Intelligent Repeater System
Zone-based Indoor Location with GPS Simulators

Challenge
Real-time GPS location of people or assets in indoor/underground environments

Solution
Orolia’s intelligent repeater system for zone-based GPS location via simulation

Results
Improved safety-of-life and high value asset tracking with standard GPS equipped devices in remote locations

Indoor positioning with standard GPS-based devices is highly desirable to seamlessly track people and assets from areas with clear-view of the sky into GPS-denied environments. Whereas GPS repeaters have significant drawbacks for positioning in indoor or underground locations, Orolia’s intelligent GPS repeater system offers a cost-effective, zone-based indoor location solution.

Similar to a GPS repeater, this system uses an outdoor GPS antenna. However, the intelligent repeater system uses a GPS synchronization unit to collect the live GPS data and distribute it via a network, with precise timing signals, to GPS simulators located in different zones in the coverage area. The simulators are configured to broadcast signals that standard GPS receivers calculate as a fixed location within the zone. The position resolution is determined only by the number of simulators deployed.

For more information about Orolia’s intelligent GPS repeater system, see our technical paper, Zone-based Indoor Location using GNSS Simulators.