

Success Story



A railway across the desert

MOBILITY SOLUTIONS FOR THE TOUGHEST ENVIRONMENT ON THE PLANET

Thales completed one of the largest and ambitious projects in Saudi Arabia, the North-South-Railway network: a vital infrastructure for the Saudi Arabian economy, providing freight and passenger traffic across the country. The railway line connects the rapidly growing cities in the north with the capital Riyadh, as well as the ore mines with the harbours of the Persian Gulf.

Thales and Saudi Bin Ladin Group were awarded the contract to construct European-style signalling, ticketing, communications and security systems. The Saudi Arabian railway has been equipped with the latest technologies for train signalling, ensuring safety and operational efficiency.

ETCS L2 allows the reduction of wayside signalling elements and optimizes the system lifecycle cost

The upgrade includes a train control system with ETCS L2 and route control with interlockings. To increase safety along the route, field elements were deployed including an operation control centre for traffic management with ARAMIS. For the entire project, 100 GSM-R masts, 3 Radio Block Centres and 1600 Eurobalises, along with 15 interlockings, 781 point machines and 476 detection points were installed.

The line starts at Al-Jalamid mine located in the Northern Territory, passing through Al-Jawf and Hail, arriving at the 'Alnaitrah Railway junction' in the Qasim region, and then toward the southeast to the Ras Al-Khair export facilities near Jubail.



4 million tons of commodities and 2 million passengers will be transported via the rail line every year. The goal is to make Saudi Arabia the second largest exporter of minerals in the world.

Construction started in 2005 on the longest ETCS Level 2 Project worldwide, which has now been in operation since 2012. More than 2500km of railway line runs through sand and stone deserts, with temperatures ranging from a scorching 55°C during the day down to freezing -5° C at night.

Sand and wind combined create constant abrasive stress for all field elements. This harsh climate might be one of the most challenging environments for railway applications to be found on earth.

Harsh climatic conditions presented significant and unique challenges during installation. On-site work had to be carried out mostly at night and early morning due to extreme heat. During the summer, on-site work had to be stopped between 12 - 3pm. The sandy terrain presented logistical challenges: tracks were often covered in sand which required cleaning/clearing. On occasion, balise harvest machines had to be utilised. Sandstorms and large dunes were also risk factors.

IP 67 to withstand the toughest climate conditions

All of Thales field elements have IP 67 rating. This guarantees that neither sandstorms nor flash floods nor any other extreme climatic conditions will hinder safe reliable operation.

