

# Case Study

## Warehouse Signal Booster Solution



### About Us

Mobile Signal Solutions are UK based installers of commercial signal boosting systems, focused on improving mobile phone signals indoors.

Our professional team are approved installers of carrier grade equipment compatible with all UK networks. We work with the client from site survey to installation and offer maintenance & support contracts. Working together we ensure 100% network coverage, no budget overruns, and we offer upfront payment or leasing options.

Our main aim is that clients are happy to recommend us to others. Each system is voice and 4G compatible but we also future proof the design to carry other new mobile frequencies as they are launched e.g. 5G and 6G compatible systems.

### The Property

A small logistics centre with no indoor mobile coverage for workers or barcode scanners needed to record pallet movements in real-time. The building's metal-clad outer walls created a Faraday cage effect, blocking all signals inside the warehouse. With the roof inaccessible, the only feasible locations for installing a donor antenna were on the fascia of the outer walls.



### The Challenge

The system needed to be compatible with IoT devices, as the scanners used EE 4G SIM cards. To process stock movements accurately, the solution had to maintain an RSRQ level of 15 or better. Additionally, the system needed to capture signals from multiple base stations from a single location, requiring a panel antenna to cover a wide 140-degree range.

### The Solution

A panel antenna was selected over a high-gain antenna to allow signal reception from two separate base stations, though it required stronger amplification to cover the entire warehouse. We installed a 17dB commercial-grade EE signal amplifier, programmed to operate on two different 4G channels, providing a backup in case of a channel failure.

Using a high-level spectrum analyzer, Mobile Signal Solutions engineers aligned a high-gain donor antenna at roof level to precisely target the best EE frequencies from both base stations.



## The Results

Upon activation, the powerful system, operating with just six internal antennas, delivered 100% signal coverage across the warehouse on the EE network. This solution not only powered the operational software for scanners but also provided reliable voice and 4G connectivity for all staff, enhancing safety for lone workers. Full coverage for EE voice, 4G, and 5G data was achieved in all areas.



### What Causes Poor Coverage?

Distance from the local base station or the construction of the outer walls are the main factors. Outer stone walls blocking signal is a common problem in many older buildings, due to the thickness of the walls signal finds it difficult to permeate indoors, especially in basements and areas with no windows.

In modern buildings, the high level of energy insulation also causes signals to be blocked. Buildings using foil backed insulation on roofs and walls, alongside variants of window panes where the glass contains metal particles to reflect the sun's rays means walls, roofs and windows all block the mobile signal.

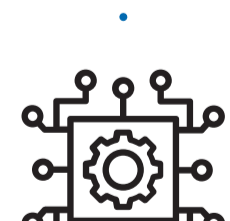
### Need A Solution?

If you're looking to improve connection across your site but aren't sure where to start give us a call today. Our team are happy to talk through your options and set up a survey.



#### Step One: On-Site Survey

You will meet with our surveyor to discuss your needs in full. You can discuss areas of importance and agree on a design plan for the system you require.



#### Step Two: System Design

Our surveyor will then design the best possible system. The surveyor will then meet with the operations team to put a cost together for that system.



#### Step Three: Installation

Before you know it we will have a team of highly skilled engineers on-site and your system will be up and running and providing flawless mobile signal throughout.

*"What a breakthrough! We have struggled with mobile phone signal in our metal box factory for years and Mobile Signal Solutions have fixed that! No more walking round the car park having phone calls. Very professional and attentive throughout. Highly recommended"*

Joanne Varney  
Safran UK Ltd.

