

Delivering Cellular Connectivity to EV Charging Station with CEL-FI GO



Case Study courtesy of
Waveform
Irvine, CA

Challenge

A distributor faced growing demand for a flexible, easy-to-install solution to provide cellular connectivity for EV charging stations.

Solution

CEL-FI® GO

Installation

Quick, flexible deployment of CEL-FI GO product to enable reliable EV charging connectivity in indoor and outdoor environments.

Results

Versatility for both indoor and outdoor applications, quick and easy installation, and a future-proof solution.

Challenge

EV charging stations depend on reliable cellular connectivity to support essential functions such as user authentication, payment processing, session management, and remote monitoring. Without a stable connection, these systems can experience interruptions that impact both the user experience and the ability for operators to track usage and performance.

Many charging stations are installed in environments where cellular signal is inherently weak or obstructed, including outdoor parking lots, multi-level garages, and underground structures. Building materials like concrete and steel, along with surrounding infrastructure, can significantly reduce signal strength and create inconsistent coverage across the site.

As EV adoption continues to grow, these connectivity challenges become more critical. Unreliable signal can lead to failed transactions, limited system visibility, and reduced confidence in charging availability, making dependable connectivity a key requirement for both users and operators.



Solution

To resolve unreliable cellular connectivity at EV charging stations—where weak signal was preventing consistent payment processing, session initiation, and remote monitoring—a carrier-grade cellular signal booster system was deployed. The solution captures available outdoor signal, amplifies it, and redistributes it precisely where it's needed to ensure dependable coverage at the point of use.

Designed to support modern networks, the system delivers high signal gain to overcome poor coverage conditions while remaining safe for carrier networks. Its rugged, weather-resistant design allows it to perform reliably in both indoor and outdoor environments, including exposure to dust, moisture, and temperature fluctuations.

The system is highly adaptable to different installation scenarios. In indoor or underground parking structures, it is typically installed in a nearby electrical or utility room. A donor antenna is positioned outside or in the best available signal location to capture cellular signal from the nearest tower, while one or more server antennas are installed inside the garage to distribute coverage directly to the EV charging stations.

In outdoor parking lots, where infrastructure is more exposed, the system can be mounted on poles, rooftops, or adjacent structures. Its compact and durable form factor allows it to be installed discreetly while minimizing cable runs. This flexibility ensures consistent performance regardless of layout or environmental constraints.

Coverage can be scaled based on the size and configuration of the charging area. Each server antenna supports a defined coverage zone, allowing deployments to focus specifically on EV charging locations rather than the entire facility. This targeted approach improves efficiency while reducing unnecessary complexity.

Installation

We addressed the connectivity challenges by installing the CEL-FI® GO using a fast, flexible deployment model tailored to the site environment. With a simple donor and server antenna architecture, we completed the installation quickly with minimal infrastructure changes, reducing disruption while delivering the enhanced cellular coverage needed for reliable connectivity.

Results

By installing the CEL-FI® GO, we achieved a stable, high-quality cellular connection that keeps the EV charging stations operating reliably at all times. Drivers experience seamless payment processing and session initiation, while operators maintain consistent visibility into charger usage and performance. The CEL-FI® GO supports multiple charging units simultaneously, scales easily as additional stations are added, and requires minimal ongoing maintenance after deployment. This “set it and forget it” reliability provides a practical and cost-effective solution for delivering dependable connectivity in challenging environments.

“CEL-FI GO offers a reliable, easy-to-install solution with minimal ongoing management”

