Title of TC
Performance of household and similar electrical appliances

A Background

TC/SCs 59 develops standards that provide testing tools and adequate information to users of TC 59’s standards: mainly manufacturers, government organisations and test institutes.

For the users of the appliances the standards are useful in the sense of establishing standardized information by manufacturers and as a basis for environmental legislations that Governments establish for improving the efficiency of appliances in general.

There is increasing concern on the need to develop products with reduced environmental impact and to consider the use of these products by the elderly and the disabled.

Increasing attention on environmental issues and the needs of the elderly and the disabled will have to be taken into account during standards development and maintenance.

TC 59 standards are widely adopted by national and regional standardisation bodies. CENELEC adopts TC 59 standards by “Parallel procedures”. However, CENELEC develops competing standards when the IEC standards do not answer the needs of the European legislation or when the preparation of a specific standard has been rejected by TC/SCs 59.

In fact one trend that has been observed in the recent years concerning TC 59 is relevant to the huge amount of activity that is carried out at European level to respond to European legislation on Ecodesign and energy efficiency of products. This causes a significant impact on the participation of European NCs to the activities of the TC 59. In fact a significant reduction in the availability of experts from European NCs has been verified in parallel of the strong development of activities at European level.

This reduction goes together with a significant impact caused by the economic crisis that is hitting in the last years the western world, Europe in particular. The difficulties that Companies are facing due to the economic crisis are causing a significant reduction in the resources of experts and funds made available for the standardisation activities.

Environmental aspects, handling and ease of use of the appliance may be related to the performance of appliances following the concept of "Design for all". A specific WG has been established in TC59 to deal with accessibility and usability.

New measuring techniques and instrumentation should be incorporated to improve the repeatability and/or the reproducibility of the test procedures specified in TC 59 standards.

New focus goes to smart technologies and in particular to the connection of appliances with Smart Grids and to the interworking of appliances in order to find and measure the relevant performance criteria for these new properties of household appliances.
The structure of TC 59 reflects the complexity of the challenges that have to be faced and the diversification of products that are covered by the TC and that demand dedicated groups of specialized experts to follow with due competence the different types of products and technologies covered. The graph shown on the previous page gives an idea of the structure of TC 59.

The main threats that TC 59 shall face considering its activities are:

- Very specific and product oriented expertise means very fragmented expertise basis. It will be quite difficult to consider a merging of some of the activities as the competence is not held by the same expert. Even for products that, to a superficial non expert analysis, look quite similar (e.g. washing machines and dishwashers) the expertise and the members attending the activity are quite separated and there are very few cases of experts involved in both SCs, which is mirroring the way to work outside standardisation.
- Concentration of production capabilities and competences over a small number of Countries
- Integration of competences from different technologies: electromechanical, electronic, software management, energy demand management
- Co-operation with other Groups and experts at IEC and ISO level
- Economic crisis and relocation of production from Western to Far Eastern Countries
- The real participation of P members biases data on activity of a SC (e.g. in SC 59L 22 P members are listed, less than 8 are effectively participating in the activities of the SC)

To match these threats TC 59 has already taken some fundamental decisions:

- TC59 already changed its structure in 2004 by merging SC59E and SC59G in the new SC59L (SMB/2826/RV, 04-04-26)
- The new sectors of activities or new technologies (e.g. smart appliances, robotic products, accessibility and usability) are located in WGs under TC59. This helps in avoiding the creation of undue overstructure whilst duly following the development of the activities.

Together with the mentioned threats, TC 59 is facing very motivating and challenging opportunities that are described in detail in the following chapters and may be summarised as follows:

- To increase number of experts in WGs and MTs as consequences of the change in production trends
- To develop “global standards” on Performances and Energy Efficiency (e.g. for washing machines, dishwashers, refrigerators) worldwide agreed and recognized
- To take on board new competencies on software and network evaluations, accessibility, needs of vulnerable users
- To apply a System approach, meaning cooperation with other technical groups working at IEC level and within other standardisation bodies (e.g. in the frame of Smart Grids and appliances interworking)

B Business Environment

B.1 General

The reference business environment is given by the huge number of household appliance manufacturers operating worldwide and globally oriented, as well as of the big test houses.

Most of these interested parties are represented by experts working in the different working groups.

The external environment is given by national laws and regulations which are forcing some National Committees to endorse/adapt/modify IEC standards. This is in one way boosting the activities in the TC, but is on the other way, causing an increase of the need for good alignment between the different Regional views and approach in order to develop a widely recognised and applied common standard.

For instance, in Europe, standardisation has to follow the regulation of the European Commission concerning ecologically compatible and highly energy efficient appliances, thus causing requirements and limitations on power consumption, standby power consumption, water consumption and noise emission by labelling schemes. In these cases worldwide standardisation is limited and common modifications of IEC standards become necessary.

On the technical side some new developments are starting to influence the business environment:

- use of renewable energies and the change from energy supply in big centralised plants to distributed small energy suppliers which needs intelligent grids and will necessitate smart connections of household appliances to the net and among themselves.
• the demographic change especially in western counties as well as the increasing use of appliances by children will cause increased search for better, simpler and safer accessibility to the appliances.
• additionally need of help for elder people and people with reduced capabilities will boost the adoption of robot appliances in the households.

The internal environment is given by the influence of standardisation on development of new appliances.

Target of the work of TC59 is to get worldwide acceptance on standards which are mature enough to be used as common standard in all IEC member states.

B.2 Market demand
Manufacturers, planners, installers, test houses, authorities are interested in using the IEC standards developed by TC59 in line with the IEC motto “One standard, one test accepted everywhere”. Standardisation also has to provide measurement procedures which allow to publish credible information anticipated by users.

The big challenge IEC TC 59 is facing in this respect has been outlined under item B1 of this SBP. In the day-by-day activity of the TC and its SCs it is verified that all members are putting significant efforts in the harmonisation of the different Regional practices and test methodologies, which in most cases mirror the respective legislation. This effort is demanding huge involvement and motivation to all experts, together with a consequent increase of time to reach common agreement.

Often global agreement could only be reached after intense cooperation with competing standardisation bodies like ISO, AHAM or ASTM. In many cases liaisons were helpful. In other cases difficult and time taking negotiations are necessary.

B.3 Trends in technology
Environmental matters, such as use of alternative energies, avoiding any pollution of the environment, reduction of water and energy consumption and reducing of noise emission will significantly influence the future work of TC59.

New activities for laundry and dish washing appliances were started in the hygienic field and concern germ reduction.

Increasing use of electronic components and sophisticated software for the control of the processes in the appliances is more and more influencing the work and creating significant maintenance activity on existing standards.

Connected with these items the network control of household appliances will influence the development of appliances and standardisation will be necessary in the field of smart technologies and the intercommunication between the appliances and with the distribution grids. In this respect household appliances shall be designed to meet requests for energy management coming from external sources and this shall be duly covered by the standards developed in TC 59.

High automation of appliances is causing a significant increase of household robotic appliances. The first product on which robotic technology was implemented outside the medical and industrial sector was in the household field with the robot vacuum cleaners that were launched only few years ago and actually take a significant and rapidly increasing share of the market.

B.4 Market trends
General market trends will follow the task to decrease energy, water and detergent consumption as well as increase of convenience while using the products.

Also the area of accessibility for elder people, people with disabilities and younger users is an increasing task on many markets.

A relevant impact in the market trends during the last years has also been caused by the growing share of products that are designed and produced in Far Eastern Countries, China in particular, whilst in the past decades they were significantly designed and produced in Western Countries: Europe or in USA. These products fall in the scope of TC 59, in particular some of its SCs (e.g. 59C, 59F, 59L),
This change in trend is not (yet) followed by a proportionate involvement of Far Eastern Countries in the standardisation activities. A growing trend of participation in both qualitative and quantitative aspects has been verified in the last years and it is expected this trend will continue, with great benefit for the whole system. For the time being, the reduction in participation from Western Countries has not yet been balanced by the increase in participation from Far Eastern Countries. This phenomenon is in some ways reflected in the, hopefully temporary, reduction of number of experts and active P Members participation in some SCs.

Another important trend to be underlined is the progressive aging of active population that will demand an increasing attention to the Accessibility and Usability of appliances used by people with reduced capabilities.

Together with this trend, a significant part of children is, much more that it was the case in the recent past, using appliances. This will, once more, demand specific attention in the definition of suitable criteria concerning Accessibility and usability.

Robot applications on household appliances are quickly progressing and it is expected that in few years robot appliance for air purification, window cleaning, amusement and servicing will be put on the market. This trend is carefully monitored by TC 59.

B.5 Ecological environment

Use of alternative energies, reducing and limiting the pollution of the environment, reduction of water-, energy- and detergent consumptions and reduction of noise emission are a must for most household appliances all around the world.

TC 59 is on the wave of this trend and the activities related to energy efficiency related matters are taking most of the attention of the experts working in the TC.

Everyone may understand the impact that household appliances have on this matter and it is considered that no further details should be given on it, considering that legislators, technical experts, policy makers and, last but not least, consumers are well aware of this matter.

C System approach aspects

As Standardization process must follow market needs, environmental change and technical development, TC59 will need new kind of specialists and new cooperation with other technical groups working at IEC level and within other standardisation bodies.

The main matters for which this co-operation is needed are concerning the management and the interaction of different energy sources, data control, data interchange, influence of electromagnetic phenomena on performance and energy consumption of appliances, software analysis and validation.

To meet the needs of developing suitable reference methods new ways of co-operation between different groups of experts in standardisation shall be sought such as:

- sharing of specialists;
- setting up of joint working groups;
- liaison with other SCs and WGs
- wider circulation of information on undergoing projects in the standardisation Community;
- central monitoring of activities related to common matters to avoid overlapping, different requirements, redundancy of activities and inefficiency

Additionally it becomes obvious that the amount of uncertainties of measurements is often unknown and it therefore becomes difficult to follow given strict tolerances specifically detailed in legislation. This fact will induce more severe efforts to monitor how tolerances are considered and monitored in the activity of the different SCs and WGs.

D Objectives and strategies (3 to 5 years)

TC59:

Accessibility: The Technical Specification concerning the accessibility of a toaster (as an example for further projects) should be published at the beginning of 2013.

Smart home: WG 15, Connection of household appliances to smart grids and appliances interaction, was settled. A liaison with TC 100 is to be installed.

Robotic: Setting of a working group for the new field of work concerning household robot platforms has been decided.

Noise: A measurement method for the noise emission of washer-dryers is to be developed.

SC59A, dishwasher:
IEC 60436, Ed.4 to be published as soon as possible, hopefully in 2015, to make it more consumer relevant through a better simulation of consumers’ habits. Main issues are:
- some plastic bins to be included
- some plastic cutlery to be included
- new soiling (e.g. coffee ground)
- use of phosphate free detergents
- low power modes
- drying & cleaning performance evaluation

Concerning noise a revised IEC60704-2-3 will be published 2015. It was discovered that an artificial soiling becomes necessary for the noise emission measurements.

SC59A intends to perform ring tests to ensure reproducibility.

59C, heating appliances:
Thermodynamic heat generation to be included in the SC59C-standards 
The world wide development on storage of renewable energy and connection to smart grid systems is to be observed. 
The usability of controls is to be integrated in the SC59C-standards.

SC59D, laundry appliances:
Continue efforts towards an even more global acceptability of the IS on home laundry appliances - IEC 60456 Ed 5 for clothes washers, IEC 61121 Ed 4 for tumble dryers and the newly developed IEC 62512 for washer-dryers - especially taking into consideration market trends and consumer relevance around the globe, and moreover actual use of the standards in all regions of the world with special focus on product development, consumer testing and regulation / labelling. 
The applicability of the standard for appliances specifically developed for working in regions with poor or discontinued access to electricity will be assessed.
Establish and further intensify the contact with stakeholders currently not (yet) represented in committee SC 59D. The aim is to communicate our work, promote our documents, learn more about their specific expectations and requirements and invite cooperation. A more recent field of action relevant for home laundry appliances is the "hygiene" concept. Work will be continued for the spread of the application of the relevant PAS and to collect feedback on its use.

SC59F, surface cleaning:
Future activities:
- Steam cleaner.
- Robotic cleaner.

SC 59K, cooking appliances:
To focus on implementing energy consumption measurement methods into the product performance standards for hobs and range hoods.
Concerning accessibility there was an agreement that SC 59 K will wait for completion of the work of TC 59 working group 11 and then decide course of action.
In general it was decided to improve the communication of work load done by Maintenance Teams, communicating more details about what is going on and submitting milestones, to get a higher transparency.

SC59L, small appliances:
Main issues are standardisation of performance measurement of small appliances for household use such as small kitchen appliances (kettles, jugs, food preparation appliances, etc), shavers, hair care appliances and all kinds of household ironing appliances and of small appliances for commercial use.

SC59M, cooling and freezing appliances:
The new edition of IEC62552 has to proceed to CDV stage
E Action plan

TC59:
WG2 will maintain all existing noise standards and start new noise measurement standardisation on washer
dryers together with specialists from SC59D.
WG11 will consider -in cooperation with the SCs- for which other appliances the Technical Specification for
accessibility of toasters can be prototype for elaborating accessibility recommendations.
Working group on connection of household appliances to smart grids and appliances interaction, WG15, will
work out performance criteria.
A working group on household robots is to be settled.

SC59A:
IEC 60436, Ed.4 and 60704-2-3 are to be published until 2015.

SC59C:
CD planned for IEC 60299 3rd Edition - electric blankets
CD planned for IEC 61255 2nd Edition - electrical heating pads
NP planned for the performance of electrical underfloor room heating

SC59D:
Resume the work on further improved versions of washer standard IEC 60456, dryer standard IEC 61121,
washer-dryer standard IEC 62512.
Issue a test method for assessment of germ reduction in washing machines as PAS.
Complete the development of the concept and structure for the 6th edition of the clothes washer standard
IEC 60456 to be presented at the next SC meeting and aim at completing the detailed work to be ready for
publication soon after the stability date (2013).
Align the drafts of new versions of the dryer standard IEC 61121 and washer-dryer standard IEC 62512 to
the revised structure and requirements of the new edition of IEC 60456.

SC59F:
Existing standards and ongoing official listed project in SC59F are as follows:
IEC 60312-1 - Vacuum cleaners for household use - Part 1: Dry vacuum cleaners - Methods for measuring
the performance
Published 2010, Amended 2011 with Stability date 2014, responsible body WG3
IEC 60312-2 - Vacuum cleaners for household use - Part 2: Wet cleaning appliances - Methods of measuring
the performance
Published 2010, Stability date 2015, responsible body WG4
IEC 60312-3 Ed 1.0: Vacuum cleaners for household use - Part 3: Cleaning robots for
household use - Dry cleaning - Methods of measuring performance
Project at CDV stage, allocated to WG5
IEC PAS 62611, Vacuum cleaners for commercial use-Methods for measuring the performance.
Published 2009, Stability date 2012, preparatory work on conversion of the PAS to standard is in progress.
responsible body WG6
IEC 60704-2-1, Household and similar electrical appliances - Test code for the determination of airborne
acoustical noise - Part 2-1: Particular requirements for vacuum cleaners
Published 2000, Stability date 2012. Revision is in progress. responsible body WG3
IEC 60320-1-1: Vacuum cleaners for household use - part 1-1 -Battery powered cleaning appliances-
Methods of measuring performance under battery operation
Accepted new project; publication planned for 2014, allocated to a new WG7
IEC 62826; Surface cleaning appliances – Floor treatment machines with or without traction drive, for
commercial use – Methods of measuring the performance
Accepted new project; publication planned for 2015, allocated to WG6
SC59K:
IEC 60350-1 Household electrical cooking appliances - Part 1: Ranges, ovens, steam ovens and grills for household use - Methods for measuring performance. Shall be revised and low power mode issues have to adapted to IEC 62301 Ed. 2.0 (responsible MT1)
IEC 60350-2, Household electrical cooking appliances - Part 2 Hobs - Methods for measuring performance, shall be amended for a method to measure the energy consumption of all types of hobs (responsible MT1)
IEC 60705, Household microwave ovens - Methods for measuring performance, shall be amended for a method to measure the energy consumption of microwave ovens (responsible MT1)
IEC 61591 Household range hoods and other cooking fume extractors - Methods for measuring the performance, shall be amended for a method to measure the energy consumption for range hoods (responsible MT3)
IEC 60704-2-10 Household and similar appliances - test code for the determination of airborne and acoustical noise - Part 2-10: Particular requirements for electric cooking ranges, ovens, grills, microwave ovens and any combination of these.
The scope will be amended for gas ovens (responsible MT1)
IEC 60704-2-13 Household and similar electrical appliances - Test code for the determination of airborne and acoustical noise - Part 2-13: Particular requirements for range hoods.
The title will be changed to bring it in line with the performance standard. A method to measure the noise of downdraft range hoods has to be added to the standard (responsible MT 3 and TC59/WG2).

SC59L:
The main activities that will be faced by SC 59L in the next 2-3 years will be:
- Amendment to IEC 61309 Performance of deep fat fryers
- Amendment to IEC 61855 hair care appliances"
- New standard for measuring method for performance of household and similar electric hair cutters
- New standard for measuring method for performance of household slicers

SC59M, cooling and freezing appliances:
New edition of IEC62552 to proceed to CDV stage

F Usefull links to IEC web site
TC 59 dashboard giving access to Membership, TC/SC Officers, Scope, Liaisons, WG/MT/PT structure, Publications issued along with their Stability Dates, Work Programme and similar information for SCs, if any.

Name or signature of the secretary

Peter Riller