

# ULTRAWAVE

ULTRA CAPACITY WIRELESS LAYER BEYOND 100 GHz BASED ON MILLIMETER WAVE TRAVELLING WAVE TUBES

ULTRAWAVE is aimed at developing a high capacity backhaul that enables 5G cell densification by exploiting bands beyond 100 GHz. New travelling wave tubes delivering high power will allow the creation of an ultra capacity layer providing more than 100 Gbps per kilometer square in Point-to-MultiPoint at D-band (141 – 174.8 GHz) fed by novel G-band (300 GHz) Point-to-Point high capacity links.

The ULTRAWAVE system is empowered by the development of new traveling wave tubes in combination with solid-state electronics and photonics. This new layer will enable backhaul of hundreds of small and pico cells, no matter the density, opening scenarios for new network paradigms aiming at a full 5G implementation.

## ULTRAWAVE objectives:

1

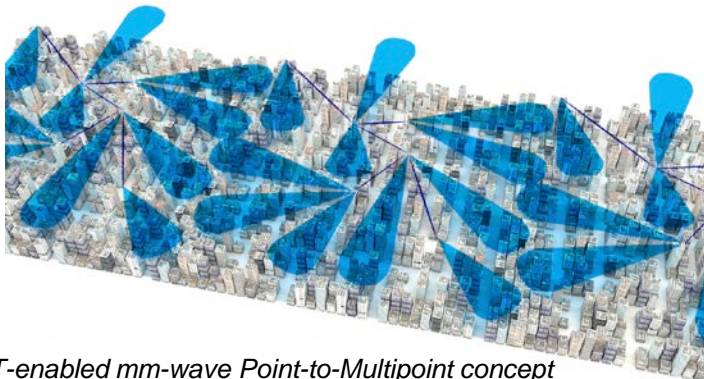
Exploitation of the whole millimeter wave spectrum both in Point-to-MultiPoint and Point-to-Point for the maximum flexibility in network architecture to respond to the irreversible traffic growth.

2

Demonstration of two novel Travelling Wave Tubes at D-band and G-band and a full European chipset for D-band and G-band.

3

First outdoor demonstration of a Point-to-MultiPoint system at the D-band and a Point-to-Point as true “fiber on air” at the G-band



ULTRAWAVE TWT-enabled mm-wave Point-to-Multipoint concept



Horizon 2020  
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