



CASE STUDY: AARHUS

JMA Wireless Delivers Ubiquitous Cellular Coverage to Aarhus Developments

OVERVIEW

Many Buildings, One Wireless Platform

When thinking of major cities in Denmark, Copenhagen usually comes to mind first. However, Aarhus, located 187 kilometers northwest of Copenhagen, is the country's second biggest city and has become a key destination for many reasons. It is not only the largest city for industry, services and trade on the Jutland Peninsula, but it also is one of the top 100 conference cities in the world and home to Scandinavia's largest university, Aarhus University. Furthermore, in 2017 it was named by the European Union as the European Capital of Culture, a great honor that has elevated the city's visibility and profile on an international scale. This vibrant metropolis is also the second fastest growing Danish city. To accommodate this rapid growth, Denmark's second largest

city offers the best in housing and wireless performance for residential and/or mixed use developments initially with fifteen buildings have been constructed in the Aarhus area.

These buildings offer it all to their residents, from underground parking and beautiful city or water views to expansive recreational areas and robust mobile communication. Traditionally, residential complexes have depended upon the outdoor macro tower to provide cellular coverage and capacity. However, the RAN host, Stofa, knew to ensure powerful and cost-efficient wireless connectivity across these four developments a DAS (distributed antenna system) would be required. Working with system integrator, KM Telecom, they decided to deploy the C-DAS (centralized DAS) offering from global wireless innovator, JMA Wireless. This multi-band, multi-carrier offering is an iteration of JMA Wireless' popular JMA DAS solution that has been deployed around the globe.

AARHUS

Denmark's second largest city offers the best in housing and wireless performance

Frederick's Place

48,500 sqm

150 Residences
500 Parking Spots
35,000 sqm dedicated to business

Pakhusene

35,000 sq meters

Phase 1 includes 9,000 sqm for businesses
6,000 sqm for condominiums

Island 4 Aarhus

26,000 sq meters

Phase 1 includes 9,000 sqm for businesses
6,000 sqm for condominiums

Rysskov Brynet

129,000 sq meters

Located in the district of Risskov, includes light businesses, residences and 24,000 sqm of green space



Increase
guest satisfaction



Seamless
Mobile connectivity



Streamlined
business operations

“ We have worked with jma wireless on high-profile das projects across denmark before; therefore, when the aarhus project was presented to us we thought of jma wireless first. They provide excellent local support and their innovative c-das technology was the perfect solution for this deployment.”

MICHAEL HERMANSEN CEO
KM TELECOM

SITUATION

Complex Wireless Communications Deployment

The Aarhus deployment is unlike any other in that it involves a massive number of residences and businesses that require dependable cellular communications. This challenge is further complicated by the fact that Aarhus is the Danish city with the youngest demographics, which means that many of the buildings' occupants are millennials, the biggest users of mobile communications. The demand for cellular connectivity is very high throughout these four developments, which leads to a critical issue known as densification. Mobile operators define densification as a concentrated area of mobile subscribers with a high demand for cellular connectivity. This demand cannot be cost-effectively satisfied by macro towers alone.

In Denmark, all new building projects are being constructed as Class 1 low-energy structures, which presents another issue to robust indoor mobile communications. These energy efficient facilities

include low-energy window glass, which reduces utility costs and increases the comfort for occupants. This is accomplished by controlling the amount of solar energy that enters a building. However, low-energy glass also impedes the cellular signal from entering and leaving buildings, further negatively impacting indoor mobile communications.

How onsite real estate is used in these developments is key to revenue generation; therefore, it is critical that the wireless network infrastructure equipment not occupy valuable space in the buildings. An on-premise equipment room detracts from property that can be used for a residence, retail or office. An offsite solution was necessary.

The DAS needed to support multiple technologies and multiple carriers to ensure cellular connectivity for the thousands of building occupants as well as visitors who may be staying with friends and relatives in this vibrant city. In addition, it had to be future-proof so it could easily support new technologies. Extensive downtime for upgrades is just not an option.

SOLUTION

C-DAS – The Efficient, Cost-Effective Solution

The Aarhus deployment with its four residential zones known as Frederick's Place, Pakhusene, Island 4 Aarhus and Risskov Brynet, cover almost 240,000 sqm. Within these developments initially there are 15 buildings with residential, office and retail space, all requiring reliable cellular coverage. To accomplish this goal, KM Telecom deployed the C-DAS solution from JMA Wireless. During the initial phase of this project, a six-person team deployed two sectors, supporting the mobile operators, TDC, Telia and Telenor, and 3G and 4G.

With the C-DAS technology, the central processing equipment is in a lower cost offsite BTS (base transceiver station) hotel located in central Aarhus. It was not necessary to use valuable real estate in the developments for onsite DAS equipment rooms. Using point-to-point links, cellular coverage and capacity are being supplied to locations up to 20 kilometers away, even to Island 4 Aarhus, a manmade island with a variety of residences.

Inside the buildings, only low and high-power 3G and 4G remote units (RUs) are deployed. The C-DAS technology has proven to not only save up to 85 percent of valuable onsite real estate space, but it also generates further cost savings by minimizing fiber infrastructure requirements, resulting in significantly reduced costs.

In addition, C-DAS offers the ability to easily move capacity into different areas as needed. For example, the capacity used for businesses during the week can be reallocated to residences on the week-ends or in the evenings when people are at home. This capability not only efficiently supports the needs of the different areas, but also provides better utilization of spectrum.

Finally, the C-DAS technology is a future-proof solution that can readily support additional carriers and the latest technologies. Any changes can be accomplished with minimal downtime so as not to impact the user experience.



The compact remote unit enables reliable mobile communications onsite.

RESULT

Ready for Expansion

As the second fastest growing city in Denmark, the Aarhus project will continue to expand until 2020 to accommodate this growth. It is anticipated that the two sector system will increase to eight sectors. With the C-DAS technology, this growth will be handled cost-effectively and efficiently. **Minimum disruption and maximum cellular coverage and capacity are guaranteed with this innovative JMA Wireless offering.**

About JMA Wireless

JMA Wireless is the leading global innovator in mobile wireless connectivity solutions that ensure infrastructure reliability, streamline service operations, and maximize wireless performance. Employing powerful, patented innovations their 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:
jmawireless.com

About Stofa

At Stofa we fight every day for even better digital experiences for the benefit of people and companies in Denmark. Founded in 1959 by Anton Petersen, the company today offers our 480,000 customers fast and stable broadband, good television content, digital SmartTV services and telephony at competitive prices. With a successful strategy and a future-proof platform, Stofa has created a distinctive position in the Danish telecommunications market. As the second largest provider of TV, broadband and telephony, we are the challenger, who provides better customer experiences, stronger products and competitive prices.

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About KM Telecom

KM Telecom Denmark is known and respected in the telecommunications market for our complete solutions for both small and large businesses, including service and maintenance tasks. We are a leading specialist when it comes to the establishment of telecom and mobile sites because KM Telecom is one of the few vendors that can deliver a complete turnkey solution. We offer this same professional approach when it comes to design, assembly and installation of DAS platforms or customized Wi-Fi solutions. Our specially trained staff performs tasks on land, at sea and in the air, and are always updated on the latest technological developments and focused on the individual customer's needs. Our unique experience and expertise means that today we can foresee all possible structural engineering, radio engineering, economic, legal and technological issues in both small and large projects. KM Telecom is working not only with the construction, design and installation, but we also provide service and maintenance of all types of plants - technical, mechanical and construction projects.

FOR MORE INFORMATION:
km-telecom.com.

