

# **Successful tests mark important milestone toward a 5G future**

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TWEETHER W-band Transmission hub. Credit: Lancaster University

A future vision of high speed wireless Internet that promises to break down two major 5G challenges has taken a leap forward following milestone tests of a cutting-edge European millimeter wave wireless technology.

A European consortium of engineers and scientists have demonstrated the World's first real-world environment transmission of data in point to multipoint within part of the wireless frequency spectrum known as [millimetre wave](#), or W-band, which is between 92-95 GHz.

The field test, at the Universitat Politecnica de Valencia, in Spain, comes after more than three years of work designing cutting-edge components and systems to enable the first point to multipoint wireless system above 90 GHz.

The European Commission Horizon 2020 TWEETHER project, led by Professor Claudio Paoloni, Head of Lancaster University's Department of Engineering, enabled the transmission of up to ten Gigabit per second over a large area to feed base stations for mobile networks or wireless fixed access broadband.

The system provides lower cost and higher flexibility than fibre. It also enables broadband to be delivered to residential or rural areas where fibre is too expensive to be deployed.

Professor Paoloni said: "It has been an emotional moment to see the TWEETHER equipment installed on the masts of the Universitat Politecnica de Valencia and watch the monitor showing the first data transmitted. TWEETHER has been a visionary project for a break-

through in the [wireless communication networks](#).

"The development of European technology at millimetre wave aims to solve two major challenges of modern communications – a way of wirelessly transmit to and from a grid of new 5G small cells networks, and the digital divide that affects million houses without broadband in areas where the fibre cannot be deployed.

"I am in debt with all the scientists of the TWEETHER consortium that with their outstanding expertise and commitment have realised the TWEETHER concept. I am also grateful to the European Commission for giving us this great opportunity by funding the TWEETHER project through the Horizon 2020 programme."

Millimeter waves are part of the frequency spectrum that is currently unused, but it is very promising, from the wide frequency bands available, to support high data rate. Challenges with wireless communication data volumes and speeds can only be met by exploiting millimetre waves and TWEETHER is addressing these technical hurdles.

This new TWEETHER millimetre wave technology, when it becomes available to mobile [network](#) providers, will be deployed as part of future 5G networks.

Provided by Lancaster University

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