

## OVERVIEW

Kawasaki was the first foreign vehicle manufacturer to open a manufacturing plant in the U.S.A. in 1974 believing if you're selling in America, why not build there too – saving time, shipping and employing high-skilled local labor. The facility in Lincoln, Nebraska now builds Teryx<sup>®</sup>, Mules<sup>™</sup>, Jet Skis<sup>®</sup>, and trains within over two million square feet of manufacturing plant that operates on a “just in time” supply method. This eliminates expensive warehousing and over-ordering of parts. Production methods combine the best of Japanese and American techniques, resulting in the unique Kawasaki Production System.

## REQUIREMENTS

- Reliable wireless for handheld supply chain devices
- Reliable wireless for handheld inventory control PDAs
- High capacity for dense client connectivity
- High coverage for vast two million square foot manufacturing facility
- Robust VoIP capabilities

## SOLUTION

- ZoneFlex 7982 indoor APs
- ZoneDirector 3000 controller — redundant

## BENEFITS

- Up to four-fold increase in production line product scanning
- Higher speed Wi-Fi data rates at longer ranges, eliminating many “Wi-Fi dead spots”
- Improved quality and reliability of VOIP system
- Entire manufacturing plant has coverage and capacity for their handheld supply chain inventory management devices
- Handheld performance no longer an issue with Ruckus' BeamFlex+
- Lowered cost of supply chain management

# Kawasaki

Let the good times roll.

## Manufacturing: Kawasaki Motors

### KAWASAKI MOTORS INCREASES PRODUCTION OUTPUT WITH SMART WI-FI AND CONTINUES TO “LET THE GOOD TIMES ROLL”™

Kawasaki Motors Manufacturing Corp., U.S.A, one of the better known subsidiaries of Japanese keiretsu, Kawasaki Heavy Industries, manufactures Teryx<sup>®</sup>, Jet Skis<sup>®</sup>, Mules<sup>™</sup> and even subway trains.

Like a lot of manufacturing companies, Kawasaki Motors has a lot of staff constantly moving through a lot of space from their manufacturing plant to warehousing facilities. With a two million square foot manufacturing facility in Lincoln, Nebraska, Kawasaki must have reliable Wi-Fi to ensure the demanding wireless requirements are available to run the most efficient and modern facility possible. In order to reliably connect all of their wireless devices, high capacity, high performance wireless connectivity is a critical requirement for their business needs.

### Fixing a Legacy Wi-Fi network that was crashing and burning

With hundreds of employees at the manufacturing facility using iPads, iPhones, Motorola/Symbol hand held scanners for inventory tracking and control, LANSA ERP software and Data Logic ELF PDAs for resource planning and inventory control, including Siemens WL2 VoIP phones to communicate internally and externally, the demand on their existing wireless network brought it to its knees. “With employees all using a multitude of mobile devices over a two million square foot area, we were running into continuous problems with our existing Cisco system,” said Paul Kramer, IT Manager at Kawasaki Motors, “not only was the signal weak in many locations and in certain higher density areas, our legacy Wi-Fi system simply couldn't handle the higher capacity. This had a tangible and negative impact on our production levels.” Kramer noted that in manufacturing and warehousing environments, unlike places like hotels



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and schools and shopping malls, delivering a reliable, strong and fast Wi-Fi connection is extremely challenging given all the RF unfriendly obstacles, steel racks, and electromagnetic noise – all of which degrade Wi-Fi performance.

When the existing Wi-Fi network became so frustrating that Kawasaki increasingly lost productivity and time, Kramer decided it was time to look into Wi-Fi alternatives. After extensive research, Kramer decided to bring Ruckus in for a test drive as it appeared Ruckus could solve most of their capacity, coverage, VoIP, and handheld connectivity problems.

For Kawasaki Motors, the critical requirements for the wireless in the supply chain system were the ability to have complete coverage over large areas, reliable VoIP, and predictable performance with handheld devices that are constantly moving direction. This is where Ruckus outperformed its legacy system.

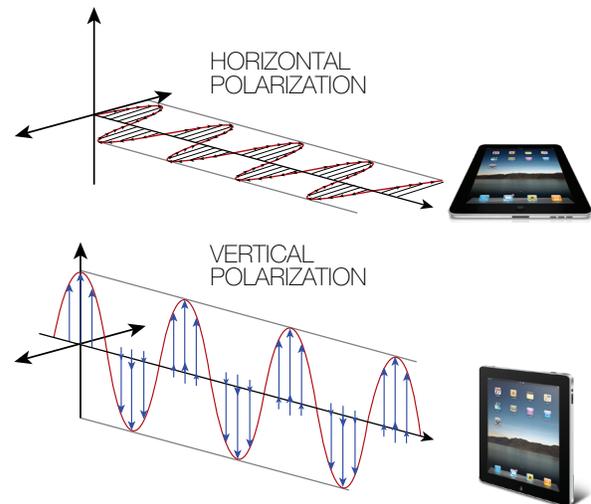
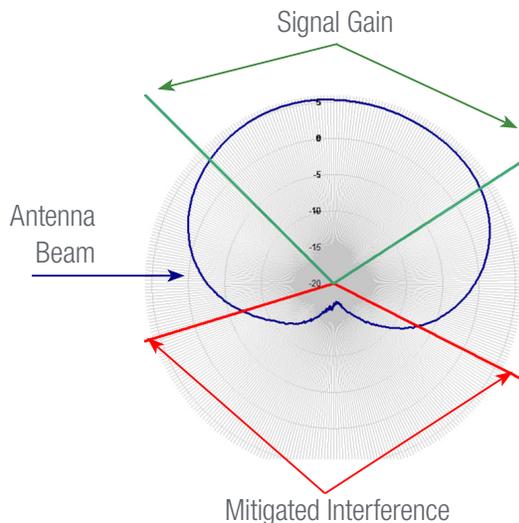
According to Kawasaki Motors, Ruckus' adaptive antenna technology has enabled much higher performance at longer ranges and more reliable connections.

“With our new Ruckus Smart Wi-Fi system, Kawasaki has seen faster rates on the production line — in some cases

scanning parts at a 5 to 1 faster ratio,” said John Schnaible at Communication Services Inc, the systems integrator for Kawasaki Motors. “Moreover, the deployment of the Ruckus ZoneFlex system was insanely simple, straightforward and fast.”

Ruckus' patented technologies such as BeamFlex and ChannelFly technologies help speed the deployment by taking away a lot of the RF guesswork required by other systems. Additionally, these technologies were key to delivering faster and more predictable performance and better coverage to Kawasaki Motors, even while using fewer APs than competitive alternatives.

BeamFlex directional signal gain with Adaptive Antenna Technology not only increases client performance, but it also bolsters the performance of the entire network by implicitly mitigating self-interference with other access points in the facility. ChannelFly's unique channel selection approach further enhances performance by selecting the best channel heuristically in real-time avoiding interference in a novel way that no other vendor can claim. BeamFlex+ gives an additive boost to enhance the performance of handheld devices by leveraging Ruckus' dual polarized multi antenna pattern systems that outperforms the competition.



Handheld scanner devices and tablets are constantly moving in horizontal and vertical direction while in use. BeamFlex+ offers thousands of antenna patterns in horizontal and vertical combinations and can maximize the performance of single antenna handheld devices by adapting to the client in real-time.



# Manufacturing Kawasaki Motors

“With our old Cisco Wi-Fi network, users had to move their phones and other critical inventory control handheld devices around to achieve the best signal. With our new Ruckus 7982s, which have adaptive antenna technology and polarization diversity, coddling your handheld to achieve the best signal is now a thing of the past.”

Paul Kramer, IT Manager,  
Kawasaki Motors



Inventory management with Data Logic ELF PDAs and Motorola/Symbol scanners now operate five times faster with the Ruckus system

“The problem with the VoIP system we had in the past was not only that the connection was spotty and unreliable, but because of that, the battery life of the phones wore out more quickly,” said Kramer. “With Ruckus, we could associate many VoIP clients on the same AP without dropped calls or jitter and the battery life lasted much longer.”

Wi-Fi enabled phones are extremely sensitive to traffic delays as well as IP address changes that are required when roaming between subnets. While even the smallest delay causes voice quality degradation, an IP address change often results in a dropped call. Ruckus solves this problem using a simple tunnel mode option which enables the creation of a separate and dedicated Layer 2 WLAN that directs VoIP clients back to the ZoneDirector WLAN controller using an LWAPP-based (LightWeight Access Point Protocol) tunnel. Roaming clients now maintain their IP address when associating with any AP. VoIP clients now experience uninterrupted voice calls while roaming across APs.

Today, Kawasaki Motors employs high performing, reliable supply chain inventory management system and VoIP for many users over a vast area with the Ruckus Wi-Fi network. “The reliable Ruckus wireless network has helped us achieve our just in time goals of no shortages or excess inventory for more efficiency and less cost.” said Kramer. Employees no longer have productivity restrictions bound to their WLAN; they can just produce their product and let the good times roll!

