

Santiago de Chile Metro

COVERAGE SYSTEMS



Powerwave Installs PCS/GSM 1900 System in Santiago Metro System

Reduce Initial Investment & Lifetime Costs

Complex Environments

Speedy Implementation

Challenge

Provide seamless, wireless coverage for commuting passengers in a complex, subway system environment, minimizing costs and creating profit opportunities for network operators.

Solution

A cost efficient, future ready fiber optic distribution system with complete installation, commissioning, maintaining and monitoring.

Result

A turnkey PCS/GSM 1900 system that increases total capacity, meets peak demands and provides wireless coverage for millions of passengers per day.

In close cooperation with the Chilean network operator Entel PCS, Powerwave successfully completed installation of a full turnkey PCS/GSM 1900 system in the Santiago Metro system. The Powerwave system provides seamless cellular coverage at stations and throughout the total length of tunnel track along the subway's backbone. Santiago Metro serves more than half a million passengers per day – some 200 million people a year.

Profit Opportunities Seamless cellular coverage in a subway system serving 200 million passengers a year creates substantial profit opportunities and quick returns on investment with Powerwave's expertise and know-how in providing flexible cellular solutions in difficult obstructive environments (as in Santiago and many other locations worldwide).

Fiber-Optic Distribution Powerwave's fiber-optic distribution system efficiently meets the specific demands and conditions of Santiago Metro. Along with providing maximum adaptability for expansion, it ensures optimal capacity distribution. Entel opted for an antenna solution over radiating cables for a variety of reasons, including a staggering difference in cost, with no appreciable difference in performance.

Trunking Efficiency Cellular communications within the subway system required solutions that efficiently handled dynamic, swiftly fluctuating capacity demands. Major advantages of Powerwave's fiber optic repeater system include:

- Trunking (increases total capacity)
- Substantially smaller system infrastructure required
- Swift, easy capacity reallocation to meet peak demands at any time, any location
- Centralized BTS equipment facilitates efficient operation and convenient maintenance
- Peak load flexibility. Using large cells with several carriers allows planning of average capacity while still handling temporary peaks

Turnkey System Powerwave's complete turnkey package for Santiago includes installing, commissioning, maintaining, monitoring and managing the installation of the system. Turnkey delivery ensures optimum use of Powerwave's competence and experience, for continuous, smooth, trouble-free operation under a performance guarantee.

Subway



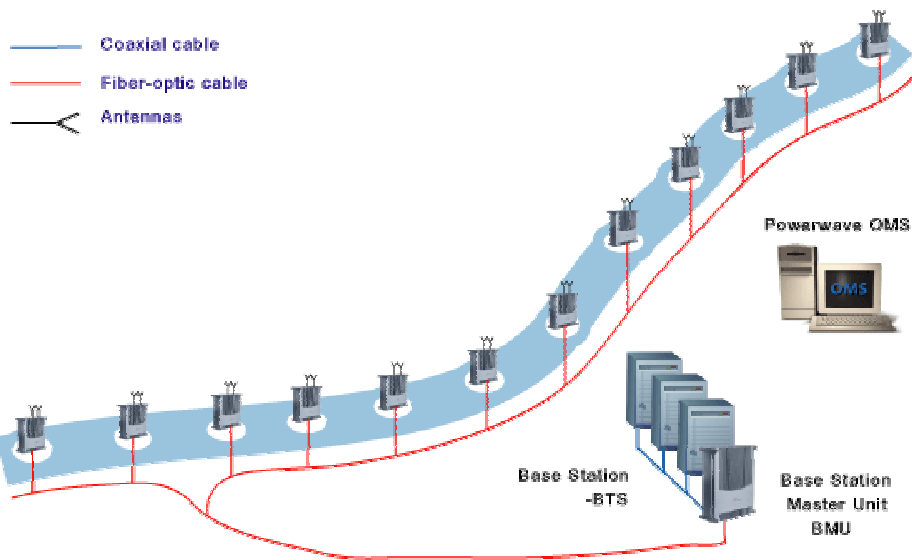
Powerwave's Coverage System Innovations Team are a team of RF- and system engineers within Powerwave who manage, or assist you in, your projects for cellular coverage worldwide.

Increasing complexity of wireless systems today combines with regulatory restrictions and a variety of practical considerations to demand comprehensive experience and know-how for cost-efficient cellular coverage solutions. Based on Powerwave's outstanding track record of customer projects completed, and on our extensive experience and know-how in quality wireless communications, Powerwave offers novel solutions that are carefully tailored to your specific needs.

Powerwave's system for line 1 was in operation within two months after finalizing the agreement. Actual installation was accomplished during an 11pm-to-5am nighttime window, while Santiago Metro lay dormant. After the immediate success of coverage for line 1, Powerwave was awarded a contract and implemented another system for line 2 and 5.

Operation and Maintenance System (OMS) To ensure efficient monitoring and managing of fiber optic distribution, and of the entire repeater network, Powerwave's highly sophisticated repeater OMS was used at the Entel PCS Switch Center.

OMS is a multi-user software capable of efficiently handling a virtually unlimited number of repeater operations. All repeaters in the system were integrated into Entel's OMS database, so that complete monitoring and traffic statistics were available from day one of operations. Commissioning activities were combined with a course on fiber optic repeaters and with practical on-site training for installation and service personnel.



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