

## E-Transparent – MATURATION Program

### Functional fluids for discrete radio frequency applications

#### R&D CDD position (post-doctorate)

Start: 01/02/2022 End : 31/07/2023

30-32 k€ brut/an

Maturation Program - SATT LINKSIUM

Application deadline: 07/01/2022

## Project Description

The E-transparent project addresses transparent radio frequency applications for various sectors (smart building, automotive, telecommunications, etc.). The transparency of the devices developed is based on the formulation of a transparent conductive ink coupled with specific design strategies. The materials implemented in this transparent conductive ink are silver nanowires, nanocelluloses and specific additives. Issued by the research institutions LGP2 and IMEP-LAHC the innovation is patented. This maturation program aims at optimising and characterising the transparent RF systems produced to allow a market positioning as well as the establishment of a transfer and valorization strategy.

Targeted applications are antenna devices, rectenna systems (energy harvesting) and frequency selective surfaces (FSS). The development of new RF patterns, their characterization as well as the study of their stability and aging will be in major focus within the maturation program.

Four distinct Work Packages have been identified to achieve the objectives:

<b>WP1 - Printing optimization and scale-up</b>	<ul style="list-style-type: none"> <li>- Printing quality optimization</li> <li>- Characterization and optimization of the printed film adhesion</li> <li>- Scale-up of the ink production (500g / 1kg)</li> </ul>
<b>WP2 - Transparent RF Application</b>	<ul style="list-style-type: none"> <li>- Development of antenna devices and characterization</li> <li>- Development of FSS surfaces and characterization</li> <li>- Rectenna development and characterization</li> </ul>
<b>WP3 - Stability and aging assessment</b>	<ul style="list-style-type: none"> <li>- Assessment of the devices resistance against bending, T°, HR%, UV... Etc.</li> <li>- Ink aging assessment</li> <li>- Devices aging assessment</li> </ul>
<b>WP4 - RF ink and devices validation</b>	<ul style="list-style-type: none"> <li>- Development of demonstrators</li> <li>- Validation by manufacturers (Printing / Printed electronics actors)</li> </ul>

For more information:

LGP2 : <https://lgp2.grenoble-inp.fr/fr/laboratoire>

IMEP-LaHC : <https://imep-lahc.grenoble-inp.fr/>

Linksium : <https://www.linksium.fr/>

## Candidate Profile:

- ▷ PhD degree/ doctorate appreciated
- ▷ Given the multidisciplinary aspect of the project, several types of skills can be valued:
  - Expertise in the field of materials (nanocelluloses, nanoparticles)
  - Expertise in printing processes, in particular screen-printing process
  - Expertise in the field of radiofrequencies
- ▷ Autonomy, professionalism, capacity to analyze and synthesize, motivation, ability to work in a team
- ▷ Good level in English

**To apply to this offer, please send a detailed CV, an application letter and the contact information of a referring person if possible.**

### Contact Information :

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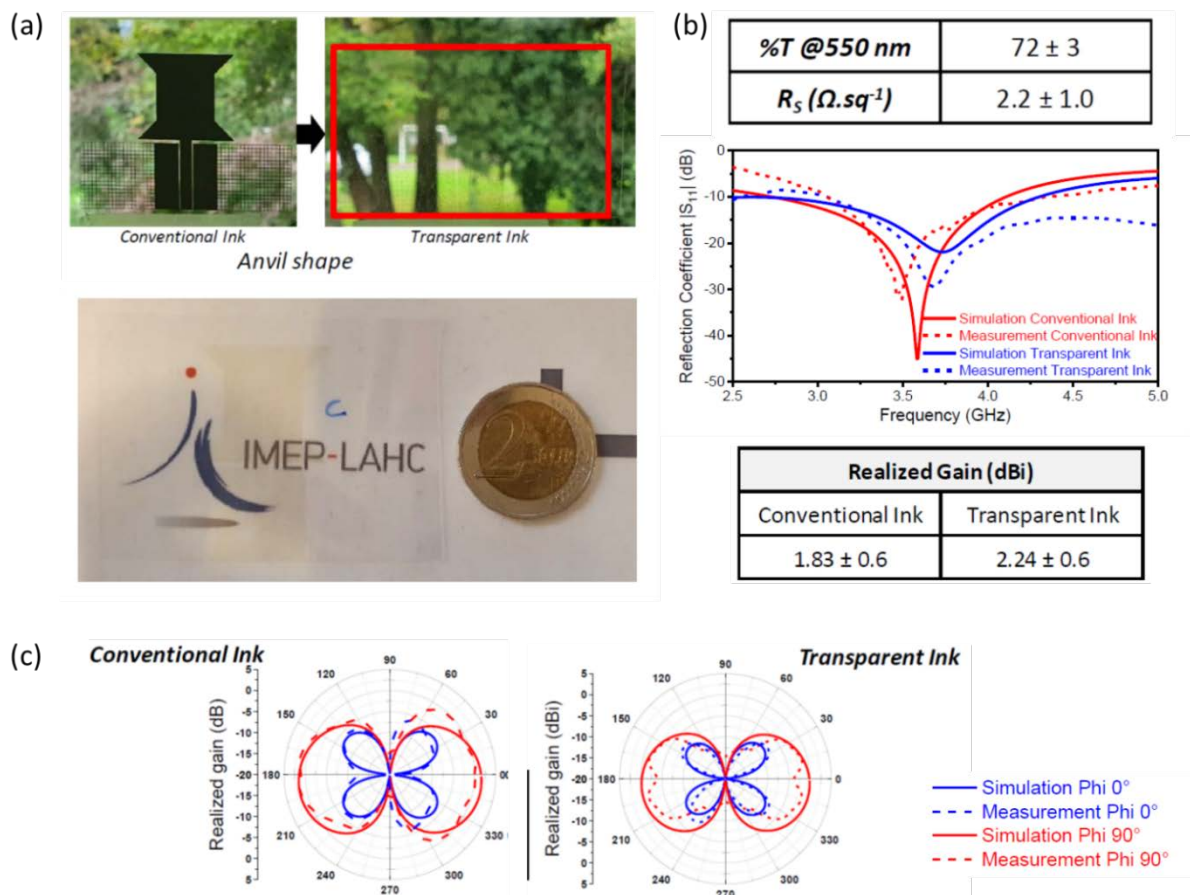


Figure 1: (a) antenna under natural daylight for conventional and transparent ink, (b) and (c) Antennas characterisation – Conventional vs. transparent ink.