



**Project PHYLAWS (Id 317562)  
PHYSical LAYer Wireless Security**

**Deliverable D1.6: Dissemination planning report**

**FP7 Collaborative Projects, Networks of Excellence, Coordination and Support Actions in Collaborative Projects, Research for the benefit of Specific Groups (in particular SMEs)**

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**Abstract:** This deliverable provides the plan for the dissemination activities of the PHYLAWS project, as anticipated at month 3. It covers the project web site specifications, the partners intentions in terms of participation to scientific conferences and publications and the organization of PHYLAWS dedicated events.

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## Executive Summary

Deliverable D1.6 is the first among three reports dedicated to dissemination activities of PHYLAWS. It provides the detailed plan for these activities as viewed at a very early stage of the project. The activities here described are:

- PHYLAWS web site, including a public and a private part
- Contribution to scientific conferences and scientific publications
- Organization of dedicated PHYLAWS events
- Involvement in clustering and other liaisons with relevant European projects
- Focus on dissemination towards stakeholders

## Authors and Document History

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## Project Summary

Wireless communications have become a universal way to access information for nearly every human around the world. This domination also presents major risks to society, owing to the widely recognized leaks and unsafe technologies in the current wireless networks. Basically all of the security today relies on bit level cryptographic techniques and associated protocols at various levels of the data processing stack, but these solutions have drawbacks and they are often not sufficiently secure. This difficulty is a major retarder to the progress of the digital society. In the recent years therefore, new approaches have been investigated in order to exploit security opportunities offered by the handling signals operating at the physical layer level. These works have been based on a fundamental analysis of the notion of security in the context of information theory. In a more concrete manner, the potential leaks and possible ways to avoid them have also started to be seriously addressed. The objective of the PHYLAWS project is to elaborate on this knowledge basis in order to develop focused and synthetic ways to benefit from wireless physical layer opportunities in order to enhance the security of wireless communications in an affordable, flexible and efficient manner. Efficient here means simple to implement, requiring easily developed and easily validated algorithms, but it also means techniques that will consume less resources, let that be in terms of energy (especially at the terminal level) and in terms of data consumption overhead (i.e. acting on the overall net spectral efficiency). The project outputs will thus benefit to a variety of existing and future standards for a large set of needs.

This objective will be reached through a suitably sized consortium combining an excellent academic expertise in order to address information theory fundamentals, to design optimal codes, to design furtive signal wave forms and versatile radio access protocols; a major research centre for the development and test of several competing techniques; a SME involvement perfectly aligned with the application targets; and a strong industrial involvement highly motivated by security in wireless networks as a manufacturer, as an end-user and as a provider of wireless communication services. The complementary skills inside the consortium will ensure both innovation and impact towards industrial applications, and they will assess validation of the commercial goals and validation of the society use relevance.

The project will benefit from recommendations and advices by an international Advisory Board, constituted of very high level personalities from governmental bodies, standardization bodies or academia. This Board will be one of the cornerstones of the project, based on the recognition that excellent technical developments and demonstrations will not be enough to ensure their wide spreading. Clearly, the project impact will largely benefit from a proper vision, aided by the AB, in order to penetrate standards and existing systems and ensure support from the major stakeholders.

Ultimately, PHYLAWS will facilitate the penetration of wireless technologies in the personal and professional sphere, by guaranteeing a more efficient safe access to the digital world through the future internet. This achievement will strongly impact the lives of citizens and will very much contribute to trustworthy ICT in the following years.

## Administrative and contract references

[PHYLAWS\_GA-A] PHYLAWS Grant Agreement, referenced 317562 version date 2012-07-03, part A

[PHYLAWS\_GA-WP] PHYLAWS Grant Agreement, referenced 317562 version date 2012-07-03, Work Plan

[PHYLAWS\_GA-DOW] PHYLAWS Grant Agreement, referenced 317562 version date 2012-07-03, Description of Work (part B of the Grant Agreement).

[PHYLAWS\_D.1.1] PHYLAWS Management plan

## Acronyms and Abbreviations

COMSOC	COMMunications SOCIety (IEEE)
COST	COoperation in Science and Technology
DoW	Description of Work
EC	European Commission
EURASIP	European Association for Signal Processing
FP7	7 <sup>th</sup> Framework Programme
ICT	Information and Communication Technologies
IEEE	Institute of Electrical and Electronics Engineers
IET	Institution of Engineering and Technology
IP	Integrating Project
NoE	Network of Excellence
PHYSEC	PHYsical SECurity
PO	Project Officer
QUANT	Quantitative
SME	Small and Medium Enterprise
STREP	Small and medium-scale focused research project
TBD	To Be Defined
WP	Work Package
Y1	Year 1
Y2	Year 2
Y3	Year 3

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## 1 Introduction

This deliverable “Dissemination planning report” is intended to describe the plan of activities regarding the dissemination activities carried out by the PHYLAWS project over the 36 months of its duration. It is organized in relation to the main aspects of these activities:

- web site
- scientific dissemination
- dissemination towards stakeholders and future users

It is reminded that standardization activities, together with the associated specific disseminations, are not part of this report, being covered by another dedicated task.

Some quantitative goals have been defined in the DoW and are recalled below:

Objective	Indicator	Nature
Scientific dissemination	Number of refereed international communications or publications (IEEE or similar): 17	QUANT
Scientific/technology users dissemination	Number of workshops: 3	QUANT

**Table 1: Dissemination performance indicators**

## 2 Web site

The web site is an important tool for making the project and its results be known from the general public and also from a variety of potential stakeholders. For that reason, it should be specified accordingly. However, specifying a web site requires a clear identification of the various targets, which are listed in the following paragraph.

### 2.1 Targets

- PHYLAWS project partners
- European commission: PHYLAWS project officer, future reviewers of the project
- other European projects having a potential interest in the results of PHYLAWS
- PHYLAWS advisory board
- potential stakeholders and future users of the developed PHYLAWS technology: wireless products manufacturers, operators, software developers
- scientific community: universities, research centers
- students in the area of ICT
- journalists of popular science journals and popular technology web sites
- general public

These targets imply two parts for the web site: a private part, accessible to the project partners and, for a selected zone, to the European Commission, and a public part, accessible to anyone. The major specifications of these two parts are detailed in the following paragraphs.

## 2.2 Public web site: compulsory specifications

- description of the project objectives and WP structure
- list of partners with logos and web sites
- public deliverables, referenced as “PU” deliverable in PHYLAWS management plan reference (see [PHYLAWS\_D.1.1], table 12).
  - directly downloadable (preferred)
  - or through a dedicated request (if justified)
- events, news
- related links (EC cluster, relevant bodies...)
- compatibility with most internet browsers (list TBD)
- reasonably up-to-date style
- semestrial updating (at least)
- description of partners' roles
- details on the project and WP activities
- list of the project publications, optionally with links to the files (if legally possible) or to some suitably detailed information
- downloadable project flyer

## 2.3 Private zone (authenticated access): compulsory specifications


- authenticated access
- EC dedicated zone (PO, reviewers)
- repository of deliverables
- repository of other project documents
- repository of document templates (project report, presentation)
- file management system accessible to all partners with two levels of access rights (coordinator, other partners)

## 2.4 Web site: Draft design of the main web site page

Two developments solutions are examined.

- one is a TCS solution based on an internal application and a classical INTERNET host such as Kalanda.net and a dedicated work-share entity (etol: external team on line)
- one is an external solution based on the typo3 application and hosted at dedicated private internet servers.

Hereafter is presented a preliminary design of the future Web site of the PHYLAWS project (home page).




# PHYLAWS

**PHYsical LAYER Wireless Security**

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**PHYLAWS**  
 Quick Facts

### PROJECT OBJECTIVES

One of the weaknesses of wireless communications is the easy capture of the radiated signals by eavesdroppers, which enhances the risks of using these signals or acting on them by un-authorized persons. Given the prevalence of wireless technologies, their security and the reliability a person or an organization can have in the confidentiality of the exchanged information can be seen as a major economical and industrial challenge. Focusing on physical based security, the PHYLAWS project intends to address the improvement of the protection and confidentiality of information exchanged at physical interface through public wireless media by several means:

- Identify the most promising security techniques operating at the physical layer level or exploiting the characteristics of signals transmitted at the physical layer
- Identify the existing, upcoming of future systems, where these techniques might be implemented, without or with updates to the standards.
- Carry out theoretical, simulation based and experimental performance evaluation of these techniques, taking into account realistic radio-electrical environments, relevant propagation parameters and use conditions. Develop the suitable algorithms where necessary.
- Demonstrate the capabilities of a selection of techniques in enhancing the information protection and the subscriber confidentiality.
- Demonstrate the capabilities of the selected techniques in reducing the redundancy of radio-communication signals, in enhancing the spectrum usage and the energy efficiency)

The targeted protections will apply to a significant set of public wireless systems or standards: 2/3/4G radio-cell, local loop, private mobiles radios, inter-device short range communications, etc. The impact will be societal (more confidence, more privacy) and industrial (supporting European industry in developing and commercializing such solutions). The project should strongly influence the suitable standardization bodies, where needed and relevant.

PHYLAWS is a 36 months "Cooperation" project (STREP, Id 317562), funded by the European Commission within the 7<sup>th</sup> Framework Program, which has started on 01/11/2012

### NEWS

- The kickoff meeting of PHYLAWS has taken place on November 12, 2012 hosted by Telecom ParisTech in Paris
- The first scientific presentation will be given byr Dr... at WinnCom Forum Europe 2013...

Figure 1: Design of the PHYLAWS Website Home page

### 3 Scientific dissemination and dissemination towards stakeholders

The Scientific dissemination and the dissemination towards stakeholders cannot be always clearly separated since in a number of cases both the academic community and the industry/SME community meets, e.g. in major conferences such as those organized under COMSOC sponsoring. Therefore, both are considered together in this section.

#### 3.1 Participation to scientific symposia, conferences, workshops & related

It is anticipated that all PHYLAWS partners will participate in scientific dissemination events, such as symposia, conferences and workshops. It turns out that in the broadly defined area of wireless technologies and computer security, the number of such events is extremely large and it is quite impossible to cover all those that might be relevant. Therefore certain choice criteria must be exerted in order to make the best choices:

- Audience: this means not only the type of participants (academia, industry...) but also the size. Clearly the larger, the greater is the chance to make the project results know
- Scientific quality: obviously the most rated conferences are the ones to favor, however this criteria shouldn't be appreciated alone. Highly selective conferences are sometimes ones with a small and very specialized audience, thus in contradiction with the criterion just above
- Scientific coverage: typically conferences on computer security address quite a different community from those on wireless technologies; In some cases there are overlaps, which may be considered interesting for attracting both communities
- Schedule: often enough some periods of the year are more favorable than others, which may not be always aligned with the project activity scheduling. Another issue is the delay between the submission deadline and the conference itself. Certain events accept submissions very close to the event, which is favorable for delivering the latest up-to-date results

Given these remarks, the PHYLAWS consortium will regularly update its knowledge of the upcoming meetings and will decide on those of interest for the coming year. A non-exhaustive list of potential events in 2013-2014 is provided below. Since some of them have already exceeded deadlines, they are mainly mentioned as indications for later issues.

In order to meet the quantitative objectives recalled in the introduction, the following goals are identified:

- 2 international communications / academic partner / year (→ 12 in total)
- 1 international communication / other partner (→ 3 in total)

This deliverable "Dissemination planning report" is intended to describe the plan of activities regarding the dissemination activities carried out by the PHYLAWS project over the 36 months of its duration.

Acronym	Event	Date	Place
	Asilomar Conference on Signals, Systems, and Computers	TBD	Asilomar, USA
<b>CNS</b>	First IEEE Conference on Communications and Network Security	October 2013	Washington, USA
<b>EUCAP</b>	European Conference on Antenna & Propagation),	2014	La Hague, Netherland
<b>EW</b>	European Wireless Conference	April, 2013	Guildford, UK
<b>EW</b>	European Wireless Conference	2014	Barcelona, Spain
<b>FuNemS</b>	Future Network & Mobile Summit	July, 2013	Lisbon, Portugal
<b>GLOBECOM</b>	Global Communications Conference	December, 2013	Atlanta, USA
<b>GLOBECOM</b>	Global Communications Conference	December, 2014	Austin, USA
<b>ICC</b>	International Conference on Communications	June, 2013	Budapest, Hungary
<b>ICC</b>	International Conference on Communications	June, 2014	Sidney, Australia
<b>ISIT</b>	IEEE International Symposium on Information Theory	July, 2014	Honolulu, USA
<b>ISWCS 2013</b>	The Tenth International Symposium on Wireless Communication Systems	August, 2013	Ilmenau, Germany
<b>PIMRC</b>	IEEE International Symposium on Personal, Indoor and Mobile Radio Communications	September, 2013	London, UK
<b>TSP</b>	International Conference on Telecommunications and Signal Processing	July, 2013	Rome, Italy
<b>URSI GASS</b>	URSI General Assembly and Scientific Symposium	August, 2014	Beijing, China
<b>VTC</b>	IEEE Vehicular Technology Conference	September, 2013	Las Vegas, USA
<b>WCNC</b>	IEEE Wireless Communications and Networking Conference	April, 2014	Istanbul, Turkey
<b>WINNCOMM</b>	Wireless Innovation Forum	June, 2013	Aachen, Germany
<b>WICOM</b>	International Conference on Wireless Communications, NETworking and Mobile Computing	July, 2013	Beijing China
<b>WiSec</b>	ACM Conference on Security and Privacy in Wireless and Mobile Networks	April, 2013	Budapest, Hungary
<b>WoWMOM</b>	International Symposium on a World of Wireless, Mobile and Multimedia Networks	June, 2013	Madrid, Spain
<b>WPMC</b>	Wireless Personal Multimedia Communications Symposium	<tbd>, 2014	

Table 2: Main conferences of interest

### 3.2 Publications in scientific journals

PHYLAWS will investigate a variety of methods and algorithms in order to provide enhanced wireless networks security at the physical layer level. Accordingly, it is anticipated that publications of the results in fully refereed journals and/or magazines will be possible. Below, we show a list of Journals/Magazines in which PHYLAWS partners are interested in publishing their results. The choice of submitting in either of these will be governed by the scientific quality as well as the topic areas and the probability of acceptance.

In order to meet the quantitative objectives recalled in the introduction, the following goals are identified:

- 1 international journal paper / academic partner (→ 2 in total)

Journal Name	Magazine Name
IEEE Communications Letters	IEEE Communications Magazine
IEEE Transactions on Communications	IEEE Signal Processing Magazine
IEEE Transactions on Signal Processing	IEEE Wireless Communications Magazine;
IEEE Transactions on Wireless Communications	IEEE Magazine on Antennas and Propagation
IEEE Transactions on Mobile Computing	
IEEE Transactions on Vehicular Technology	
IEEE Transactions on Antennas and Propagation	
International Journal of Antennas and Propagation	
EURASIP Journal on Advances in Signal processing	
EURASIP Journal on Wireless Communications and Networking	
IET Electronics Letters	
IET Microwaves, Antennas & Propagation	
IET Communications	
IET Information Security	
IET Signal Processing	
Transactions on Emerging Telecommunications Technologies (ETT)	
Annals of telecommunications	
Journal of Communications & Networks	

**Table 3: Main publications of interest**

### 3.3 Organization of PHYLAWS dedicated events and dissemination towards stakeholders

#### 3.3.1 PHYLAWS dedicated events

Given that it is still considered quite an unconventional way to introduce security at the physical layer level of wireless networks, it will be important over the project duration to convince both the academic community and that of other stakeholders of the relevance and specific advantages of these approaches. Beyond the conference communications and scientific publications mentioned in the above paragraphs, an important way to achieve this is through special sessions in major conferences or in dedicated workshops. Both are envisaged to be done by the consortium.

Special sessions have an important advantage: being part of an already known event, they may address a large audience. Dedicated workshops, either organized jointly with a major event or separately have the advantage of allowing a broader program, taking at least one day or more.

In order to meet the quantitative objectives recalled in the introduction, the following goals are identified:

- 1 joint international workshop or special session on PHYSEC around the end of Y1
- 1 joint international workshop or special session on PHYSEC around the end of Y2
- 1 dedicated PHYLAWS workshop at the end of Y3

(→ 3 events in total)

The two first events will have the objective to gather international competencies in the area of wireless physical layer security, mainly European and mainly academic, in order to ensure an excellent integration of PHYLAWS research in

the international up-to-date effort on the topic, and at the same time ensure a good awareness of these communities into what's going on within PHYLAWS (cross-fertilization).

The last event will be more focused on PHYLAWS results, since at that time most of them will have been obtained and applied to real world cases. At this stage, the dedicated PHYLAWS workshop will be organized in order to attract the interest and participation of relevant stakeholders.

### 3.3.2 Dissemination towards stakeholders

For a maximum impact of the project results, it is important to make the main objectives and the progress be known from potential stakeholders, able to use or exploit the PHYLAWS technology:

- wireless products manufacturers (large companies, techno-providers)
- software developers
- major telecom operators
- local operators (e.g. WIFI hotspots)
- scientific community: universities, research centers

Apart from the PHYLAWS dedicated events presented above, other channels will be considered over the project duration, e.g.:

- Press release
- solicitation of the PHYLAWS Advisory Board
- building of a mailing-list of interested parties
- leaflet, to be widely distributed

## 4 Clustering activities

PHYLAWS will address issues at the convergence between physical layer and higher layer aspects. Many other projects and initiatives are concerned by PHYLAWS results more or less closely. Likewise, it is important for PHYLAWS to be quite aware of the progress carried out in related projects, dealing with future standards for wireless networks. Clustering is also an excellent way to promote and disseminate PHYLAWS results easily.

Therefore, it is considered to take part in liaising and clustering activities, particularly with the most relevant FP7 european projects. This includes in particular the following potential ones:

- ICT call 8 project EMPH@TIC (STREP)
- ICT call 8 project 5GNOW (STREP)
- ICT call 8 project DUPLO (STREP)
- ICT call 8 project CoRaSat (STREP)
- ICT call 8 project Lexnet (IP)
- ICT call 8 project METIS (IP)
- ICT call 8 project NEWCOM# (NoE)
- COST Action IC1004

Further clustering/liasing actions towards these projects will be decided in the course of Y1.



## 5 Conclusion

This document contains the initial views of the consortium on the dissemination activities planned over the 3 years of the project duration. It will be completed by an intermediate dissemination report, giving details about already achieved dissemination actions at M18 and by a final dissemination report at M36.

It is recalled that standardization activities are not part of these 3 reports, being covered by 3 other dedicated reports.