TOPR | Radiolinia UHF

TOPR [Tatrzanskie Ochotnicze Pogotowie Ratunkowe], founded in 1909, is a government funded organisation that provides **Mountain rescue services** in the **Polish Tatras** mountains and reports on weather and avalanche conditions.

A key part of the infrastructure that supports these services is a permanently manned rescue shelter high in the Tatras mountains. Having search and rescue personnel stationed at 1,700 meters, offers much faster access to large parts of the region in times of emergency.

The **isolated PMR base station** on the tower close to the rescue shelter covered local communication needs, but it was not interconnected with the other base stations in the network. Because of this, rescuers **didn't have connection** with the **rest of their team** in the valley, nor with **helicopters scrambled** to support search and rescue missions. Staff at the rescue shelter were forced to use **GSM services** for communication with colleagues, but with **very limited success**. Being a mountainous region there were many coverage **blind spots** and the GSM channel was showing **capacity limitations** due to increased usage by tourists.

A decision was taken within TOPR **to source and commission a reliable link between** the **Base stations** at the rescue shelter and below in the valley, providing secure communications within TOPR using a private PMR licensed radio with Kairos trunk connection. Initial hopes of using a **5GHz** microwave link were **dropped** when link analysis showed this was not possible due to the **distance** and **NLOS** environment.

RACOM's **RipEX** radio was then identified as being the **optimal solution**. Despite the **NLOS** environment and **15 km** link distance, **network throughput** using RipEX is **enough** for effective PMR base station communications. Indeed, this radio modem provides **sufficient coverage and speed**, with a **50 kHz** channel to easily **meet all end user need**. Operating at **450 MHz** on the UHF band using **16DEQAM** modulation, **140 kbps** and powered at **2W**, **RipEX passed every test with flying colours**.

With high **resistance to multipath propagation and interference**, an **industrial hardened design** and the ability to work seamlessly in **extreme conditions**, **RipEX** is sure to be **helping** TOPR **save lives** in the Tatras Mountains for many years to come.

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