

The logo for MobileMark antenna solutions features the company name in a white, sans-serif font. The word "MobileMark" is larger and more prominent, with a stylized white graphic of three curved lines above the "k". Below it, the words "antenna solutions" are written in a smaller, lowercase font. The background of the entire page is a photograph of a freight train with various colored shipping containers (blue, green, yellow, red) on tracks, set against a bright blue sky with scattered white clouds.

**MobileMark**  
antenna solutions

Antenna Solutions for  
Passenger Trains, Trams &  
Commercial Freight

# MobileMark

antenna solutions

Wireless connectivity has become increasingly important for Passenger Trains, Trams and Commercial Freight trains. The push to implement Positive Train Control (PTC) is just one aspect of the wireless evolution taking place in the rail industry.

Critical, time sensitive data is being communicated over multiple technologies from licensed Cellular channels to unlicensed WiFi and ISM bands to specialized rail frequencies such as the 220 MHz band. Train stock, way-side tracks and stations must all be equipped to handle the growing volume of wireless data transmissions.

Providing wireless connections can be a challenge. User expectations are high, and network infrastructures will be pushed to the limit. Mobile Mark's wide range of antennas can help you prepare for it all.

## Wayside Track Antennas

Wayside wireless systems rely on multiple wireless technologies to track trains as they cover long distances between train stations. Mobile Mark's site antenna solutions provide a range of coverage patterns and can communicate on different frequency bands. Some antenna solutions will cover stand-alone frequency bands and others will incorporate multiple antennas within a single antenna package. Custom design solutions can be developed for unique wayside situations. GPS Timing sensors are often incorporated to provide precise timing.



## Onboard Passenger Services

It is a given that today's train riders want to stay connected wirelessly, and more passenger trains are offering WiFi On-board. WiFi reliability has to be a priority because nothing turns a new service into a frustration faster than dropped wireless connection. Mobile Mark offers a number of MIMO (multiple-input-multiple-output) antennas for 802.11n or 802.11ac that can be mounted in the ceilings or walls of the passenger train compartment. We also offer tailored antenna solutions that provide bi-directional coverage.

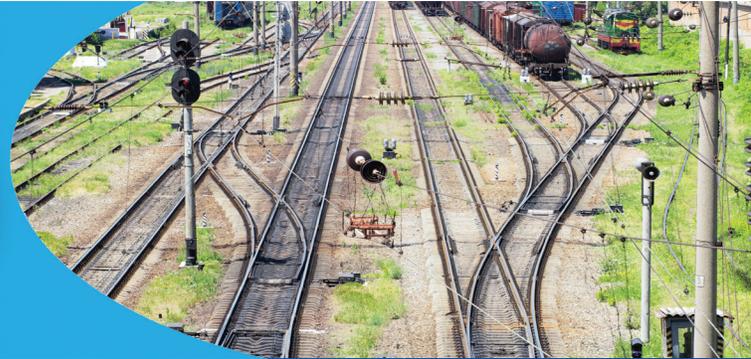


## Specialized Frequency

In addition to Positive Train Control at 220 MHz, some railroad companies are using commercially available networks, such as Cellular, to transmit critical information. Others are using unlicensed networks with short range coverage, such as WiFi or ISM at 433 MHz and 915 MHz, and still others are using privately licensed bands such as the 3.65 GHz band. RFID solutions are being implemented to read passenger fare cards on trams.

# Antenna Solutions for Passenger Trains, Trams & Commercial Freight

[www.MobileMark.com](http://www.MobileMark.com) for our full product line.



## Train Management

Communications are not limited to train-to-train or train-to-station networks. Wireless is being used to monitor the condition of the train itself. Onboard train telemetry is critical to keeping trains running smoothly by detecting problems while they are still small and fixable and before they become a hazard. Sensors placed in critical junctures need to be read and the data transmitted to a central location. Multiple wireless technologies come in to play, typically ISM, WiFi and Cellular.



## Positive Train Control

PTC or Positive Train Control is mandated by law in the US. Many rail companies are well on their way to implementing PTC on their moving stock and rail lines, while others are earlier in the process. Mobile Mark offers several antenna solutions for PTC at 220 MHz, including both site and mobile antennas. These antennas need to be electrically efficient and mechanically sound to stand up to the demands of railway communications.

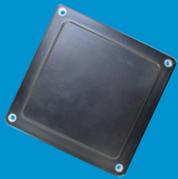
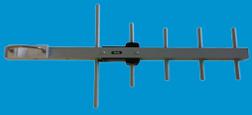


Mobile Mark antennas cover commercially available wireless networks as well as specialized networks. We can help you tie together the right mix of wireless systems for both vehicles and infrastructure. And, installers love the fact our antennas are easy to install and service free.

If you need something special, Mobile Mark has the facilities and the experience to take a project from initial conception through to final production. Our team of design engineers brings years of experience and a proven track record for developing innovative, high quality antennas.

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WAYSIDE TRACK ANTENNAS	TRAIN MANAGEMENT	ONBOARD PASSENGER SERVICES	POSITIVE TRAIN CONTROL	SPECIALIZED FREQUENCY
 <p>GPS Timing Antennas Rugged, heavy duty Water and shock resistant 1575 MHz</p>	 <p>LTM Surface, MIMO coverage 3-6 cable Multi-band Cellular LTE, WiFi, GPS/Glonass</p>	 <p>WiFi MIMO Ceiling Mount Onboard streaming WiFi 2.4 &amp; 5 GHz, 4 dBi gain</p>	 <p>SMW Series, Surface Mount 3 elements, 3 cables PTC, WiFi &amp; GPS</p>	 <p>RFID Panel Antenna Reader Antenna, Asset Tracking 915 or 868 MHz, 7 dBi gain</p>
 <p>PS Series Directional Panels Sectors: 45°, 60°, 90° or 120° Models: 2.4-6.0 GHz 10-14 dBi gain</p>	 <p>SMW Series, Surface Mount 4-cable, multiple combinations GPS, MIMO WiFi &amp; Cellular</p>	 <p>WiFi MIMO Panel Six connections, 6x MIMO 2.4 &amp; 5 GHz, 10 dBi gain</p>	 <p>SM-220/1575, Surface Mount External flexible whip PTC &amp; GPS, unity gain on PTC</p>	 <p>YAGI Directional Antennas ISM, 915 MHz 11 dBi gain</p>
 <p>Custom designed Trackside Multi-element antenna Customizable enclosures Cellular, WiFi, GPS, PTC</p>	 <p>CVL Series Embedded Custom enclosures, IP69 protection Cellular &amp; LTE, 694-2700 MHz</p>	 <p>SCR Corner Reflectors Can mount for bi-directional coverage 2.4 &amp; 4.9-6.0 GHz, 9 &amp; 12 dBi gain</p>	 <p>OD3-220 Rugged, omni-directional 3 dBi gain, 220 MHz</p>	 <p>RMM-433 Surface Mount antenna 433 MHz, Unity gain</p>