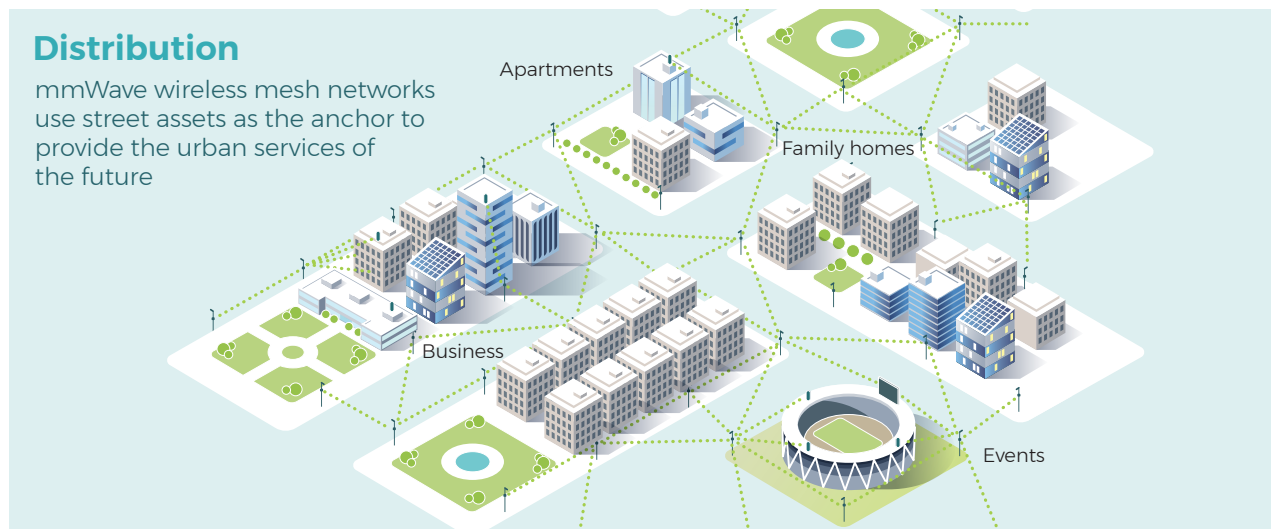


The millimeter wave networks Project Group defines and advances wireless networking solutions that utilize millimeter wave spectrum (~30 to 300 GHz) to address the constantly growing demand for bandwidth by delivering gigabits of capacity more quickly, easily and cost-effectively compared to deploying fiber.

Distribution

mmWave wireless mesh networks use street assets as the anchor to provide the urban services of the future



Overview

The mmWave bands are the foundation of the multi-gigabit per second wireless data infrastructure that supports fixed wireless access, mobile backhaul and smart city connectivity services. As data demand increases and services are delivered more locally, use of mmWave spectrum becomes the only practical means of provision.

To fully exploit the mmWave bands, their characteristics must be carefully considered in the planning and execution of mmWave equipment and networks. Planning is improved through channel modeling and the study of different propagation environments. Execution is improved through the development of practical techniques to address integration into street assets and installation at the customer premises.

At a glance

- **Large bandwidth:** significantly wider channels are allocated in mmWave bands than in lower frequency bands. This permits high data rates while using robust modulation schemes.
- **Low interference:** the antennas have narrower beams, which reduces the risk of interference between links.
- **Agile links:** by using antenna arrays, higher gain antennas can be achieved. The beams produced by these antennas can be steered by varying the phase between elements. Links can be established in different directions in real time.
- **Licensed and unlicensed spectrum:** with a variety of bands available, networks can operate in licensed or unlicensed spectrum based on the application need

Primary Activities

Channel Sounder Program

Bridging the gap between academia, government, and the telecom industry to define and characterize the propagation tendencies and performance of 60GHz.

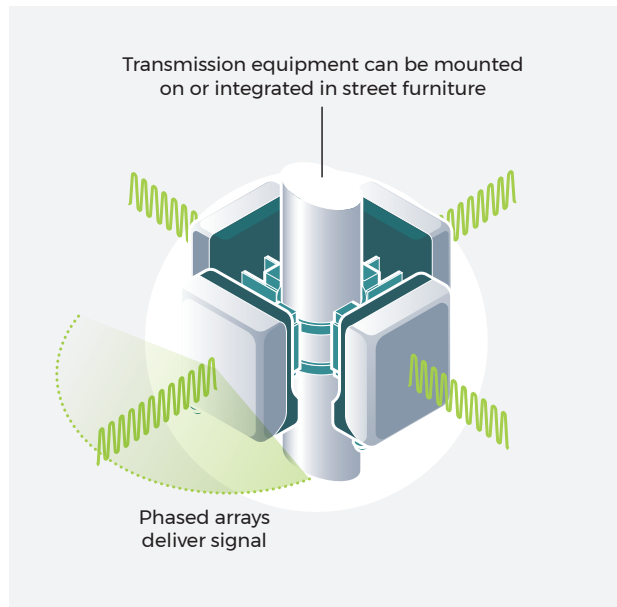
Urban Connectivity

Accelerating outreach and initial advocacy period for cities exploring connected infrastructure, and working to develop a cost effective, aesthetically acceptable solution for integrated street assets and CPEs

Technology Validation

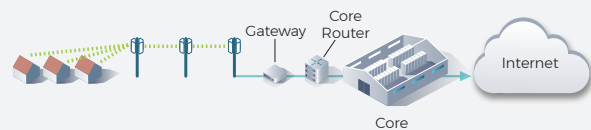
Evaluating the performance of unlicensed mmWave technologies through lab and over-the-air (OTA) testing in TIP Community Labs and in Field Trials around the globe

Solution

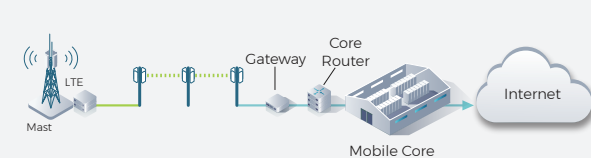


Use cases

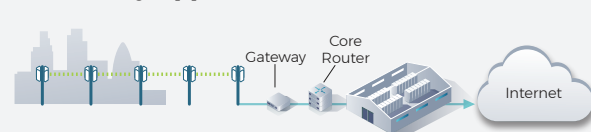
Fixed Wireless Access



Cellular Backhaul



Smart City Applications



Benefits

- **Low cost deployments** with Gbps+ data rates
- **Large amount of licensed and unlicensed spectrum**
- **Smaller form factor** of transmission node and user equipment
- **Fast installation & configuration:** Connection can take hours, rather than months to trench new fiber
- **Capital efficient:** Networks can be deployed where the demand is

What next

- **Learn more about Telecom Infra Project:** telecominfraproject.com
- **Join the Millimeter Wave (mmWave) Networks** Project Group at mmwave.telecominfraproject.com to contribute and learn more
- **Contact us:** mmWave-info@telecominfraproject.com