



## Powerwave Coverage Solutions

# Santiago de Chile Metro

### Powerwave Installs PCS/GSM 1990 System in Santiago Metro System

In close cooperation with the Chilean network operator Entel PCS, Powerwave successfully completed installation of a full turnkey PCS/GSM 1990 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.

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.

## About Powerwave Technologies

A global leader in end-to-end wireless coverage and capacity solutions, Powerwave Technologies, Inc. offers cutting edge wireless infrastructure to address the demands of enterprise and commercial customers. Powerwave offers a comprehensive suite of solutions, including Antennas, Base Station Solutions and Coverage Solutions. Powerwave's product line supports all wireless network protocols and frequencies including Next Generation Networks in 4G technology such as WiMAX™ and LTE®. Powerwave solutions, products and services also help wireless operators and OEMs reduce capital and operating expenses, speed rollout of services, improve coverage and capacity, and reduce environmental impact. For more information, visit us at [www.powerwave.com](http://www.powerwave.com).



[www.powerwave.com](http://www.powerwave.com)

### Worldwide Corporate Headquarters

1801 East St. Andrew Place  
Santa Ana, CA 92705 USA  
+1 714 466 1000  
+1 714 466 5800 FAX

### Main European Office

Knarrarnasgatan 7 8tr.  
164 40 Kista, Sweden  
+46 8 540 822 00  
+46 8 540 824 91 FAX

### Main Asia-Pacific Office

2018-2019 Chevalier Commercial Building  
8 Wang Hoi Road, Kowloon Bay,  
Kowloon, Hong Kong  
+852 2512 6123  
+852 2575 4860 FAX