely controlled from a single Reception and Control Centre which is permanently staffed. The system monitors fire alarms, burglar alarms, trespassing, detection of explosive gases, flooding and access control.

### **Underwater optical communications.**

During 1991 three underwater digital optical fibre cables came into operation: PENBAL 4, between Valencia and Mallorca, with a capacity of 11,520 circuits; Spain-United Kingdom 4, between Rodiles (Asturias) and Goonhilly (United Kingdom), with a capacity of 17,280 circuits; MAT-2, between Estepona (Málaga), Ses Covetes (Mallorca) and Palermo (Sicily), with 7,680 circuits. These





three cables total 3,090 kilometres, bringing the total length of underwater optical fibre cable linked to Spanish territory to 5,390 kilometres.

Two important projects that were practically complete by the end of 1991 deserve special mention: TAT-9, which will link Spain, France and England on the one hand, and the United States and Canada on the other, and PENCAN 5, linking the Iberian peninsula to the Canary Islands.

### **Satellite communications.**

In 1991 two new Satellite Communications centres were built at La Granada (Barcelona) and Carmona (Seville). These, together with the centres at Buitrago, Guadalajara and Agüimes completed our network structure. Four highly equipped earth stations were installed in the Barcelona centre for telephone and television transmission by means of the INTELSAT and EUTELSAT satellites. In the Seville centre, two earth stations were installed for the same purpose, along with two more for the business services of the respective systems.

The Barcelona and Seville Teleports, both equipped with aerials specially designed to meet business service needs, were integrated into the Barcelona-Castellbisbal and Sevilla-Pineda international exchanges. Also worthy of mention was the acquisition of 4 portable earth stations based at the Guadalajara centre, and the initiation of work on the installation of a VSAT network with over 200 terminals for CAMPSA, the oil company.

### **Public telephony.**

By the end of 1991 the number of public telephone booths had reached 42,311. During the year we continued to install modular telephones, which accept electronic phone cards as well as coins, with the intention of totally replacing the terminals now in use by this system. As for public telephones not directly controlled by Telefónica, we began the marketing of two new automatic charge telephone sets for public use: the Regular Coin Telephone, especially suitable for busy establishments; and the Protected Coin Telephone, designed for toughness and security. Both telephones incorporate new design features, and thus extend and improve the range of products on offer to public telephone users.

### **International communications.**

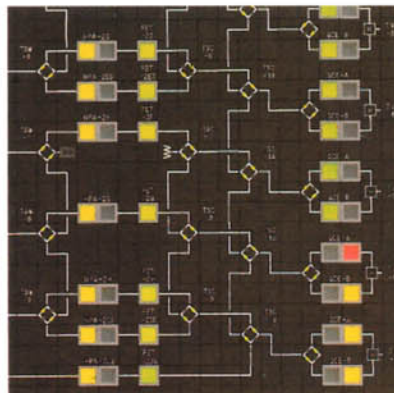
We continued to expand both the "ESPAÑA DIRECTO" and automatic reverse charge services, with these facilities now available in 31 and 18 countries respectively.



.Amuña de Tajuña earth station aerial.



Detail of the Penedés Satellite Communications complex.





### **Service expansion in the rural community.**

During 1991 we stepped up our efforts to expand the basic telephone service in rural areas. At the same time, local authorities continued to play an active role in cooperation agreements, acting on what had been laid down in Royal Decree 2248/84. As a result, 1,080 new local zones were created, 1,151 public telephones installed, and 18,752 applications from outside local zones attended. According to population data, in 1991 there were 158,378 new local subscribers, and the telephone service was brought to 74,904 people who before had no access to it.

1991 saw the culmination of the "Plan for the Expansion of the Telephone Service in Rural Areas 1988-91" which had been approved by the government in 1988. The work carried out under this plan meant that practically all populations of 50 or more inhabitants had a public telephone service and that all those of 100 or more had a local service.

### **Regional programmes.**

Telefónica continued to play an active role in the EC programmes promoted by FEDER with the aim of correcting imbalances between the regions. The STAR programme stood out particularly among these.







We continued to take part in the regional development and restructuring programmes in operation in The Canary Islands, Castille-La Mancha, Castille and León, Catalonia, Valencia, Extremadura, Galicia, Madrid, Murcia and the cities of Ceuta and Melilla. During the year the decision was taken to participate in the "Objective 5B" programmes for the autonomous regions of Aragón, the Balearic Islands, Cantabria, Catalonia, Madrid, Navarre, The Basque Country, and Rioja.

Telefónica also participates in the Data Processing Programme, approved by the European Community Commission to boost data communication in less developed regions.

### **Terminals.**

The liberalization of the terminals market, which began in 1988 with supplementary equipment, was completed in 1991 with the liberalization of multiline systems and the main telephone set. During the year we developed the FORMA telephone, which represents Telefónica in the new liberalized market. We also updated the Teide family of multiline systems with the new Diana modular exchanges.





Inspection work at the Cartuja-Sevilla digital exchange.

