Air traffic control (ATC) system for Kabul airport

R&S Systems GmbH, a wholly-owned subsidiary of Rohde & Schwarz, supplied an air traffic control system for Afghanistan’s Kabul International Airport on behalf of the NATO Consultation, Command and Control Agency NC3A in Brussels. Despite the extremely short implementation schedule, the project was completed on time.

In mid-April 2004, the NATO procurement department NC3A commissioned the Rohde & Schwarz subsidiary R&S Systems GmbH to equip the international airport in Kabul (FIG 1) with an air traffic control system. The schedule was tight: The air traffic control system needed to be ready for use by June 1, 2004. Based on the findings collected during a site survey and the experience gathered in previous ATC projects, R&S Systems GmbH worked out a basic concept. The resulting proposal for a flexible and easy-to-operate ATC system providing for various expansion options met with NATO approval.

In compliance with NATO requirements, eight VHF and four UHF transceivers of the R&S®Series 200 as well as the R&S®HK012 and R&S®HK014 antenna systems were installed within a period of two months (FIGs 2 and 3). The delivery also included a digital voice recording and replay system, operator consoles, an uninterruptible power supply as well as an aeronautical fixed telecommunication network (AFTN) terminal and a signal light gun. The system was handed over to ISAF and NATO on schedule in May 2004.
In a second phase, NATO placed an order in August 2005 for a modern VHF / UHF ATC Direction Finder R&S®PA120 featuring ground radio suppression, a second (redundant) voice recording system, a digital time clock system and robust and portable R&S®M3TR radio systems for the VHF and UHF bands.

As another requirement, NATO stipulated that essential ATC functionality would have to be maintained even in the event the tower had to be evacuated. The robust R&S®M3TR radio systems provide the operator with the required VHF and UHF frequencies and thus ensure that radio contact with aircraft will be maintained – under any conditions that may prevail within the mission environment and independent of external power supplies for several days at a time.

R&S Systems GmbH also provided support beyond the actual scope of the project during this phase, assisting NATO / ISAF in planning and implementing the infrastructure at Kabul International Airport. Compliance with NATO security requirements both with respect to civil and military aspects was an issue of priority.

In phase III, which followed in early 2006, automatic filters for main/standby operation as well as an airport terminal information service (ATIS) system were added to the radio system. Expansion of the system posed no problems due to the modular system concept. With phase III completed, the ATC system meets all current requirements and ensures that air traffic control at Kabul airport is performed in accordance with International Civil Aviation Organization (ICAO) rules using state-of-the-art equipment. Later expansion of the airport for civil use will also be possible without any problem.

R&S Systems GmbH successfully met the customer requirements specific to this project due to its many years of experience in the field of ATC and its very flexible handling of the project. NATO gave the project high marks for being dealt with in an extremely positive manner. A further order will involve the creation of operating instructions tailored to the requirements of frequently changing crews at the site of operation and thus ensuring smooth handover of the ATC system to the next crew.

Arnd Gresch