



ITU Kaleidoscope 2014

Living in a converged world - impossible without standards?

Combining ICT-standards essential- patents and medical-managerial Guidelines towards sustainable assisted living and home-care

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Background

- The continuously prolonged life-expectancy and the increased demand for accessibility of various prematurely disabled groups of fellow-citizens worldwide, intensifies the need for action, towards the creation of a global home-care technology platform.
- This should combine:
 - First common ICT-standards and medical-managerial Guidelines.
 - Second, it should regulate fairly enough the Essential Patents involved, in order to facilitate assisted-living and home-care.

The Problem

- The adoption of a **standard** may often result in **diminishing of competition**, between related technologies and methods, because it is occasionally based upon one or more **standard essential patents (SEPs)**.
- A **SEP** claims an invention that should be **employed** in order a **product, software or service** to comply with a technical standard.
- Determining SEPs can be a **complex process**.
- Patentees often **fail to disclose**, intentionally or not, **all patents** relevant to comply with a standard.

Aim of the paper

- It is argued that the cooperation of the **Standard-setting (SSO)** and **Industrial Property (IP)** Organizations may efficiently **mitigate** and soon **marginalize** that risk.
- A small-scale simulation of the “real world” home-care was performed as indicated below:
 - We have reviewed the home-care “state of the art”, as depicted on evaluated relevant **IP- documents**.
 - We have summarized the most relevant **Standards and Guidelines**, enabling home-care.
 - Finally, we have created various home-care related “patent-maps”, by employing the **European Patent Office (EPO)** **esp@cenet** and other search-engines.
- Thus, we used the **disclosing potential** of **IP-docs**, to reduce obscuring of **IP-portfolios**.

The two major approaches about SEPs and their relation with IP-Rights

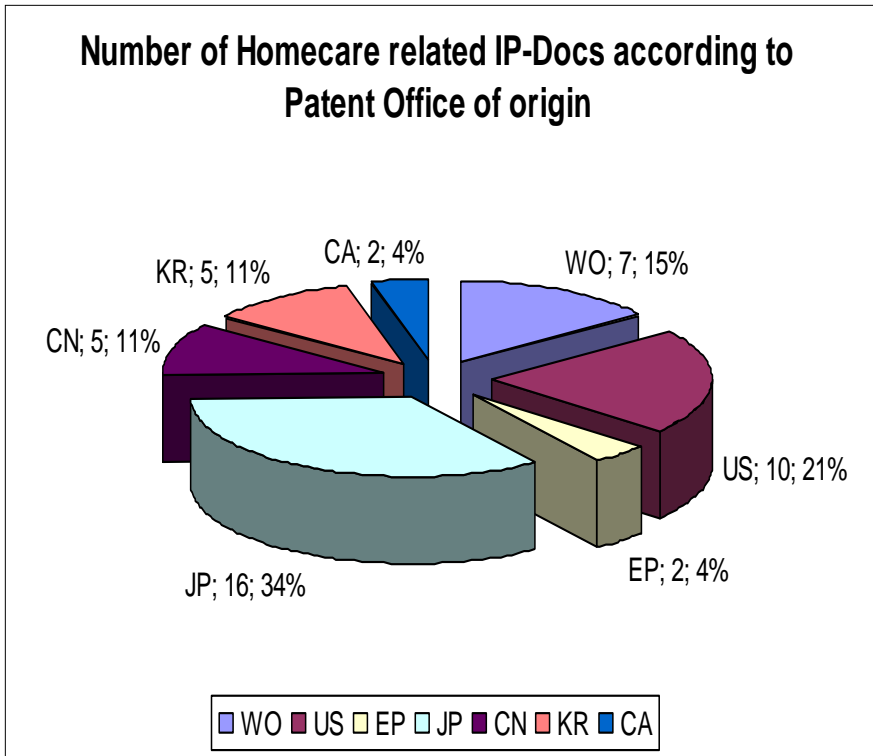
- For a SEP laden with a “fair, reasonable, and non-discriminatory” licensing commitment (FRAND), the patentee should be prevented from threatening of an injunction, to extract high royalties and/or hinder the standard.
- The other approach claims that a rule excluding injunctive relief for FRAND-encumbered SEPs, is changing the dynamic of negotiating the specific details of a FRAND license, and wears away the commercial value of these SEPs.
- ICT SEPs became very important for home-care during the last 10-15 years, since mobile and wireless phones have been gradually transformed to powerful pocket-computers and other equipment.

Granted on	USPTO ID Nr.	The 20 more relevant granted US-Patents related to home-care technology according to our extended search
09/13/2011	8019622	Home health point-of-care and administration system
11/30/2010	7844473	System for allocating home health services
11/16/2010	7835926	Method for conducting a home health session using an integrated television-based broadband home health system
03/24/2009	7508307	Home health and medical monitoring method and service
03/17/2009	7505916	System and method for allocating home health services
06/12/2007	7229409	Method of providing a home health care service and system for providing a home health care service
02/27/2007	7185282	Interface device for an integrated television-based broadband home health system
04/20/2004	6723046	At-home health data management method and apparatus
06/03/2003	6572564	Method of providing a home health care service and system for providing a home health care service
04/08/2003	6543068	Home health care bed bath
02/25/2003	6525670	In-home health care system
01/11/2000	6014432	Home health care system
10/19/1999	5967975	Home health parameter monitoring system
10/05/1999	5961446	Patient terminal for home health care system
08/03/1999	d412577	Oxygen concentrator used in home health care
05/11/1999	5902234	Medical communication system for ambulatory home-care patients
11/04/1997	d385881	Home health care terminal
09/10/1996	5553609	Intelligent remote visual monitoring system for home health care service
07/18/1995	5434611	Home health care system which employs a two-way community antenna television network to permit communication between a doctor and patients at different location
01/05/1988	4717042	Medicine dispenser for home health care

Implementation and adoption of Standard-specifications

- The SSOs aim to achieve **extensive implementation and adoption** of their standard-specifications, although there are always some **conflicts**, with **companies or other groups**, possessing intellectual property rights (IPRs), related to a **drafted standard**.
- Patent owners are **“pushing”** for their own technology, within a SSO, seeking **royalty payments and licensing revenues** for the use of their technology, when **essential** to an industry **standard**.
- SSOs prefer to **avoid IPRs conflicts and barriers** to the implementation of their standards; however, they **have to evaluate** also such proposals, brought by patentee-members, in order to **determine the trade-off** between **technical quality** and **openness**.

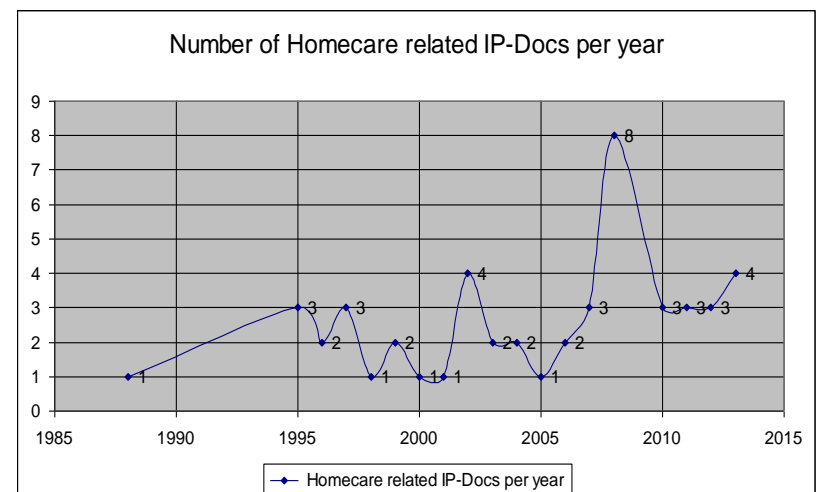
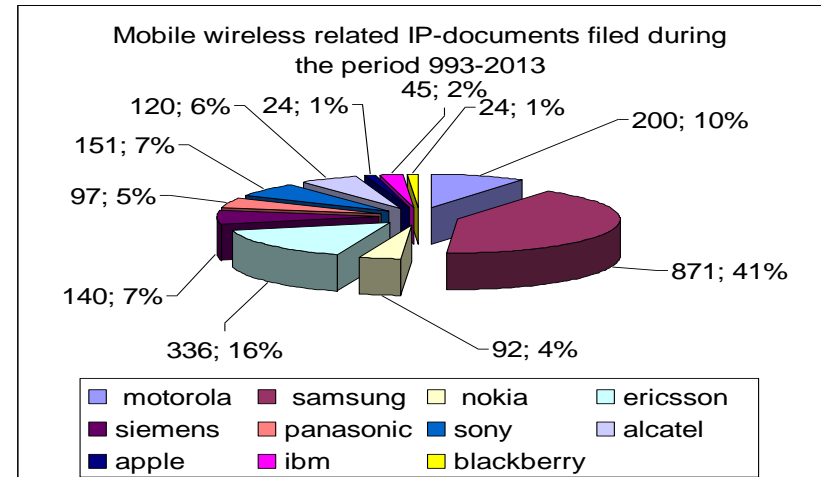
The number of home-care related IP-docs vs. Patent Office of origin (usually 1st filing)



- ❑ The data corroborate the close relation between **ICT and Home-care technology**.
- ❑ Both fields have a **rush development and equipment transformation**, since 1995.
- ❑ Comparing the titles of the granted patents and taking into account the 5-7 years of filing to granting lag, it becomes obvious that **without the ICT-revolution**, the development of modern supervised Homecare and Telemedicine, would not be possible at all.

The six major SSOs; mobile/wireless IP-docs filed (1993-2013 Up) and home-care related IP-docs filed per year (1988-2013 Down)

Major Organizations	Full-name and Field of Activity
ITU (SSO)	International Telecommunication Union
	Telecommunications
IEC (SSO)	International Electrotechnical Commission
	Electro-science & Technology
ISO (SSO)	International Organization for Standardization
	General except ITU/IEC subject-matter
IEEE (Consortium)	Institute of Electrical and Electronics Engineers
	ICT, Power, Energy, Nanotechnology etc.
ETSI (SSO)	European Telecommunications Standards Institute
	Telecommunications
ANSI (Accreditation)	American National Standards Institute
	Any technology or service



Important aspects related to contemporary home-care Services

- Effective management, planning delivery and continuous improvement of the service.
- Appropriate care-plans' development, service accessibility, users' reassessment and referral to other providers, if necessary.
- Service-users' rights and responsibilities concerning information provision, privacy and confidentiality, adverse events reporting, complaints, advocacy and feedback of users.
- Most of the documents released by Home-care Standards-setting Organizations (SSO), set out the minimum Standards for home-care agencies and/or local authorities.

Indicative Standards-setting Organizations (SSO) and Home-care Standards

Standards-setting Organizations (SSO)	Home-care Standards
Australian Government and State and Territory Governments www.health.gov.au	Home and Community Care (HACC) Standards
Child Welfare League of America (CWLA) www.childwelfare.gov	Standards for Out-of-Home Care Services
Joint Commission International (JCI) http://www.jointcommission.international.org	Accreditation for Home Care
UK Department of Health http://www.ageplatform.eu/images/stories/uk_minimum_care_standards_at_home.pdf	Domiciliary Care National Minimum Standards
Natural Products Association (NPA) https://www.npainfo.org	Natural Standard for Home Care Products

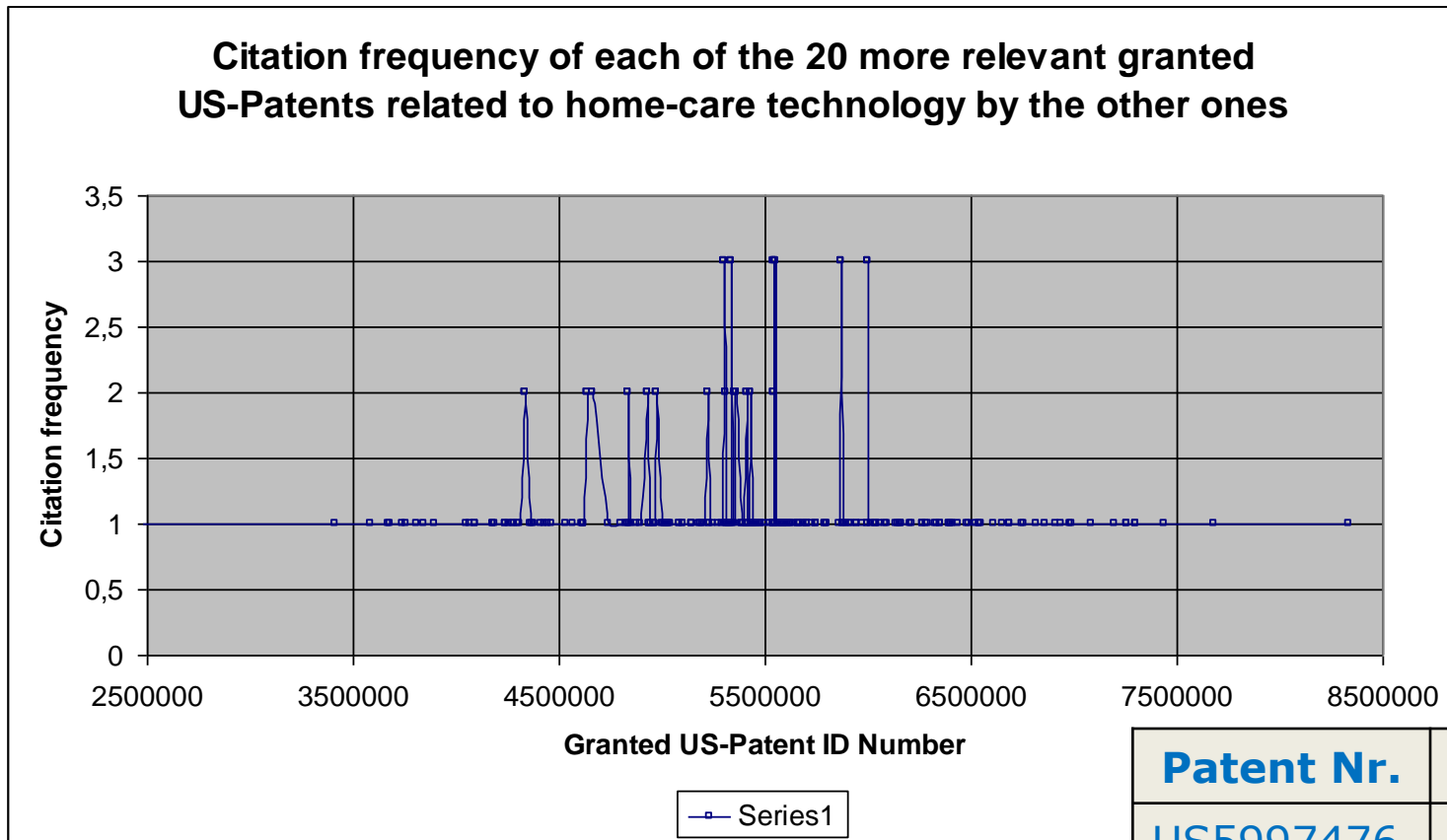
Special-purpose Home-care Standards

Indicative Standards-setting Organizations (SSO) and Home-care Standards Focused on specific home-care Guidelines	Home-care Standards
<i>Point-of-care testing (PoCT)</i>	
The National Academy of Clinical Biochemistry American Association for Clinical Chemistry (AACC) www.aacc.org	Evidence-Based Practice for PoC-testing (PoCT)
ISO 22870:2006 Point-of-care testing (PoCT) http://www.iso.org	PoCT-Requirements for quality and competence
Clinical Pathology Accreditation (UK) Ltd www.cpa-uk.co.uk	Standards for PoCT facilities
Canadian Standards Association (CSA) www.accreditation.ca	Point-of-Care Testing Standards Z22870-07
British Committee for Standards in Haematology (BCSH) http://www.bcsghguidelines.com	Guideline for Near Patient Testing: Haematology
<i>Respiratory Therapy (RT)</i>	
The College of Respiratory Therapists of Ontario (CRTO) http://www.stmichaelshospital.com	Optimizing RT: A Continuum of Care from Hospital to Home

Using the disclosing potential of IP-documents to track potential “SEPs”

- Finding-out whether a patent could be essential for a specific standard, might be a difficult task, therefore, we propose an approach that can simplify this problem.
- The citations number a specific patent has received by other ones, may become a useful parameter for its innovation content.
- That means that the frequency a certain patent is being cited, in other IP-docs, is a measure of the probability to become a “SEP”.
- The statistical estimation of the most frequently appearing patents, cited by others, might lead to a relatively small subset of documents that has a relatively high probability, to fulfill the criteria to be a potential “SEP”, in this field.
- The strongly reduced number of documents, receiving high numbers of citations, allow for their necessary detailed examination, leading to a smaller set of candidate-patents.

Tracing the six most cited and thus candidates for being SEPs US-Patents



Patent Nr.	Patent Nr.
US5997476	US5544649
US5867821	US5339821
US5553609	US5301105

Potential virtual "SEPs" traced by the method →

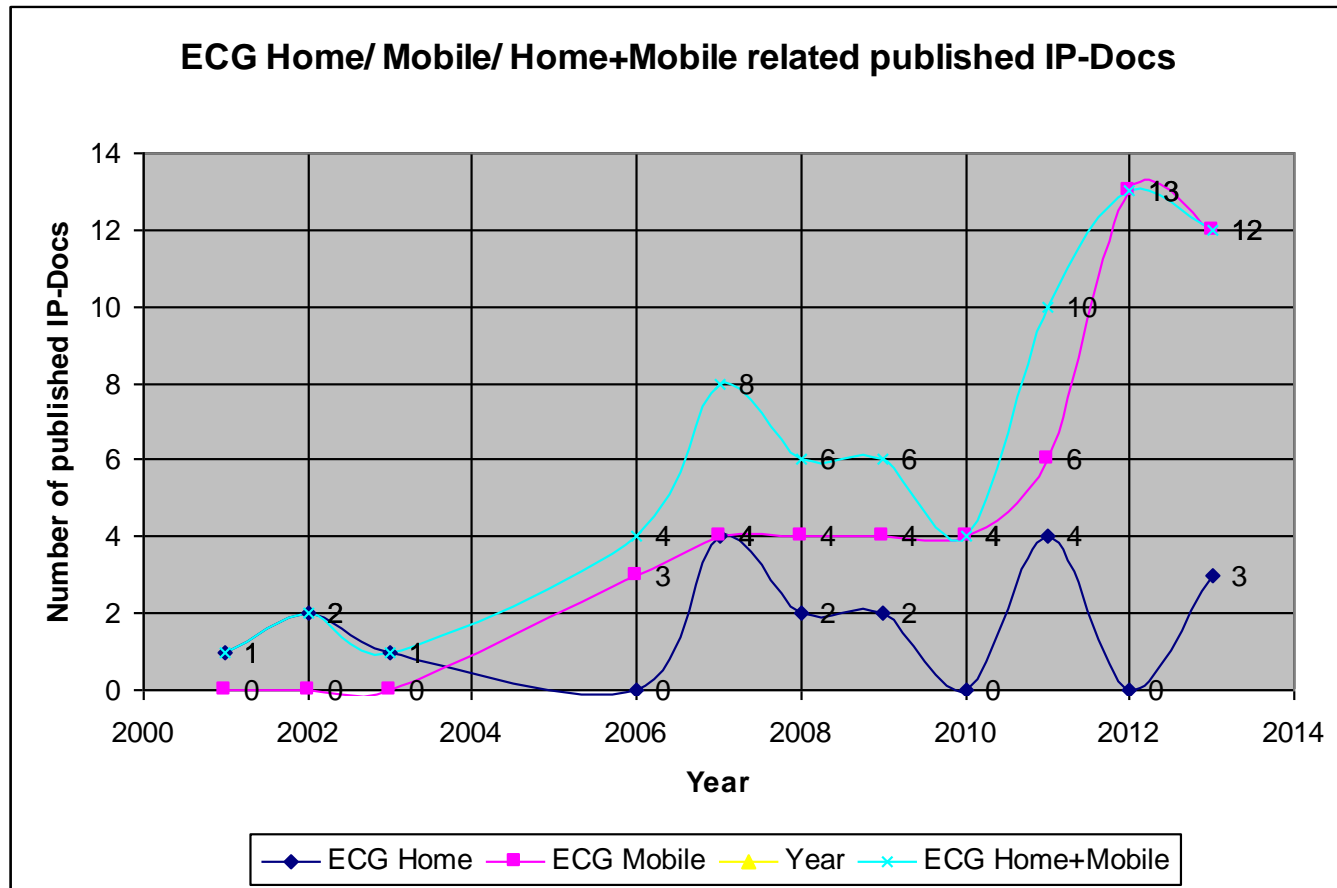
The determination of an essential claim in a Patent Document

- A far more complicated issue is the determination of an essential claim in a Patent Document. Unfortunately, Statistics-based searching, seems to be rather insufficient and inefficient for the huge amounts of “claim-searches” and an alternative approach should be employed.
- The experience from the field of Chemistry-Patents indicates that Semantic Concepts based search, might be the answer. A semantic annotation approach, focused on tagging the critical entities in the documents, would improve the search capacity for “essential claims determination” in the near future.
- However, this is beyond our very limited capacities and necessitates the direct cooperation of the systemic Patent Organizations.

The determination of a component related essential claim in a Patent Document

- As far as components are concerned, an example concerning **home-care related ECG-systems**, proves that components of a system, can create **numerous IP-Docs** and eventually **IP-rights**, obstructing the precise determination of an **essential claim or patent**.
- Two closely related meanings, i.e. **“ECG-Home”** and **“ECG-Mobile”** are giving discrete wordings.
- However, the content-analysis of the IP-Docs proves **overlapping significances**.
- This example and numerous others, justify the necessity for the introduction of **semantic tagging approaches**, in crucial searches, as SEPs.

ECG-related published IP-Docs per Year related to Home-ECG, Mobile-ECG and Home & Mobile ECG



Conclusions

- Home-care Technologies are becoming imperative, since they are offering an **affordable alternative** to the very expensive **hospitalization**.
- This is especially important for countries that **in spite of their economic growth**, are still deficient in Health-care and Social Services.
- The close association of **Home-care with ICT-technologies** increases the probability of its **crossing**, with eventually **not disclosed ICT-SEPs**.
- The attention of **all stake-holders** world-wide i.e. Standard-setting Organizations, Patent-Offices and Industry, should be **focused** on the **coordination of their efforts**, towards reasonable licensing to all SEPs, based on FRAND.

Acknowledgement

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