

# 5G Rural Sports Live Broadcasting – The Pitlochry Highland Games 2022

University of Strathclyde (StrathSDR), Neutral Wireless, QTV, Zixi, Open Broadcast Systems



Media production is highly competitive and consumers are now looking for high quality, real-time, immersive experiences – especially when it comes to live events and sports. 5G wireless technologies have the capacity and speed to deliver reliable wireless transmission of Ultra-High-Definition (UHD) broadcast-quality videos, that can capture fast-paced activities within a diverse range of environments. Mobile network coverage is limited in some rural areas and this can present challenges for live broadcasting. The Neutral Wireless private 5G network operates in shared spectrum with a 100MHz bandwidth that can be optimised for uplink, enabling many camera feeds to be reliably sent to the basestation. Here is an example on how this emerging technology from the University of Strathclyde was applied to broadcasting:

## 1 Situation

Each year the Pitlochry Highland Games have over 100 entries from around the world, participating and competing in the games that include tossing the caber, highland dancing, running, cycling and tug of war. The games is one of the busiest weekends of the year in Pitlochry, attracting thousands of people to the town. The broadcasting challenge faced during gaming and sporting events is the high capacity of people using the same mobile networks within the area, resulting in the network being slow and unreliable. The location is also within a rural area which can present a lot of challenges due to the lack of infrastructure and no fibre connectivity.



**Approx. 5,000 Attendees**



**Rural Location**



**Unreliable Network**

## 2 Task

Provide a digital solution that has the capacity and speed to broadcast affordable, secure and reliable wireless transmission of low latency live Ultra High Definition (UHD) videos, that can capture the fast-paced activities and games taking place at the Pitlochry Highland Games.



## 3 Action

Building on the know-how from earlier 5G projects, the University of Strathclyde spinout, Neutral Wireless Ltd, have built their own pop-up private 5G standalone network (Network -in-a-box). Working with local Scottish production company QTV, 4 HD wireless cameras were connected and provided live low-latency video feeds for production at the games.



## 4 Results

Using shared spectrum and Starlink satellite internet connectivity, QTV were able to produce an 8 hour live uninterrupted broadcast to a potential audience of 40,000 at the International Broadcasting Convention (IBC) in Amsterdam. It provided live videos of the games from a remote location in rural Scotland.



**Broadcast to 40k People**



**Uninterrupted Broadcasting**



**High Quality Live Footage**

## 5 Why 5G?

5G can provide a secure private standalone network that is reliable and prevents any congestion from other network users. The pop-up software-defined 5G network can be rapidly deployed and readily reconfigured to satisfy user requirements. It's perfect for remote locations and has the capacity to enable the broadcast of ultra high quality live footage from anywhere in the world.

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