

RADIO SIGNAL COVERAGE— FILLING IN THE GAP

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Based upon an initial review of the NSP Telecom Surveys submitted to date, signal coverage problems appear to be one of the top concerns of patrols. Signal coverage issues can have a major impact on prompt delivery of

assistance, such as additional personnel and/or equipment at the accident scene, or coordinating the transport of the patient for further care.

Signal coverage issues can have many causes and possible solutions. Check the condition of your portable radios. Are the antennas in good shape? Flexible antennas can break internally, yet still look intact. You can't splint a severely-angulated antenna and expect it to heal itself! Replace suspect antennas.

Also, check the radio battery packs; if your battery is weak, your radio may not work when the temperature drops to -20 F. Low radio bat-

ttery voltage will affect the radio transmitter output power when battery draw is the greatest. If you've gotten four years of service out of your radio battery, think seriously about replacing it.

For radio usage suggestions, review the document "Timely Tips About Radios," available on the NSP website under the Telecommunications Program page. Simply following some of the suggestions in the document may improve your radios' performance and clear up some problems.

If you have a patrol dispatcher and you're using a portable radio as your "base," consider upgrading to a mobile (vehicle) radio as a base station. These operate on 12 volts (car battery or solar), or, with a power supply, on 110 volts.

A base station will permit you to use an outside antenna, which will definitely improve coverage compared to a portable radio sitting on a desk.

Base station antennas come in many different varieties, and each has a specific radiation pattern. Some are omnidirectional, and transmit and receive signals in a 360 degree pattern, while others are very directional. Choosing the proper antenna can have a great impact on signal coverage. A more expensive, or "high gain," antenna may not necessarily be what you need. In fact, some antennas waste signal at the horizon while neglecting closer-in terrain where you really need the coverage. The type of antenna you choose should be dictated not only by the terrain, but also by where the patrol base station is located relative to the rest of the ski area.

Locating the base station antenna at a high point, overlooking the entire area, may appear to be a simple method of achieving better coverage. However, as you increase the elevation of the antenna relative to the surrounding terrain, you also increase the amount of potential interference you're subject to, since radio channels are shared by multiple users. An alternative solution might be to locate the antenna at the base of the area, with a directional antenna facing the mountain, or at a mid-mountain location.

If you want to locate a base station at an unstaffed location, radio remote controls can operate the base station over a pair of wires (such as an unused lift comm line circuit). You then have the benefit of having the base station and its associated antenna at an optimal location while continuing to operate the radio from your existing dispatch site.

A radio repeater provides multiple benefits. It can be located at an unstaffed location for optimal signal coverage, and it automatically and simultaneously rebroadcasts signals between portable radios. Repeaters are somewhat expensive compared with base stations, and FCC licensing can be difficult, depending on the geographic location. A repeater is unnecessary if portable-to-portable communications are satisfactory at your area.

If you require assistance to resolve signal coverage problems at your area, contact me at rwoolf@xtechsystems.com. I'll put you in contact with telecom-knowledgeable patrollers in your division. +

