

When disasters strike, vital communications between first responders, law enforcement, search and rescue, and medical personnel are usually hindered or lost. How can emergency personnel carry out their critical missions under those circumstances?

Transportable repeater systems are the answer. These systems can be quickly deployed with minimal complexity and are capable of interfacing to first responders' handsets and mobile radios, creating a communications relay between emergency personnel and linking back to any existing infrastructure that survived the disaster. Transportable repeaters are available for VHF, UHF, and 700/800/900 MHz operation in either analog or digital P25 modes and can support cross banding between frequency bands to enable different agencies to communicate together.

Transportable repeaters provide instant communications anywhere, anytime. Able to be set up in a matter of minutes, they provide first responder agencies with an instant solution to communications challenges. Key benefits include:

- Consumes minimal power allowing operation from external solar panels or batteries
- Intended for all weather and operational conditions (including high altitudes)
- Capable of operation in any frequency bands
- Supports cross banding between linked frequencies
- Compact and easy to deploy by a single person
- Analog or Digital P25 (Clear or Secure)
- Waterproof, shockproof, vibration-proof
- Rapidly deployable
- Reliable

The PT-4 Transportable Briefcase Repeater System



- 30W of duplex output power with a tuned front end for improved operation in areas with dense radio signals
- 8W simplex RF link for expanded coverage using other PT-4 repeaters
- Watertight
- 9 RU width that accommodates:
 - ✓ Standard Procom subrack
 - ✓ Duplexer
 - ✓ Power supply, speaker, and battery backup
 - ✓ Optional metal storage container
- Rugged, lightweight case offers impact resistance
- Latches are padlock-able
- Soft grip handles, telescoping handle, and in line wheels facilitate single person transportation
- Compact Package: 11.75" high, 25" wide, 20" deep, and weighs approximately 49 lbs. with typical repeater package installed.

PT-4 Briefcase Repeater



Illustrative Application Note

PT-4 Specifications	Benefits
Frequency Bands Supported	VHF, UHF, 700/ 800/ 900 MHz
Encryption Passed/Decode-Encode	All P25 types (e.g. AES or DES-OFB)
Size	11.75" H x 25" W x 20" D
Weight (fully equipped with batteries)	49 lbs.
Operating Temperature	-30°C to +60°C
Duplexer Separation	4.5 MHz, 2 MHz - VHF 5 MHz - UHF 30 MHz - 700 MHz 45 MHz - 800 MHz 24, 39 MHz - 900 MHz
RF Output Power	0.5-8 or 20-30 Watts (VHF, UHF) 0.5-3 Watts (700/800/900 MHz)
Battery Life (20% duty cycle, 30W output)	12 Hours
Types of Batteries supported	Sealed Lead-Acid Rechargeable

An 8W simplex RF link can typically cover several miles, depending on terrain, antenna height, and type of antenna deployed. As in all antenna applications, height is key! To illustrate, a law-enforcement agency in Canada is using 2W UHF links with Yagi antennas – they cover 50 miles! But those units are on fixed mountaintop sites with line of site antennas.

In the case of a team of foot operatives deploying two PT-4's, ideally the antenna of choice for the link will be two Yagi's pointed in the correct direction. That will make a tremendous difference in link coverage. However, if more than two PT-4's are deployed using a "common" RF link, Omni-Directional antennas are the better choice – but Omni's will reduce link range.

Ideally, each linked PT-4 will make use of a different pair of duplex VHF frequencies but always use the same simplex UHF frequency for the link. This will prevent the VHF repeaters from interfering with each other.

RF links are NOT repeating. So if you deploy repeaters lined up in a straight line, and the unit on one far end keys up the link, the only repeaters that will "hear" it are the ones within the initial repeater's coverage area. A user could easily deploy four or five PT-4's as long as they are arranged in an acceptable pattern where ALL repeaters are within range of each other.