



Options for Public Safety:

P25 Backhaul Using the 4.9 GHz Band

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The Problem

Public Safety agencies are migrating from analog two-way radios to P25 systems, with the goal of providing both increased reliability and increased interoperability. As P25 systems proliferate, agencies must consider which microwave backhaul alternatives to use in their networks, a consideration made especially challenging in the case of temporary networks.

Many agencies are hesitant to use the license-exempt bands, mainly because of the threat of interference or because of the lack of suitable alternatives for mission-critical TDM traffic. And while licensed FCC Part 101 bands generally offer a haven from interference and are designed to carry TDM traffic, they also carry significant license fees and are unsuitable for temporary scenarios.

Public Safety agencies need an alternative, complementary approach that minimizes interference concerns, meets TDM latency requirements and can readily support temporary networks.

The Solution

Fortunately, the FCC has made a solution possible by granting primary status to fixed 4.9 GHz links. Now, any potential interference issues that might arise between fixed links and mobile applications can be decided based on which application is considered more mission critical. The bottom line: 4.9 GHz is now safe for P25 backhaul.

Exalt offers Public Safety agencies unique 4.9 GHz microwave radio systems which provide a high degree of security against potential interference, can be licensed in a matter of hours, can be deployed rapidly and easily at any site, and provide native TDM and native Ethernet support for up to 4xT1 and 55 Mbps of aggregate Ethernet capacity. Exalt 4.9 GHz radio systems also feature CarrierTDD™ technology, enabling these (and all Exalt) radios to deliver 99.999% guaranteed throughput availability and the lowest latency available.



4.9 GHz Backhaul Choices

A 4.9 GHz backhaul deployment starts with an assessment of the site itself. In the common case of temporary networks, the site is likely to be on a portable mast. In this case, the all-outdoor EX-4.9r (integrated antenna version) or EX-4.9r-c (external antenna version) can be mounted directly to the mast with one Cat5 cable providing Ethernet connectivity and one or two Cat5 cables providing TDM connectivity.

For fixed or temporary sites at which indoor facilities are available, network planners can choose either the all-outdoor Exalt EX-4.9r/EX-4.9r-c or the all-indoor EX-4.9i radio system. All provide the same Ethernet and TDM capacity, with the all-indoor unit providing the easier port access and the all-outdoor units providing lower cable loss along with all-weather capability.



Fig. 1 – Outdoor-mounted Exalt 4.9 GHz radio (EX-4.9r shown)

Once the radio equipment is installed, Exalt provides the tools to find and tune to the best available channel. Network operators can configure channel bandwidth for 10 or 20 MHz and can tune the center frequency in 5 MHz increments across the entire 50 MHz channel. A built-in spectrum analyzer provides a rapid and convenient means of identifying the best center frequency.

An entire all-indoor or all-outdoor 4.9 GHz Exalt radio installation and turn-up typically can be completed in less than one hour per end.

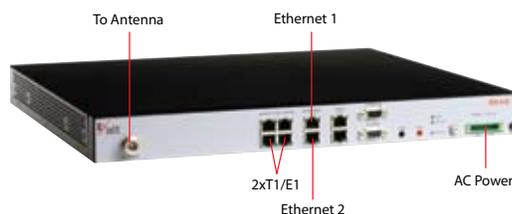


Fig. 2 – Indoor-mounted Exalt 4.9 GHz radio (EX-4.9i shown)

More Choices.

In cases where use of the 4.9 GHz band is not the preferred choice, Exalt offers a complete line of license-exempt 2.4 GHz and 5 GHz microwave systems, and licensed 6 GHz and higher.

For a complete examination of all Exalt microwave systems alternatives for P25 backhaul, request your copy of the Exalt white paper, *Choosing the Right Microwave Radio for P25 Backhaul*.

All Exalt point-to-point microwave radio systems – licensed and license-exempt – are carrier-class systems offering guaranteed link availability, guaranteed throughput and low, constant latency. Systems are available in frequencies from 2 to 40 GHz and in capacities up to 700 Mbps per channel, providing a range of options to fit countless network applications.

Designed to enable a smooth transition to IP, Exalt systems offer native support for both TDM and Ethernet, and are fully software configurable and upgradeable. For easy and secure management, Exalt systems support SNMP v1, v2c and v3. Data security is provided by available FIPS-197 compliant AES 128-bit and 256-bit encryption that adds zero latency to the transmission. To simplify installation and maintenance, all Exalt systems feature an embedded manual and most include a built-in spectrum analyzer.



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