

CASE STUDY | INDUSTRIAL AND MANUFACTURING

Black Box implements Industrial Wireless Bridge Solution for World's Largest Steel Producer ArcelorMittal

BACKGROUND

Achieving an impressive standard production capacity of approximately 114 million tonnes of crude steel, with the aid of 210,000 dedicated employees spread across 60 countries, ArcelorMittal is the world's leading steel and mining company.

On a yearly basis, ArcelorMittal Gent ships around 5 million tons of flat carbon steel to its automotive and industrial customers. The plant employs more than 4,600 people, making it one of the largest private employers in Flanders (Belgium).

For many years now, Black Box is a partner for technological solutions in and around the production processes in different departments in Belgian's national steel plants.

CHALLENGE

On site, used machinery ranged from gantry cranes to other complex types of machinery. The Data connections used are extremely important since they enable operators to have the information they need in the production process, or gather information and route it to nearby applications such as warehouse management and video images.

The continuous investments in new technology led to a bottleneck situation in the classic wireless environment. Especially mobile installations that had a need to obtain more bandwidth to handle data to support new developments.

"We're very pleased with the increase in performance achieved by replacing the radios we previously used to transmit camera videos at the ArcelorMittal steel production plant in Gent, Belgium,"

Davy Schatteman,
Industrial Systems
Integrator ArcelorMittal
Gent



ArcelorMittal

CLIENT:
ARCELORMITTAL

REGION:
GENT, BELGIUM

WEBSITE:
GENT.ARCELORMITTAL.COM

MANUFACTURER:
WWW.LIGHTPOINTE.COM

INDUSTRY:
INDUSTRIAL AND
MANUFACTURING

SOLUTION:
WIRELESS LAN-TO-LAN
BRIDGE (60GHZ)

WIRELESS





SOLUTION

In order to expand on-site network connection, Black Box proposed a new wireless technology setting that did not interfere with the already crowded Wi-Fi frequencies, making full use of the recently publicly licensed 60GHz frequency band.

The technology used offers a stable point-to-point wireless network connection with high bandwidth and is comprised of installing the high performance antennas that can operate in different distance ranges if installed in the same directional axis. The solution offered a variable distance for moveable rail applications that provides up to approximately 100 times the bandwidth of the combined capacity of the two legacy 5 GHz radios. The application of this solution brought the necessary low latency as well as multiple levels of adaptive modulation which automatically optimized the data rate for the security cameras, since it is crucial factor within a steel manufacturing setting.

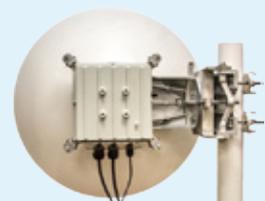
RESULTS

The Dynamic range of the [Wireless LAN-to-LAN Bridge Antenna's](#) radio solution now ensures that communications can be maintained over distances varying from several metres to a few hundred metres when installed on a moveable rail platform. Further development on the antennas will handle the minimum connection distance threshold, making this solution available in almost any case. These communications can be maintained over distances varying from several metres to a few hundred metres when installed on a moveable rail platform.

When safety and quality of production are critical, it's essential that all camera feeds transmit evenly during movement of the production rail platform. With a system latency less than 40 microseconds, this solution was ideal for low latency real-time applications such as in a critical industrial communications sector like this one.

Overall, Black Box was pleased to help ArcelorMittal in assuring the quality of its production activities by providing solutions that offer low latency reliable video feed transmissions with no radio frequency interference and with several levels of adaptive modulation. Features which are useful to automatically optimize security camera's data rate by adjusting for optimum data transmission speed in real time. Since the installation, the service is operating flawlessly without interruptions even during the most unexpected heavy atmospheric conditions.

SOLUTION USED:



WIRELESS LAN-TO-LAN BRIDGE (60GHZ)