

## Handheld Spectrum Analyzer R&amp;S®FSH3

# Hard at work in the Andes regions of Peru

In the remote Andes regions of Peru, a radio is often the only means of contact with the outside world. Many villages are a day's hike from the nearest highway and are not served by electrical power lines. The villagers use small, battery-operated radios to listen to radio programs and obtain important information. For this reason, improving radio reception is of fundamental importance to the development of these regions.

The Peruvian development aid organization CEPESMA has tasked electronics engineer Eduardo Zevallos with finding better reception solutions as part of a development project. One of the villages included in his work is Viraco, located 3500 m above sea level in the Andes. The local population derives its livelihood primarily from agricultural terraces which rely on a complex, shared irrigation system. An irrigation commission decides which day and hour a specific piece of land can be irrigated. To obtain this information, farmers residing outside the transmitter range must travel for hours by foot or donkey to Viraco each Sunday. A wider transmitter range can spare them this arduous journey. To make this possible, Zevallos replaced the simply designed 50 W transmitter with a new 250 W unit. He used the Handheld Spectrum Analyzer R&S®FSH3 to locate and eliminate interference factors of the local radio transmitter. Now, a significantly greater number of remote settlements in the mountains around Viraco can receive signals from the local radio transmitter.

**High-tech meets low-tech: Transmitters in this region are often simple in design. The primary reasons are low costs for purchase, repair and maintenance.**

Zevallos also tackled problems in the village of Calca, which can receive signals from not only the local transmitter but also regional radio and TV transmitters in the nearby city of Cuzco. Various types of radio interference were occurring. For example, one radio transmitter impaired the frequency of a TV transmitter. By performing calibrations using the R&S®FSH3, Zevallos eliminated overmodulations in various transmitters and installed the appropriate filters. The primary beneficiaries are the remote Indian communities around Calca, because they now have better reception of the local transmitter signal. This transmitter provides the local mountainous areas with entertainment programs and important information. For example, men in outlying regions are notified when temporary jobs are available in Calca, an important source of additional income for the often very poor families.

Zevallos was highly pleased with the Handheld Spectrum Analyzer R&S®FSH3. He particularly liked the instrument's light weight and its sturdy housing. In addition, it is easy to operate and has a long battery operating time. The instrument's wide scope of functions also impressed him – truly exceptional for a portable unit.

Dr Maren Mohr de Collado, ethnologist

**Eduardo Zevallos with the two guards of the antenna station in Calca. They are wearing the traditional handwoven caps and ponchos for which this region is known throughout Peru.**

