



# How to Design an Award-winning Private 5G Networks for the Paris Games 2024

Worldwide broadcast coverage of the Paris Games in Summer 2024 presented extraordinary challenges in a high-stakes environment, on land and at sea. From the Opening Ceremony on the River Seine, to the sailing events held in Marseille, and across three stadiums filled with fast-paced sports action, Alpha Wireless and Neutral Wireless delivered robust, uninterrupted connectivity for broadcast productions and real-time still image transfer.



## The Customer

Neutral Wireless is an industry-leading and multi-faceted mobile communications company, offering design and integration services with engineering excellence. Neutral Wireless was tapped for their private 5G network expertise as part of a consortium led by Cisco, on behalf of Orange Events and the Olympic Broadcasting Services.

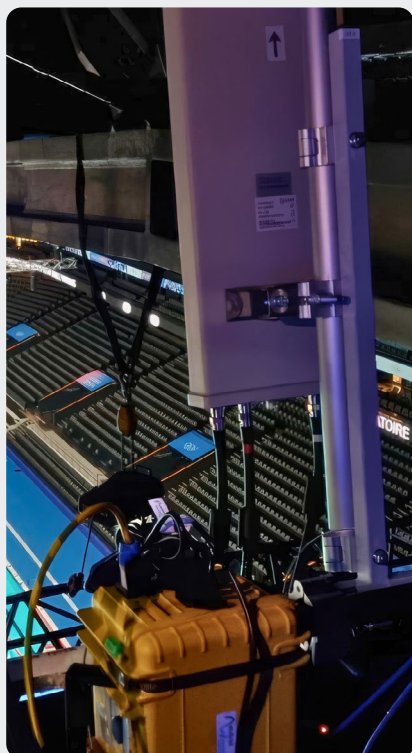
## Location

Paris and Marseille

## The Product



**Alpha Wireless  
Panel Antennas**



## The Challenge

To celebrate the Summer Games of 2024 in Paris, organizers conceived an ambitious plan to host the opening ceremony as a floating procession along the iconic River Seine. Secure and reliable wireless communications were needed along the entire route to enable multiple uplink-heavy use cases simultaneously. High-definition video of each of the 205 delegations was streamed live from onboard the 85 athlete boats in the procession. At the same time, press photographers at various points along the route were able to upload their images in near-real time to their agencies for instant use in news and social media coverage.

Similarly, the sailing event held in Marseille presented unprecedented radio frequency (RF) design challenges to broadcast live race footage from each fast-moving boat across open water.

Finally, unobtrusive private 5G networks were also deployed in three stadiums throughout Paris to capture sports action from the athletics, swimming and gymnastics competitions for 4K video broadcast feeds and photography upload.

## The Solution

Neutral Wireless selected Alpha Wireless antennas to deploy for private 5G standalone networks across multiple venues to meet the demanding specifications of high-quality, live media production with reliable connectivity and high data transfer rates.

For the opening ceremony, Alpha Wireless antennas were incorporated into 22 cells deployed on multiple bridges along the Seine to create the largest private 5G-for-broadcast network to date. This large-scale architecture connected 217 Samsung S24 Ultra smartphones equipped with the Haivision MoJoPro app — one per delegation — to provide live content along the procession route. The Alpha Wireless panel antenna was selected to achieve maximum performance, with a 17 decibel isotropic (dBi) gain, to maximise uplink sensitivity from the user handsets.



Likewise, Samsung mobile handsets were used to capture live onboard footage from the sailing events that took place off the coast of Marseille. The team designed a floating network comprised of three network cells built on catamarans, using 2.6 GHz (n38) and 4 GHz (n77) bands. Alpha Wireless AW3828 and AW3842 directional antennas were deployed in a unique T configuration to counteract the pitch and roll of the boats at sea. This design again helped boost coverage by providing significant receive gain, as well as offering link resiliency to overcome RF shadowing over water due to signal reflection and absorption.

Private 5G networks were also deployed at three different stadiums to provide coverage of the athletics, swimming and gymnastics competitions, with support for ultra-low latency full 4K broadcast video production. Opposing radio units with directional Alpha Wireless antennas were configured to prioritize coverage specific to each venue. For example, in the Bercy Arena, the network was designed to provide coverage for broadcast camera operators and stills photographers moving from one apparatus to another as they captured images of world-class gymnasts during competition.



## The Results

One hundred years after the last Paris Summer Games in 1924, the Olympic Broadcasting Services challenged technology providers to enable live broadcast coverage unlike any that has ever been seen before. From the first opening ceremony to be held outside a stadium, to bringing viewers as close as possible to sailing action with live onboard video and audio, coverage of the 2024 Paris Summer Games was unparalleled.

Meticulous planning, design and deployment allowed Neutral Wireless and Alpha Wireless to overcome considerable complexity encountered in the delivery of over 200 different broadcast feeds. With an ultra-configurable private 5G network optimized for the demanding uplink and low latency requirements of broadcast production, the team was able to overcome substantial challenges to score a perfect 10 in network coverage.



## Why Alpha Wireless

Neutral Wireless selected the Alpha Wireless panel antennas to overcome technical and environmental challenges based on prior positive experience working together, technical expertise, and product excellence. With decades of experience in the design and manufacture of quality solutions worldwide, Alpha Wireless specializes in maximizing coverage, capacity and cost-efficiency. Contact Alpha Wireless to learn how to solve even the most complex antenna and site-related network issues.

***“The performance of the Alpha Wireless antennas was crucial to designing a private 5G network able to meet the uplink reliability and latency needs of live broadcast connectivity for the 2024 Paris Summer Games. Alpha Wireless was instrumental in allowing us to meet the demanding requirements of this very ambitious project”***

**Bob Stewart**

Network Director and CTO, Neutral Wireless