RAJANT

The Network Powering **Reliable, Resilient, Extended-Range Tunnel Communications**

Rajant's Kinetic Mesh® wireless network enables fully mobile, mission-critical communications for platform-to-platform, train-to-platform, and train-to-train communication, enabling the addition of and access to on-board CCTV to improve safety and increase ridership. **No active components are required in the tunnels.**

If It's Moving, It's Rajant:
The Network Extending Connectivity & Reliable Communications in Underground Tunneling

Rajant Kinetic Mesh BreadCrumb® nodes can be deployed on the platform and in the train to enable mission-critical coverage for voice, video, and data communications. This makes the network fully mobile and can mitigate interference and congestion to ensure there are never drops in connectivity and that network range can be extended deep inside the tunnel. **Here's how.**

Multi-radio, multi-frequency redundancy to ensure mission-critical reliability.

Rajant's compact BreadCrumb nodes can hold multiple connections over multiple frequencies simultaneously, creating the Kinetic Mesh network that enables high throughput communications throughout tunnels. These nodes can be deployed on both fixed infrastructure and moving equipment.

BreadCrumbs use Rajant's InstaMesh® networking software to direct traffic over the fastest path(s) among the meshed connections they hold—dynamically working around issues caused by interference, congestion, or outages. If a path becomes unavailable, InstaMesh will dynamically route communications via the next-best available link(s), upholding mission-critical performance.

Extended range without line-of-sight using Rajant RCP-2450 antennas.

By combining the strengths of Kinetic Mesh with a purpose-built underground antenna array, Rajant can extend mission-critical connectivity up to one kilometer underground per BreadCrumb node making the Peregrine/RCP-2450 combination easily scalable to vast deployments.

The built-in redundancy of the BreadCrumb also increases transceiver capacity to ensure low latency. It enables BreadCrumbs to be cascaded together by as many as 10 hops or more without throughput degradation. By placing BreadCrumb/RCP-2450 systems at interval locations throughout tunnel construction sites, you gain additional redundancy to guarantee application performance in even the hardest-to-network tunnel areas.

Machine-to-machine (M2M) communications to enable autonomy.

Rajant's network is the only wireless solution that enables true machine-to-machine (M2M) communications, which delivers the highest reliability and best performance for autonomous solutions. With nodes deployed directly on trains and platforms. Rajant's BreadCrumbs can connect directly with one another and orchestrate actions. The network's fault-tolerant nature ensures that even autonomous machines run without fail, even as they move into high-risk areas of the tunnel.

IDEAL TECHNOLOGY FOR TUNNEL NETWORKS

The Peregrine is a quad transceiver BreadCrumb platform that supports a maximum combined data rate of 2.3 Gbps. It offers multiple MIMO radio interfaces, high throughput, and enhanced security performance with up to 256-QAM and 80 MHz channels.
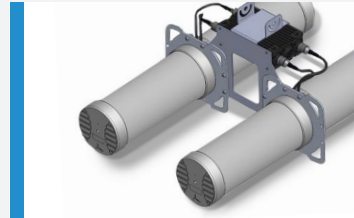
*Rajant's RCP-2450 wide-band, circular polarized antenna system pairs with the Peregrine BreadCrumb to provide bi-directional coverage with dual frequency **2.4 and 4.9-5.85 GHz** connections to assist in propagating signals around tunnel bends and to and from moving machinery.*

As a combined solution, the Rajant solution increases transceiver capacity to ensure low latency and **enables BreadCrumbs to be cascaded together by as many as 10 hops or more without throughput degradation.**

To learn more, **visit rajant.com/tunnel-communications** today.

Made in USA

20+ YEARS OF GAME-CHANGING WIRELESS

RAJANT
*If it's **moving**, it's Rajant.*
*Industrial Wireless Networks **Unleashed.***