

PowerBoost – The Answer to Cell Tower Expansion

Maximizes Capacity, Minimizes Costs.

The world is growing increasingly mobile and demands on existing network infrastructure have never been greater. With the emergence of 5G, network operators now must update their existing macro sites to boost performance. 5G is expected to support up to 1 million connected devices per .38 square miles, compared to around 2,000 connected devices per .38 square miles with 4G.¹ Network operators are seeking innovative technology to upgrade their existing infrastructure and support future technologies.

Preparing for Tomorrow's Network

In order to meet the demands of 5G and beyond, carriers are deploying next generation high power remote radio heads (RRHs) on their existing cell towers. These RRHs require power from ground base power plants that reside in cabinets and shelters at the bottom of these towers. The additional power demanded by RRHs results in a higher voltage drop, causing radio performance to degrade and even drop out.

To combat this issue, new equipment must be added because existing power infrastructure will not support these RRHs adequately. The addition of new equipment takes up valuable leased rack space and adds to operating expenses. With this additional equipment, the tower must be further reinforced, presenting another expense. Furthermore, to install the equipment a crew must physically go to each tower, resulting in extra labor costs. The tower must be down during the installation, leading to a decrease in ARPU, and an increase in time customer service fields mobile subscriber complaints.

PowerBoost – An Intelligent Solution

JMA Wireless in collaboration with Delta, a major power solution provider for the world's leading telecom and wireless operators, has developed PowerBoost. This award-winning, cost-efficient solution allows operators to expand tower capacity with RRHs while leveraging the existing power cable infrastructure. Its innovative intelligence monitors the radio power load, automatically boosting the amount of DC voltage to the RRHs to ensure the most efficient power delivery. With intelligent boosting, operators can add high power RRHs to support the growing demands of 5G and avoid additional, costly infrastructure.



Figure 1: The PowerBoost controller offers a convenient, easy to read touch screen.

PowerBoost significantly reduces expansion time, cabling costs and incremental tower loading as detailed further below:

Operationally Efficient

- A smart, plug and play controller eliminates manual calibration while providing a simple touch screen interface (see Figure 1).
- With intelligent boosting, power adjustments happen automatically to ensure maximum efficiency regardless of tower height and radio load.

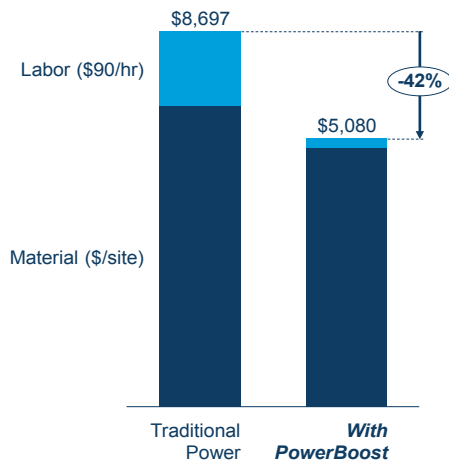
Smallest Footprint

- Up to 33 percent smaller than alternative solutions, PowerBoost offers the smallest footprint, saving both rack space and breaker positions.
- Eliminates tower space and load issues caused by deploying additional hybrid cables.

Lowest Capital/Operational Costs

- Existing tower infrastructure can be leveraged to satisfy growing wireless demands.
- Up to eight radios can be powered from two RUs (16 RRHs from three RUs), significantly reducing power cabling costs and installation time (see Figure 2).

Savings with *PowerBoost*



	Traditional Power	With PowerBoost
Est. material \$/site	\$7,257	\$4,900
Labor Cost (\$90/hr)	\$1,440	\$180
Man hours	16	2
Cost/site	\$8,697	\$5,080
Cost/1,000 sites	\$8,696,500	\$5,080,000

CapEx Savings with PowerBoost **\$ 3.6M**
*assumes six RRHs, 250' hybrid cable, additional OVP and hangers

OpEx Savings/yr with PowerBoost **\$ 1.3M**
*assumes \$125/mo lease cost for additional hybrid cable

Note: Does not include additional real estate or structural costs associated with adding an additional hybrid cable.



Figure 2: PowerBoost provides significant savings over traditional power solutions.

Scalable Architecture

- The modular design allows for easy expansion of the power source and future-proofing (1 to 16 radios), while still minimizing the power cables required.
- With the Pass-Thru Modules, the DC Up-Converter can be integrated prior to deploying the new 2B/HP RRH. Simply replacing the Pass-Thru Module to a PSU enables a pre-wired shelf to provide up-conversion. No need to rip and replace existing wiring infrastructure.

Power Assurance

- Reduces cable loss while extending battery hold over time.
- Supports latest dual band and high-power radios, up to 600 feet.
- An Auto-Bypass feature ensures that if the DC rectifier fails, the system will still provide plant voltage to the RRH.
- System redundancy is available and easily retrofitted.
- Fully integrated, pre-wired cabinet solutions available.

About JMA Wireless

JMA Wireless is the leading global innovator in mobile wireless connectivity solutions that ensures infrastructure reliability, streamline service operations, and maximize wireless performance. Employing powerful, patented innovations its solutions portfolio is proven to lower the cost of operations while ensuring lifetime quality levels in equipment and unrivaled performance for coverage and high-speed mobile data. JMA Wireless solutions cover macro infrastructure, outdoor and indoor distributed antenna systems and small cell solutions. JMA Wireless corporate headquarters are located in Liverpool, NY, with manufacturing, R&D, and sales operations in over 20 locations worldwide. For more information visit jmawireless.com or follow JMA Wireless on Twitter at @JMAwireless.

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