

Nationwide DVB-T network for Norway

After initial testing conducted during 1999 and a subsequent call for tenders, by 2006 Rohde & Schwarz was the only company to have won the contract to set up a nationwide DVB-T network for Norway.

Enormous task – experienced company

Setting up a transmitter network for an entire country is an enormous task, but one that could almost be called routine for Rohde & Schwarz. After all, Rohde & Schwarz has already equipped a number of countries with complete digital TV networks, including Great Britain, Germany, Spain, and Taiwan.

The contract with the Norwegian operating company Norkring AS includes all types of transmitters, transposers, gap fillers, and retransmitters with power levels between 10 W and 5 kW, as well as monitoring systems for RF/ASI interfaces and single-frequency networks (SFN). The network is made up of approximately 40 main and more than 400 low-power transmitter stations, as well as numerous satellite shadow transmitter stations.

The low-power transmitters were housed in compact shelters. To minimize the space requirements for the transmitters, Rohde & Schwarz developed a special prewired cabinet, making it possible to install up to four transmitters in a single 19" rack in the shelters.

At present, three multiplexes are monitored. This task is handled by one R&S®DVM100 and one R&S®DVM120 MPEG-2 monitoring system each. An ASI analyzer with optional demodulator monitors the RF interfaces, while R&S®ETX-T DTV monitoring receivers located in the five primary transmitter stations monitor the single-frequency network. The system also includes R&S®EFA TV test receivers, R&S®ETL TV analyzers, and a large number of R&S®NRP-Z51 thermal power sensors.

From spring to fall 2006, the specialists at the Rohde & Schwarz Teisnach plant trained the customer's installation personnel. Commissioning of the network started in November of the same year, and was in full swing by January 2007. The first official broadcast took place on September 1, 2007, in Stavanger, known as Norway's oil capital. The country's capital, Oslo, followed a few days later, and by mid-November 2007, most of Southern Norway had access to digital television, which is received in approximately 70 % of all households. The rollout continues, with 95 % of all Norwegian households now capable of receiving digital television. When the analog network is decommissioned in 2009, sufficient bandwidth will be available for two additional multiplexes.

A logistical challenge

- 1000 m² storage area for network components
- 2000 km to the individual radio stations in Northern Norway
- Innumerable trucks to transport all of the equipment and systems
- One transmitter put into operation every day throughout the entire rollout time

In a subsequent agreement, Rohde & Schwarz was contracted to supply half of the transmitters that will allow reception of digital audio broadcasting (DAB) programs throughout the country. This is being put into place in parallel to the rollout of the DVB-T network. Enough transmitters have already been delivered to supply 80 % of the population with digital audio programs.

Tor Andresen

Innumerable trips were needed to get all of the equipment and system components to their destinations.



Photo: author