

References by activity



# Telecommunications and Systems





# 4G



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## TELECOMMUNICATIONS **CONTRACT FOR MANAGEMENT OF LTE 800 IMPACT**

**LOCATION** ▶ Spain

**CUSTOMER** ▶ Vodafone, Orange and  
Telefónica

**PROJECT SCOPE:**

Service to resolve any issues affecting DTT reception caused by 4G on the 800 MHz band that the operators are rolling out nationwide

**ANNUAL AMOUNT** ▶ EUR 20 million

**CHARACTERISTICS:**

- ▶ Preventative procedure (prior to the switch-on of LTE nodes): definition of areas potentially affected, communication with residents and councils affected. Preventative installation of filters which can be requested via a User Attention Centre (CAU) created for this purpose
- ▶ Corrective procedure (after switch-on of LTE nodes): resolution of incidents handled via the User Attention Centre (CAU) through a specifically created national territorial structure (back office)
- ▶ Establishment of a Project Management Office (PMO)





SPAIN  
Spain

TELECOMMUNICATIONS  
**CONTRACT FOR  
MANAGEMENT OF  
LTE 800 IMPACT**







## TELECOMMUNICATIONS **ORANGE FRAMEWORK AGREEMENTS**

**LOCATION** ▶ Spain

**CUSTOMER** ▶ Orange

### **PROJECT SCOPE:**

Network construction service; construction and engineering service for FTTH network; customer installation and maintenance service and maintenance service for external plant

**ANNUAL AMOUNT** ▶ EUR 51 million

### **CHARACTERISTICS:**

- ▶ Network Construction Service:
  - ✓ Construction of telecommunications ducting
  - ✓ Supply and installation of manholes and chambers, towers, masts, prefabricated cabins, radio frequency antennae and cables
  - ✓ Fibre optic and copper cable laying
  - ✓ Fibre optic connections and measurements
  - ✓ Civil works associated with the remote site
  - ✓ LV wiring
  - ✓ Installation of radio links, radio equipment, repeaters, antenna supports, lifelines, power circuits, batteries and air conditioning systems
- ▶ Construction and engineering service for FTTH network
  - ✓ Network designs and permits
  - ✓ Ducting
  - ✓ Installation of fibre cables, junction boxes, splitters and terminal boxes
  - ✓ Network connections and measurements
  - ✓ Service tests
- ▶ Customer Installation and Maintenance service:
  - ✓ Installation of supply line, optic termination equipment, routers, decoder equipment and telephony equipment
  - ✓ Resolution of breakdowns
- ▶ External Plant Maintenance Service:
  - ✓ Maintenance of Optical Distribution Frames, fibre cable network, junction boxes, splitters, terminal boxes, ducting and manholes
  - ✓ Resolution of external plant breakdowns



SPAIN

Spain

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TELECOMMUNICATIONS  
**ORANGE FRAMEWORK  
AGREEMENTS**



A large, tilted orange sign with the word "Orange" in white, lowercase, sans-serif font. A small "TM" trademark symbol is positioned above the end of the word. The sign is set against a dark, blurred background.





# Telefonica

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## TELECOMMUNICATIONS **TELFÓNICA FRAMEWORK AGREEMENTS**

**LOCATION** ▶ Autonomous communities of Madrid, Basque Country, Catalonia, Castilla y León, La Rioja, Murcia, Navarra, Valencia, Cantabria and Aragón (Spain)

**CUSTOMER** ▶ Telefónica

### **PROJECT SCOPE:**

Customer loop service, deployment of FTTH network and full maintenance of internal plant and mobile access network base stations (O+M) for Telefónica in Spain

**ANNUAL AMOUNT** ▶ EUR 100 million

### **CHARACTERISTICS:**

- ▶ Customer loop: comprehensive work on installation, equipment, infrastructure and telecommunications networks at Telefónica facilities or customer facilities:
  - ✓ Civil engineering (excavation, demolition, construction and maintenance of infrastructures)
  - ✓ Lines and cables (design of projects and works, management and administration of permits, cable laying, connections and measurements etc.)
  - ✓ Engineering and construction for deployment of FTTH network:
  - ✓ Engineering services
  - ✓ Management of licences and permits from private owners and/or public bodies
  - ✓ Civil engineering
  - ✓ Fibre optic cable laying
  - ✓ Installation of passive devices
  - ✓ Connections and measurements of the network deployed
  - ✓ Full maintenance of internal plant and mobile access network base stations:
    - ✓ Maintenance of internal plant
    - ✓ Maintenance of mobile access network base stations





## SPAIN

Autonomous communities of Madrid, Basque Country, Catalonia, Castilla y León, La Rioja, Murcia, Navarra, Valencia, Cantabria and Aragón (Spain)



### TELECOMMUNICATIONS TELEFÓNICA FRAMEWORK AGREEMENTS







## TELECOMMUNICATIONS

# VODAFONE FRAMEWORK AGREEMENTS

**LOCATION** ▶ Spain

**CUSTOMER** ▶ Vodafone

**PROJECT SCOPE:**

Installation of fibre and copper, construction of remote sites, installation of equipment on remote sites and engineering and technical assistance

**ANNUAL AMOUNT** ▶ EUR 9 million

**CHARACTERISTICS:**

- ▶ Installation of fibre and copper:
  - ✓ Construction of telecommunications ducting
  - ✓ Supply and installation of chambers and manholes
  - ✓ Laying of fibre optic and copper cables for the HFC network
  - ✓ Fibre optic connections and measurements
- ▶ Construction of remote sites:
  - ✓ Supply and installation of towers, masts and prefabricated cabins
  - ✓ Civil works associated with the remote site
  - ✓ LV wiring
- ▶ Installation of equipment on remote sites:
  - ✓ Supply and installation of radio frequency antennae and cables
  - ✓ Installation of radio links, radio equipment, repeaters, antenna supports and lifelines
  - ✓ Installation of power circuits, batteries and air conditioning systems
- ▶ Engineering and technical assistance:
  - ✓ Design of the HFC network
  - ✓ Support for GIS tools and design support
  - ✓ Technical assistance for work on Vodafone Ono's HFC and FTTH network





SPAIN  
Spain

TELECOMMUNICATIONS

# VODAFONE FRAMEWORK AGREEMENTS







## TELECOMMUNICATIONS

# MARITIME SURVEILLANCE SYSTEM

**LOCATION** ▶ Cameroon

**CUSTOMER** ▶ Ministry of Defence

**PROJECT SCOPE:**

Integral maritime and coast surveillance system for the Republic of Cameroon

**AMOUNT** ▶ EUR 25 million

**START DATE** ▶ june 2012

**FINISH DATE** ▶ december 2015

**CHARACTERISTICS:**

- ▶ The MSCCS (Maritime Surveillance Communications and Control System) has modern surveillance systems based on high-resolution state-of-the-art radar systems, radiogoniometric systems, automatic identification systems (AIS) and optronic systems.
- ▶ Multi-station multi-sensor architecture (a number of stations all along the coast, each with different detection and/or communication systems). Unitary integral management from the main and secondary control centres.
- ▶ GMDSS system for SSSC communications (Shore-Ship-Shore Communications) for ships with the control system, and vice-versa in phone equipment and data.
- ▶ Advanced multi-sensor-cum-multi-tracking mechanisms to provide unequivocal information on traffic.





AFRICA  
Cameroon

TELECOMMUNICATIONS  
MARITIME  
SURVEILLANCE  
SYSTEM







## TELECOMMUNICATIONS

# AIRPORT RADIO ASSISTANCE

**LOCATION** ▶ Peru

**CUSTOMER** ▶ Corporación Peruana de Aeropuertos y Aviación Comercial (CORPAC)

### PROJECT SCOPE:

Supply and turnkey installation of radio assistance units for the Peruvian airport network, and integration with existing infrastructure

**AMOUNT** ▶ EUR 8 million

**START DATE** ▶ april 2015

**FINISH DATE** ▶ december 2016

### CHARACTERISTICS:

- ▶ 2 full ILS/DME systems (instrument landing systems for airports)
- ▶ 10 VOR radio beacons (aerial navigation system for planes in flight)
- ▶ 5 DME systems (distance measuring equipment)
- ▶ Central management system for maintenance and remote monitoring (RMMC-Central Supervision), with development of an SW RMS NAVAIDS application (Remote Monitoring System) for control and remote supervision. This deploys a single system for all the alarms activated by the equipment and remote controls of the radio assistance systems within the facility





SOUTH AMERICA  
Peru

TELECOMMUNICATIONS  
**AIRPORT RADIO  
ASSISTANCE**





## TELECOMMUNICATIONS **FIBRE-OPTIC**

**LOCATION** ▶ Newcastle Upon Tyne, North East England (United Kingdom)

**CUSTOMER** ▶ CityFibre

**PROJECT SCOPE** ▶

Deployment of FTTH (fibre to the home) telecommunications network infrastructure to install in 120,000 homes

**AMOUNT** ▶ EUR 66 million

**START DATE** ▶ january 2020

**FINISH DATE** ▶ december 2024

**CHARACTERISTICS:**

- ▶ +200 km of new pipeline and fibre-optic cable installations in distribution and access network
- ▶ +15,000 fibre-optic splices
- ▶ +100 operators
- ▶ +20 members of staff in back office

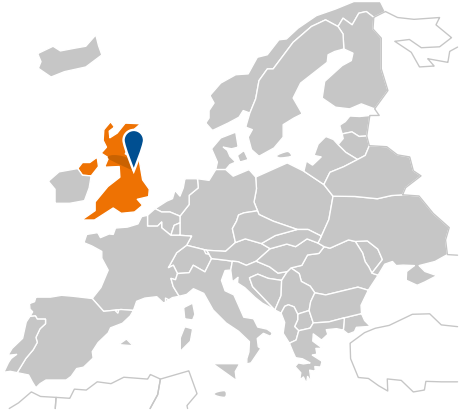




EUROPE

Newcastle Upon Tyne, North  
East England (United Kingdom)

TELECOMMUNICATIONS  
FIBRE-OPTIC







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