

Instituto de Telecomunicações - U. Aveiro  
Radio Systems Group  
Campus Universitário de Santiago  
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**Research Topics:**

I&D on Satellite Communication Systems:

- \* Radiowave Propagation Modelling at Ku-Band and above: attenuation, depolarization and scintillation
- \* Development of affordable beacon receivers for satellite propagation experiments using digital radio techniques
- \* Data Acquisition Software for propagation measurements;
- \* Development of data-preprocessing and processing software for propagation data time series analysis;

Radio Astronomy

- \* Development of high bandwidth digital polarimeters and radiometers

Mobile Communications

- \* MIMO channel modelling
- \* Bidirectional wireless propagation channel measurements

**Comments :**

\* More than 15 years of experience on Earth-Satellite microwave propagation studies from propagation equipment development, field experiments (propagation and meteorological measurements) and directional mobile radio channel measurements and propagation data processing.

- \* Development of a sounder for Bidirectional channel measurements



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**Research Topics:**

Propagation and channel models for:

- cellular networks (outdoor, indoor)
- millimeter wave and THz communications
- vehicle-to-X communications
- navigation
- satellite links
- railway communications



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**Research Topics:**

Channel modelling

Path loss modelling

Fading modelling

Time dispersion modelling

Cellular systems

Body Area Networks

Spectrum sharing

Heterogeneous networks

**Comments :**

Instituto de Telecomunicações - Leiria  
Antennas & Propagation - Leiria Research Group



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**Research Topics:**

Radio channel propagation modelling in vegetation media

RF measurement systems and channel sounder topologies

RF transparency control of building wall structures

Ray tracing based models for doubly selective radio channels

Radio system design at micro- and millimetre wave

Novel Antenna Beam Steering based on metamaterials and frequency selective surfaces for Wireless Applications

**Comments :**

The Antennas and Propagation – Lr (A&P-Lr) is a recent research group, currently with 2 senior researchers, 6 Ph.D students, several undergraduate and master students and more than 7 external highly reputed international researchers from 3 organisations in 2 countries. Established in 2011, the A&P-Lr undertakes a wide range of research covering the very broad range of frequencies from 1 to 60 GHz. It has a comprehensive experimental facilities housed in the Radio Systems laboratory at the School of Technology and Management of the Polytechnic Institute of Leiria ([www.estg.ipleiria.pt](http://www.estg.ipleiria.pt)), including one of the largest anechoic chambers in Portugal.

The Radio Systems Laboratory of the A&P-Lr comprises of an anechoic chamber (6x5x3 meters) with possibility of small vehicle access, coupled to full RF characterisation and measurement system capabilities and a multi-frequency channel sounder with doubly-selective channel measurement capability (multipath and Doppler), up to 26.5 and at 40 and 60 GHz.

