

MULTIPLE LINK REPEATER

APPLICATION

To provide radio coverage over a large area, a series of repeater sites can be linked together, establishing a network. Codan repeaters may be linked through a maximum of seven sites. At each site, multiple radios may be used to provide local coverage as well as continue the link to the next site. The local radios or the link radios are often accessed by tones.

A multiple linked repeater system can provide radio coverage over long distances and large areas. In applications where the distance has become too long or the coverage provided is too restricted for a single repeater, more repeaters are used to enable radio users to communicate over a greater distance.

THE PROBLEM

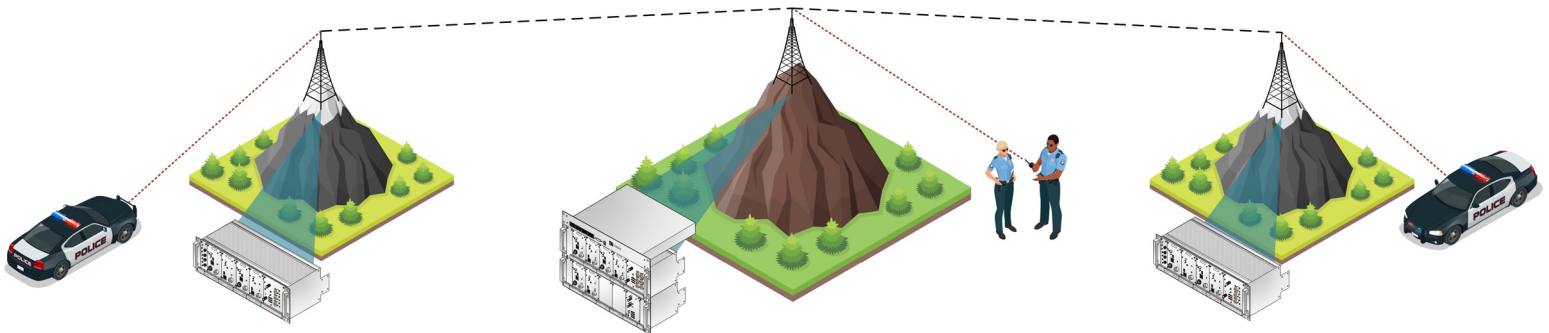
For applications where a single repeater cannot provide the coverage or the distance has become too long, multiple repeaters can be used to enable radio users to communicate over the greater distances.

THE SOLUTION

A repeater extends coverage beyond the range of a single radio. For applications where the mobile radio is beyond the range of the office or another mobile, a repeater system enables them to communicate. Repeaters can be used to overcome geographic features that obstruct radio communications or to communicate over greater distances. As shown in the diagram above Codan radios can be configured for a wide variety of repeater configurations and applications.

KEY FEATURES OF THE SOLUTION

- Analog, P25 digital or mixed mode configurations
- UHF and VHF capability
- Low current consumption
- Extreme temperature tolerance(-30°C to +60°C)
- Redundancy switching available



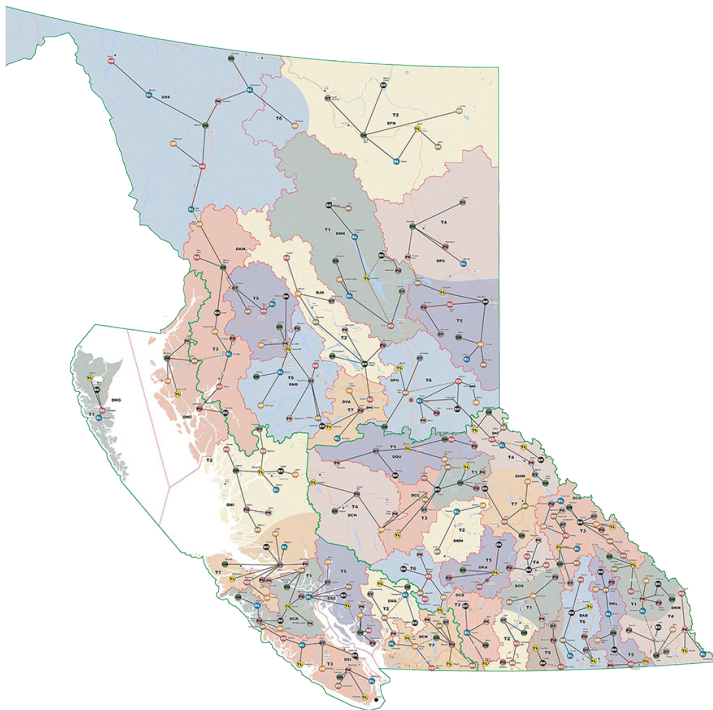
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MULTIPLE LINK REPEATER

THE BENEFITS

A typical Multiple Linked repeater (such as the ones manufactured by Codan) is shown below. The repeaters and links are capable of operating in analog, P25 digital or mixed mode configurations. On the left side of the system shown below are VHF modules that can be used to provide the local coverage from that repeater site (called a Drop). On the right side UHF modules can be used to provide the Linked connection from one repeater to the next. The system pictured is referred to as a Drop-Link repeater system, where the Drop is the local repeat function and the Link is the link to another repeater site.

The radios are modular and can be configured into a variety of different systems in a standard 19" subrack. Such systems offer robust construction, low current consumption and extreme temperature tolerance (-30°C to +60°C) enabling them to be deployed in some of the harshest environments such as Alaska and Siberia. Redundancy switching is available as an option.



Map of radio network established by Ministry of British Columbia based on Codan Repeaters.

THE CUSTOMER

Examples of customer applications for Multiple Link Repeater systems include the following:

- **Forestry Agencies** – To ensure communications over the large areas managed by a forestry agency, a network of multiple linked repeaters is an effective system to provide regular communications. The Ministry of Forestry in British Columbia, Canada have established a 1,000 radio network based on Codan repeaters in over 350 sites across the province as shown in the map below. This network of radios enables communications back to centralized dispatch centers and is used for forestry management as well as forest fire fighting communications. Many of these sites are remote solar powered locations.
- **Utilities** – Similarly utilities may have a multiple link repeater system to ensure continuous communications along an electric transmission line or a pipeline.
- **Police** – Lastly, police agencies may also require a network of multiple linked repeaters to ensure communications in rural areas that may be some distance from the urban dispatch center.

Values noted are typical. Equipment descriptions and specifications subject to change without notice or obligation.