

## Public Safety Radio Communication Network: TETRA

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**Austria deploys a nationwide public safety radio communication network. This system is based on the Terrestrial Trunked Radio (TETRA) 25 standard specified by the “European Telecommunications Standards Institute” and focuses on support for emergency services. The Conrad Observatory was equipped with a TETRA repeater system, allowing communication even in the tunnels during emergency operations.**

The lead for the nationwide public safety radio communication network is with the Austrian Ministry of Interior. The federal provinces are responsible for the contribution of the necessary sites and radio towers. This responsibility split is because Fire brigades, Red Cross and other public safety agencies operate on the responsibility of the 9 federal states (provinces), in difference to the Police forces which operate under the nationwide responsibility of the Austrian Federal Ministry of Interior. The nationwide Public Safety Radio Communication network is based on the TETRA 25 standard specified by the “European Telecommunications Standards Institute” (ETSI). TETRA stands for “Terrestrial Trunked Radio” which describes a terrestrial cellular radio network.

The TETRA standard supports the need of emergency services especially in point to multipoint voice communication - so called “Group Call”. The core network equipment of a TETRA radio network supports the requirement to setup a nationwide group call in very short time. Because of security reasons the TETRA standard supports encryption and authentication over the air interface.

In daily operations each user organisation of that nationwide public safety network (“TETRA-network”) has its dedicated and exclusive communication channel. Because of the benefit to use one unique network infrastructure in case of disasters and crisis a communication between agencies and organisations can be established. Likewise communication from the national or state command centers to all emergency services or special agencies can be established. Therefore the new nationwide Public Safety radio communication network is a key infrastructure for the National Crisis and Disaster Protection Management (SKKM).

2013 the Austrian Federal Ministry of Science, Research and Economy signed an agreement with the Austrian Ministry of Interior for the participation of using the TETRA network as communication tool.

For this reason the Conrad Observatory was equipped with a tunnel and in-house repeater system which covers

the Observatory with the TETRA signal receives from TETRA radio base stations outside the Observatory. Therefore the emergency services can communicate also in the Tunnels during emergency operations. Likewise the staff of the observatory can sent emergency calls to the command centers of the fire brigade or rescue services and communicates with the emergency services via the TETRA network.



Figure 1: Fire brigade training at the Conrad Observatory supported by TETRA emergency services.

Based on the good relationship to the Austrian Ministry of Interior, who is the network operator, and the possibility of direct communicate with emergency services via TETRA, the Federal Ministry of Science, Research and Economy is looking for other fields of cooperation (e.g. weather forecasts) regarding that nationwide public safety radio communication network.

The partnership between the Federal Ministry of Science, Research and Economy and the Austrian Ministry of Interior follows the basic idea to establish a nationwide communication system to provide a secure and permanent available communication between all Austrian public institutions within the Framework of the National Crisis and Disaster Protection Management.

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