

Projet WiMeCOM

A Moroccan wireless smart metering solution



- **COORDINATION**

MAScIR

- **CONSORTIUM**

MAScIR

Constructions Electriques Appareillages de
Comptage (CEAC)

- **DUREE DU PROJET**

3 ans

- **BUDGET DU PROJET EN MAD**

Financement IRESSEN : 1 587 000

Investissement global : 3 654 580

- **CONTACTS:**

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Partenaires Scientifiques



La fondation MASciR: Le centre composites et nanocomposites se focalise sur la conception de nouveaux matériaux résultant des polymères synthétiques ou naturels renforcés par des familles variées de charge.

Le groupe modélisation qualifié pour des études de simulation (mise en œuvre de composites, transfert thermique, dimensionnement, ...)

Le groupe énergie avec de multiples compétences en caractérisation des matériaux et un expertise dans le vieillissement des composants CS



Partenaires Industriels



Constructions Electriques Appareillages de Comptage (CEAC) a pour clients et référence tous les distributeurs d'énergie, notamment l'ONEE, la Lydec, Véolia et les régies, marché ou il est parmi les leaders. Ceac a également une expertise dans le comptage intelligent en moyenne tension

Like all machine-to-machine application, smart grid has specific performance requirements. The main two are reliability and delay. Due to the presence of noise in all communication channels, both wireless and power line communications will suffer from attenuation and signal corruption. Powerlines were not built for high frequency communications and hence the presence of switches, transformers and EMC/EMI disturbances can present very difficult obstacles for reliable communications. On the other hand wireless transmission is prone to fading and propagation obstacles rendering line of sight communication a rarity. These impairments need to be taken into account in designing modulation/demodulation and network topology to obtain more reliable and low delay communications. This is particularly the case for smart metering which in a telecommunication network would represent the “last mile” portion. Unlike other smartgrid communications, smart meter networks will be highly heterogeneous ranging from dense urban deployment to sparsely populated rural setting. This project aims at putting to the test and proposing solutions for this challenging wireless communication problem using frequencies available in Morocco and with smart grid performance requirements in mind.



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- **Objectives:**

The project aims at addressing the following critical issues:

- Cross-layer low power communications for long life of battery powered communication module
- Robust network failure proof topologies
- Wireless mesh network that is conform to Moroccan national frequency plan

The holistic approach adopted in the project will look at cross layer performance of communication stacks including Physical, MAC, link and network layers. The various authorized frequencies by the Moroccan Telecom regulator will also be put to the test to determine for each of the deployment cases the most adapted set up.

Last but not least, even for power sensing cases of renewable sources, availability of a power source is not guaranteed for smart meters which need to securely continue functioning in all cases. For these purpose power saving communication technologies should be privileged as the sensing and communication module could be battery powered and should last multiple years.

- **Perspectives:**

At its accomplishment, the project should have a field tested wireless moroccan smart meter solution complete with a data collection and analysis platform. Furthermore, this will be the first time that the various available frequencies in Morocco for telemetry will be put to test in the fields with various network topologies and configurations.

Having as a partner one of the leading vendors of electric meters in Morocco is in itself a solid indication of the commercial potential of the project.