

## Smart Metering Laboratory of TECNALIA as a response to smart metering technologies in Europe

Several smart metering technologies have been developed in Europe. Some of them are utility private solutions but others, like PRIME (promoted by Iberdrola, EDP, Hidrocarburo, Gas Natural-Fenosa, etc.), G3 (promoted by EDF), or Meters & More (promoted by ENEL, ENDESA, etc.) try to present public solutions. All of them use the PLC technology to exploit the existing wired infrastructure and reduce the cost of the communication channel deployment.

Being a regular member of these Associations, TECNALIA is deeply involved in conformity assessment services of smart data concentrators (installed in the transformer substations) and smart meters (installed at the supply points). Concerning the PRIME standard, TECNALIA participates in the Certification Task Force, writing different parts of the Test Book for Service Nodes (meters) and Base Nodes (data concentrators), selecting the official certification testing tools and being an accredited test laboratory for this type of equipment. Both PRIME and G3 comply with (ITU-T G.9955 and ITU-T G.9956) and use DLMS/COSEM protocol (IEC 62056) as the data model for the information transfer. TECNALIA is an official laboratory to certificate the Spanish and Portuguese DLMS/COSEM profiles (“Companion Standards”), developing also the pre-certification testing tools for smart meter manufacturers. In parallel, TECNALIA collaborates in the Meters & More Association contributing to the specification of the future evolutions of the standard, specifically to include the DLMS protocol in the Meters & More specification.

Obviously, the “conformance” is paramount for the roll-out of smart meters but also the so-called “performance” of the entire smart metering system. TECNALIA verifies that the different manufacturer meters work as intended when incorporated in the same installation (i.e. are interoperable) and that the overall performance is within the acceptable margin. For this purpose, TECNALIA has developed an ad-hoc testing infrastructure that reproduces the last-mile of the distribution network (from the transformer substation to the different meters). This fully configurable installation allows to change the length and type of the electrical lines, the network topology, the number and type of meters, the network loads, and the network noise and attenuation.

<b>Facilities:</b> <ul style="list-style-type: none"><li>▪ PRIME protocol Laboratory</li><li>▪ DLMS protocol Laboratory</li><li>▪ Meter interoperability Laboratory</li><li>▪ EMC Laboratory</li><li>▪ Environmental testing Laboratory</li><li>▪ Telecommunication Laboratory</li><li>▪ Low Voltage Safety Laboratory</li></ul>	<b>Tests:</b> <ul style="list-style-type: none"><li>▪ PRIME protocol certification</li><li>▪ DLMS tests</li><li>▪ Meter interoperability tests</li><li>▪ Smart metering efficiency tests</li><li>▪ CENELEC EN50065-1, EN50065-2-3, EN50065-7 and other EMC tests</li><li>▪ Climatic and mechanical tests</li></ul>
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### **TECNALIA Research & Innovation**

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