

Project Consortium & Coordination

MULTIPLY-6G unites 14 leading European academic institutions, research organisations, and industrial pioneers.

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MULTIPLY 6G

MULTIDIMENSIONAL WAVE AND SPACE-LEVEL OPTIMIZATION FOR ENERGY EFFICIENT COMMUNICATIONS AND SENSING



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Smarter, greener, and integrated physical layer solutions for next-generation mobile networks.

THE 6G ENERGY CHALLENGE

Scaling wireless network performance to higher frequency bands using current physical layer architectures creates severe energy and hardware bottlenecks:

Power Demands

Traditional multicarrier signals incur high Peak-to-Average Power Ratios (PAPR), driving up operational power usage.

Hardware Bottlenecks

Power amplifiers operating at sub-THz frequencies suffer from reduced efficiency and severe non-linear distortions.

Environmental Impact

Meeting future data growth without re-architecting physical layer technologies threatens overall network sustainability.

A FRESH APPROACH TO PHYSICAL LAYER DESIGN

MULTIPLY-6G links waveform design directly with radio-frequency hardware and sensing capabilities, delivering low-power solutions built for real-world deployment.

CORE RESEARCH PILLARS

Power-Optimised Waveforms

Constant-envelope and low-PAPR signal designs engineered specifically for high frequencies.

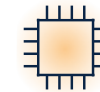
Hardware Co-Design

Joint power amplifier topologies and processing algorithms designed to manage non-linear distortion.

Integrated Sensing & Communication (ISAC)

Shared spectral and hardware resources supporting communication and environmental sensing on a single network.

DELIVERING TANGIBLE RESULTS



Experimental Proof-of-Concept

Validating theoretical physical layer breakthroughs through hardware-in-the-loop testbeds and functional prototypes.



Greener Infrastructure

Significantly reducing the operational carbon footprint and power demands of future mobile networks.



Global Standards Leadership:

Feeding technical insights, candidate waveforms, and energy-efficiency metrics directly into ongoing 3GPP pre-standardization efforts.