



**OSSiQ**<sup>®</sup>  
REAL WIRELESS POWER

## OSSIA WHITEPAPER

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REAL WIRELESS POWER™: TRANSFORMATION THROUGH INNOVATION

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**C**onstantly recharging electronic devices is more than an inconvenience: it's a daily hurdle for consumers and product developers alike. However, the emergence of Real Wireless Power technology is revolutionizing how we deliver energy and making the obstacle obsolete.

**This comprehensive document:**

- Explores the intricacies of Real Wireless Power™
- Delves into the workings of associated wire-free technologies
- Compares Real Wireless Power with competing technologies like Qi charging
- Highlights its profound impact on various industries

## UNDERSTANDING REAL WIRELESS POWER™

Real Wireless Power represents a paradigm shift in how energy is transmitted to devices. This truly wireless energy delivery system liberates electronic devices from the constraints of physical connections and charging cables and delivers energy over distances. Real Wireless Power technology applications range from automatically powering IoT devices and sensors to enabling wireless charging for smartphones, wearables, and even electronic devices within vehicles.

For example, when people commute with all their devices (laptop, tablet, phone, earbuds, and smartwatch), they can immediately begin charging as soon as they enter the vehicle, and continue receiving power over air when they get home. Inside the house, door locks, security cameras, thermostats, and smoke detectors are “always on,” powered wirelessly, providing consumer confidence. Also, personal health equipment such as hearing aids and health monitors of loved ones never need downtime to charge.

These innovations are genuinely life-altering on a personal level and also on a professional one. The things you no longer see or hear make the difference. No more distracting smoke alarm beeps alerting you to a drained battery (because it is never drained), no more tripping over power cords, buying batteries, or worrying about wasting resources. Office and warehouse equipment, from inventory scanners to asset trackers to digital displays, is always ready to go.

When plugged into an outlet, a device is constantly drawing current, which costs you (and Mother Earth), but with Real Wireless Power, machines are only charged when they need to charge—and can do so simultaneously. This scalability is a significant advantage in environments where numerous devices require reliable power.

**Delivering power without wires is not science fiction: this is possible right now thanks to Real Wireless Power.**

## HOW REAL WIRELESS POWER WORKS

Real Wireless Power (also called over-the-air charging) is a revolutionary concept that enables devices to receive power without being physically connected to charging cables or pads. Its magic lies in its ability to transmit energy without direct physical contact.

At the heart of a wireless power system are a transmitter and receiver, both emitting radio frequency (RF) signals to find each other and deliver power. This entire process happens dynamically, at about 100 times per second, which allows devices to receive power even while in motion without requiring precise alignment or direct line-of-sight between the transmitter and the device.

### Real Wireless Power works similarly to WiFi or Bluetooth technology.

In the same way that we no longer need ethernet cables connected to our computers or audio cables connecting our headphones, we can now say farewell to power cords, batteries, and charging pads.

You don't need to worry about objects like walls or furniture getting in the way. Real Wireless Power technology bounces off obstacles to deliver power, which makes it practical in various settings where direct line-of-sight charging is not feasible.

Real Wireless Power is scalable, too. Devices can receive power from greater distances by simply adding additional transmitters. Advancements in antenna design and signal optimization are constantly being developed to improve usage for various industries, including consumer electronics, healthcare, manufacturing, automotive, and more.

## DISTINGUISHING REAL WIRELESS POWER FROM QI CHARGING AND OTHERS

To truly appreciate the innovation of Real Wireless Power, it's essential to differentiate it from existing technologies such as Qi charging. Although Qi charging has become synonymous with wireless charging, it primarily involves placing a device on or near a charging pad that is plugged in.

In contrast, Real Wireless Power technology provides a more liberating experience. Devices equipped with wireless power receivers can receive power from a distance and do not need to be in direct alignment with the transmitter. This over-the-air, at-a-distance charging capability eliminates the need for meticulous placement, which sets it apart from static Qi-charging solutions.

Furthermore, Real Wireless Power has made charging multiple devices simultaneously possible. Multiple devices with receivers can be charged at the same time within the same charging area without needing separate charging pads. This is ideal in environments where numerous devices require continuous, reliable power, such as hospitality, transportation, hospitals, and workplaces.



Not only do devices not need to be attached to a wall or placed on a charging pad, but they can be anywhere within the charging area and even be in motion!

## BENEFITS FOR SPECIFIC INDUSTRIES

The true potential of Real Wireless Power technology becomes apparent when considering its implications for various industries:

- Consumer Electronics
- Healthcare
- Manufacturing
- Automotive
- Logistics and Warehousing

Let's take a look at each industry and the benefits of Real Wireless Power for each.

### Consumer Electronics

The consumer electronics sector will be transformed by Real Wireless Power. With this technology, the inconvenience of locating charging cables and adapters becomes a thing of the past. Smartphones, tablets, and laptops can now charge as you move around your home or office.

### Breaking Free from Tethered Charging

One of the most significant transformations that Real Wireless Power brings to consumer electronics is liberation from the tangles of charging cables. Traditional charging methods demand the constant plugging and unplugging of devices and the inconvenience of locating outlets and being tied down or held up while charging occurs. Real Wireless Power eliminates these hassles.

Without wires, smartphones, tablets, laptops, and wearables can remain effortlessly charged as people move throughout their day. With Real Wireless Power, devices are perpetually energized, which enables seamless activities at work or home without worrying about battery depletion. This level of convenience fundamentally enhances the user experience and removes the constraints that wired charging imposes.

### Aesthetics and Device Design

Real Wireless Power also has profound implications for the design aesthetics of consumer electronics. Removing charging ports and cables allows for sleeker, more streamlined device designs. Devices can adopt cleaner lines and more minimalist forms without visible charging connectors. This aesthetic enhancement is not merely superficial; it contributes to a more elegant and user-friendly product.

Additionally, the elimination of charging ports can improve the durability of devices. Charging ports are often vulnerable points that are prone to damage from dirt, moisture, and physical stress. With Real Wireless Power, this vulnerability disappears, which could potentially extend the lifespan of devices.

## **Enabling New Possibilities**

The transformation enabled by Real Wireless Power goes beyond mere convenience; it opens up new possibilities for consumer electronics. Wearable devices, for instance, could seamlessly integrate into our lives without requiring frequent removal for charging. Smart home devices, from remote controls to security cameras, could maintain continuous operation without manual intervention.

Moreover, Real Wireless Power facilitates the proliferation of [IoT \(Internet of Things\)](#) devices. Sensors, smart appliances, and other connected devices would remain powered without the limitations of battery replacement or wired connections, which paves the way for a more interconnected and efficient lifestyle.

## **Real Wireless Power for Consumer Electronics**

In the consumer electronics industry, Real Wireless Power is not just an incremental advancement but a revolutionary leap forward. The convenience of perpetually charged devices, the dynamic charging capabilities, improved aesthetics, and the enablement of new possibilities collectively redefine how we interact with and rely on our electronic companions. As Real Wireless Power technology continues to evolve and integrate into our lives, it has the potential to reshape the consumer electronics landscape, enhancing both functionality and user experience in ways we once only dreamed of.

## **Healthcare**

The [healthcare industry](#) is undergoing a paradigm shift driven by technological innovations, and at the forefront of this transformation is the integration of Real Wireless Power. This groundbreaking technology has the potential to revolutionize healthcare by addressing critical challenges related to powering medical devices and equipment.

## **Revolutionizing Medical Device Powering**

Real Wireless Power technology, with its ability to transmit energy remotely, offers a efficient solution to medical device battery management.

Consider a scenario where heart rate, blood pressure, sleep, and breathing monitors are powered wirelessly, without batteries. Patients could experience uninterrupted device operation, which enhances patient comfort and reduces the associated risks and costs of device downtime. Real Wireless Power introduces a new era of medical device powering, where patients can focus on recovery rather than the logistics of battery maintenance.

## Enhancing Remote Healthcare Monitoring and Wearables

The rise of remote patient monitoring and [wearable medical devices](#) has transformed healthcare delivery. These devices enable continuous health tracking and real-time data collection, which allows healthcare providers to make informed decisions and offer personalized care. However, the reliance on batteries poses a challenge, especially for patients who may struggle with regular battery replacement.

Real Wireless Power technology offers a lifeline for these devices. Wearable health monitors, insulin pumps, and other remote monitoring solutions could operate seamlessly without manual intervention, which ensures that patients remain connected to their healthcare providers and that potentially lifesaving data is consistently collected.

## Remote Areas and Emergency Situations

Real Wireless Power offers a lifeline in healthcare scenarios where access to power sources is limited, such as remote clinics, disaster-stricken areas, or military field operations. Real Wireless Power can power some medical devices without much infrastructure or conventional power outlets. This flexibility is precious during emergencies, where reliable power can make the difference between life and death.

## Real Wireless Power for Healthcare

The [healthcare industry](#) is on the cusp of a transformative journey with the integration of Real Wireless Power technology. By eliminating the constraints of conventional powering methods, Real Wireless Power enhances patient comfort, reduces risks, and facilitates the seamless operation of critical medical devices. From portable medical devices to remote monitoring and emergencies, this technology can reshape healthcare delivery, improve patient outcomes, and pave the way for a more connected and patient-centric healthcare ecosystem.

## Manufacturing

The manufacturing industry is undergoing a technological revolution that is changing how goods are produced, monitored, and optimized. Real Wireless Power technology stands at the forefront of this revolution, promising to revolutionize manufacturing processes, increase operational efficiency, and redefine how industries interact with energy.

## Efficient Remote Monitoring and Sensors

In manufacturing, remote monitoring and real-time data collection are crucial for optimizing processes, ensuring product quality, and minimizing downtime. However, the reliance on batteries for powering remote sensors and monitoring equipment can be cumbersome and costly. Real Wireless Power addresses this challenge by enabling these devices to operate wirelessly without battery life limitations.

Imagine a factory floor where sensors that are installed in [hard-to-reach or hazardous locations](#) are powered remotely. These sensors could monitor equipment health, environmental conditions, detect anomalies, and provide critical data for predictive maintenance. Real Wireless Power ensures continuous operation, which reduces the need for manual battery replacement and allows manufacturers to make informed decisions based on accurate and up-to-date information.

## **Reducing Maintenance Downtime**

Manufacturing facilities are characterized by complex machinery and equipment that require regular maintenance to ensure optimal performance. Real Wireless Power can significantly reduce maintenance downtime by keeping critical components powered and operational, which is particularly relevant for devices and sensors located in hard-to-access areas or hazardous environments.

Wireless power ensures that devices continue to function even in challenging conditions, which enables continuous data collection and monitoring. Maintenance teams can access real-time data remotely, which allows them to identify potential issues and schedule maintenance proactively, and minimize costly downtime and disruptions.

## **Enabling Smart Factories**

The concept of smart factories, powered by the Internet of Things (IoT) and data-driven insights, is gaining traction in manufacturing. Real Wireless Power catalyzes smart factory initiatives by providing a reliable and scalable method of powering numerous IoT devices and sensors simultaneously.

Smart factories can benefit from wireless-powered sensors that collect data on machine performance, energy consumption, and product quality. The data can then be analyzed to optimize production processes, reduce waste, and enhance overall operational efficiency.

## **Real Wireless Power for Manufacturing**

Real Wireless Power technology is poised to revolutionize the manufacturing industry by offering a new paradigm of powering and monitoring. From enhancing remote monitoring and [automation](#) to reducing maintenance downtime and enabling smart factories, wireless power opens up possibilities for increased efficiency, flexibility, and data-driven decision-making. As manufacturing continues to evolve in the digital age, Real Wireless Power is a transformative force that empowers factories to operate at their full potential and achieve new levels of productivity and innovation.

## **Automotive**

The automotive industry has embraced sustainability, connectivity, and alternative power innovation. Real Wireless Power technology is well poised to help revolutionize how vehicles

are designed.

## **Innovating Vehicle Design**

Real Wireless Power technology can influence vehicle design and aesthetics. For example, eliminating the need for charging ports, Qi-charging surfaces, and the need for cables allows for a more streamlined vehicle interior. Smartphones, tablets, and other devices would automatically charge inside the vehicle cabin.

Various sensors and systems within the vehicle could also be wirelessly charging, eliminating the need for the inconvenience of a service call to change a battery.

## **Real Wireless Power for the Automotive Industry**

Real Wireless Power technology is influencing vehicle design. As the automotive sector embraces sustainability and innovation, Real Wireless Power plays a pivotal role in propelling the industry into a future where charging is seamless and convenience is paramount.

## **Smart Infrastructure**

The concept of smart cities and intelligent infrastructure is driving urban development toward greater sustainability, efficiency, and connectivity. Real Wireless Power technology is at the core of this evolution, poised to revolutionize how smart infrastructure operates, communicates, and sustains itself.

## **Unleashing the Potential of IoT**

Smart cities rely heavily on the Internet of Things (IoT), a network of interconnected devices and sensors that collect data to improve urban life. However, the effectiveness of IoT solutions can be constrained by the need for power sources and the complexities of wiring. Real Wireless Power technology overcomes these limitations by offering a scalable and flexible method of powering IoT devices.

Wireless power enables sensors, environmental monitors, traffic management systems, and other IoT devices to operate without the **constraints of batteries or wired connections**. This translates into uninterrupted data collection, real-time insights, and improved decision-making for city planners and administrators. Real Wireless Power empowers smart cities to achieve their full potential, from monitoring air quality to optimizing traffic flow.

## **Enabling Seamless Connectivity**

The success of smart cities hinges on seamless connectivity between devices, networks, and residents. Real Wireless Power technology contributes to this connectivity by offering a reliable and continuous power source that keeps critical infrastructure operational. Wireless power ensures that devices remain connected and can communicate their data without interruption.

Consider smart streetlights equipped with wireless-powered sensors. These streetlights can



serve as data hubs and collect information on weather conditions, traffic density, and energy consumption. With a continuous power supply, these devices can transmit data in real time, which enables city authorities to respond swiftly to changing circumstances and optimize resource allocation.

## **Enhancing Sustainability**

One of the cornerstones of smart cities is sustainability, and Real Wireless Power aligns perfectly with this goal. Wireless power minimizes physical infrastructure needs such as charging stations or power outlets. This reduction in infrastructure translates to a smaller environmental footprint and improved aesthetics within the urban landscape.

Moreover, wireless power technology allows for integrating renewable energy sources into smart infrastructure. This synergy between wireless power and renewable energy contributes to the sustainability objectives of smart cities.

## **Real Wireless Power for Smart Infrastructure**

Real Wireless Power technology is poised to play a transformative role in the evolution of smart cities and intelligent infrastructure. By empowering IoT devices, enabling seamless connectivity, enhancing sustainability, and ensuring resilience, wireless power supports the vision of urban development that is efficient, connected, and responsive. As smart cities continue to shape the future of urban living, Real Wireless Power catalyzes innovation, sustainability, and improved quality of life for residents.

## **Logistics and Warehousing**

The logistics and warehousing industry is the backbone of global commerce. It ensures the seamless movement of goods from manufacturers to consumers. In this dynamic landscape, integrating Real Wireless Power technology can revolutionize operations, enhance efficiency, and reshape how products are tracked, managed, and delivered.

## **Efficiency in Asset Tracking**

Tracking and monitoring goods as they move through the [supply chain](#) is critical for effective logistics. Traditional [battery-powered](#) tracking devices often pose challenges, such as requiring periodic battery replacements and potentially disrupting operations. Real Wireless Power technology introduces a game-changing solution that enables devices to remain powered without manual intervention.

[Wirelessly powered tracking devices](#) can transmit real-time shipment location, condition, and status data. This constant stream of information ensures accurate tracking and reduces the risk of misplaced or lost goods. With Real Wireless Power, logistics operators gain confidence in the reliability of their tracking systems, which leads to smoother operations and improved customer satisfaction.

## **Enabling Real-Time Inventory Management**

Warehousing efficiency relies on accurate and up-to-date inventory management. Real Wireless Power technology plays a pivotal role by enabling real-time tracking and management of inventory items; this helps reduce errors and optimize stock levels.

Wirelessly powered sensors placed on storage shelves or racks can monitor inventory levels, detect product movement, and even assess conditions such as temperature and humidity. This data-driven approach to inventory management enhances decision-making, prevents stockouts or overstocking, and contributes to a more streamlined and efficient warehousing process.

## **Improving Last-Mile Delivery**

Last-mile delivery, the final leg of the supply chain journey, is often characterized by challenges such as traffic congestion, delivery windows, and customer expectations. Real Wireless Power technology can elevate last-mile delivery by providing reliable power sources for devices within delivery vehicles.

Additionally, important packages outfitted with wireless-powered tracking devices remain connected throughout the last-mile journey and could deliver real-time updates to customers and delivery personnel.

## **Enhancing Supply Chain Visibility**

Supply chain visibility is critical to logistics and warehousing. Real Wireless Power technology enhances visibility by ensuring that sensors, tracking devices, and other IoT-enabled equipment remain operational and connected throughout the supply chain journey.

Whether goods are in transit, stored in warehouses, or being processed, wireless-powered devices provide continuous data streams that offer insights into the status and conditions of products. This visibility empowers logistics managers to make informed decisions, optimize routes, and address potential issues before they impact the supply chain.

## **Real Wireless Power for Logistics and Warehousing**

Real Wireless Power technology holds immense potential to transform logistics and warehousing into more efficient, connected, and customer-centric operations. From seamless asset tracking and real-time inventory management to improved last-mile delivery and enhanced supply chain visibility, wireless power empowers the industry to overcome challenges and embrace a future where every logistics process is optimized and streamlined. Real Wireless Power is a crucial driver of innovation and efficiency in logistics and warehousing as the industry continues to evolve.

## **NEED MORE REAL WIRELESS POWER INFORMATION?**

Real Wireless Power technology represents a monumental leap forward in energy transmission.

Its ability to transmit power over distances, coupled with its dynamic charging capabilities, has the potential to redefine the way we power our devices.

As technology continues to evolve, it can liberate us from the constraints of traditional power delivery systems, opening up new possibilities for innovation across diverse industries. The future of Real Wireless Power is one where our devices seamlessly and wirelessly draw energy from the environment and transform how we live, work, and interact with technology.

To learn more about integrating Real Wireless Power into your products, please [contact us at Ossia](#).

## ABOUT OSSIA

Ossia is the driving force behind [Cota® Real Wireless Power™](#), the revolutionary wireless power technology that energizes devices in motion wirelessly and safely.

Ossia's name, derived from the musical term "ossia," symbolizes a groundbreaking approach. Just as music explores alternative passages, Ossia charts new paths for energy delivery and is reshaping the landscape.

Beyond powering devices, our mission is to create a sustainable future. Cota fosters an eco-conscious evolution by minimizing batteries' environmental and societal impacts.

Headquartered in Redmond, Washington, Ossia boasts a stellar team and an ever-evolving Cota technology, evident in our 235+ patents and global regulatory approvals in 62 countries. With partnerships spanning the world, Ossia's vision is clear: to illuminate the future perpetually and sustainably.