

## **“Smart Meters are reliable; recent tests that caused meters to show failures were under abnormal circumstances and violating the European regulations”**

### **Introduction**

A study conducted by the University of Twente (Netherlands) regarding electromagnetic interference on static electricity meters has recently gotten a worldwide attention and led us to look in detail at its findings. ESMIG, the voice of the smart energy solution providers in Europe, welcomes independent studies performed in reliable and realistic conditions, because we believe that they help build a climate of transparency and trust between energy providers, service providers, solution providers, public authorities and citizens. In this particular case however, ESMIG and its members do not believe that this study meets the criteria of reliability and realism, and we regret that as a result it has created uncertainty and sown doubt among consumers, network operators and regulators

Specifically, we regret that the results of the University of Twente (UT) study do not relate to actual “real world” conditions. The laboratory situation created for the UT study was based on incorrect and unrealistic installation. Such conditions are exceptionally unlikely to occur in normal households, and electromagnetic emission limits under EU regulations were grossly exceeded for the equipment used in this study.

Smart meters supplied by ESMIG members in the European market meet, and often surpass, the requirements of the testing standards under the EU Measuring Instruments Directive (MID), which ensure their accuracy, reliability, durability and safety. ESMIG would like to reassure policy makers, network operators, electricity suppliers and most importantly, European consumers, that the smart metering technology being deployed in Europe is robust, secure and accurate. The measurement accuracy of smart metering is the absolute basis for consumer confidence. There is no reason for any stakeholder to question the benefits of smart metering technology based on the results of the UT study.

### **The tests performed by University Twente**

The University of Twente tests on Static Energy Meters included tests using a 10A lighting dimmer and a string of 30 non-dimmable CFL (energy saving lamps) and a string of 20 non-dimmable LED lamps. This in and of itself is not a real world scenario that would exist in a consumer’s house. It may occur that one or even a few non-dimmable lamps could be connected to a dimmer by a consumer, but not as in the reported tests with 20,30 or even 50 lamps.



This combination of non-compatible components creates substantial electromagnetic emissions that far exceed the maximum emission levels permitted by European Directives and related standards. The electromagnetic interference in any case far exceeds anything found in a normal household.

Unfortunately, the publications and the communication from UT side leave the impression that these conditions could likely occur in any household when using widely employed and CE marked equipment. This is wrong.



It should be noted that the issues reported in the article of UT are not identical to those reported a few years ago for PV inverters and power electronics. Those disturbances were related to another frequency range (2-150 kHz) than those generated in the UT case. For the earlier reported issues, Electro Magnetic Compatibility (EMC) requirements for Smart Meters already exist (and currently used for certification of these meters) but are still under development for other equipment. For the disturbances generated in the UT case (with high emissions in the range under 2kHz), there is already a solid body of standards and testing procedures which have been in place for quite some time and applicable for all equipment connected to the electricity grid. The Smart Meters comply to the EMC immunity levels defined in these standards, while the disturbances generated in the UT case are far beyond the defined emission levels.

## **Our position**

ESMIG and the entire smart metering industry welcome robust and relevant testing to improve performance and adapt technology to changing real world conditions. In this case, however, the situation artificially created in the laboratory is not representative of reality. Smart Metering is the essential first step toward the smart grid and the key to realizing the European Union's energy policy goals of an environmentally friendly, sustainable and secure energy supply system to the benefit of active energy consumers across Europe.

ESMIG has for many years been supporting the definition of appropriate electromagnetic emission and immunity levels for equipment connected to the electricity grid and the testing of Smart Meters based on these levels. The smart meters of our members comply to the most recent requirements for EMC and EMC testing related to the European directives for Measuring Instruments (MID) and Electro Magnetic Compatibility (EMCD). We work with other industries on improving and maintaining these EMC requirements and will continue to do so.

We can confidently say that:

- The electromagnetic interference phenomena created in the tests of the University of Twente grossly exceed emissions limits allowable under EU regulation for equipment typically used in households.
- These conditions would not be found in any imaginable normal household scenario.
- There is no reason to question smart metering technology.

## **Our recommendations**

The European rules that are defined for EMC emissions and immunity should be taken seriously by all industries providing equipment that connects to the electricity grid: all manufacturers must be aware of these rules and the consequences if they are not followed. The relevant directives and related standards must be applicable for all electronic equipment and therefore the cooperation among industries in maintaining the rules is key. We recommend that manufacturers of equipment that can cause EMC on the electricity network are fully informed about the international (and where appropriate national) requirements and norms with respect to EMC. Equipment not complying to such requirements must be clearly recognisable, and taken from the market.



End users must get clear information about the compliance of equipment to the international EMC requirements.

The industries must deliver clear instructions to end users to prevent unintentional use of equipment and the possible consequences of violating the design criteria.

ESMIG will continue to work with the European Commission and national authorities to make sure that the European rules for EMC are complete, clear and being implemented. We encourage testing laboratories and other industry associations to work with us on a robust EMC environment for in-home applications, that allows the further development of energy monitoring and management applications. Such applications are important for the future of the energy system where the dynamics of power generation by sustainable resources should go hand in hand with dynamics in power consumption.

## **About ESMIG**

ESMIG is the European voice of the providers of smart energy solutions. Our members provide products, information technology and services for multi-commodity metering, display and management of energy consumption and production at consumer premises.

Our activities are focused around systems for smart metering, consumer energy management and safe and secure data transfer.

We work closely with EU policy makers and other EU associations to make Europe's energy and water systems cleaner, reliable, more efficient and the European consumer informed, empowered and engaged.

