



## **Integrated Project – EUWB**

**Contract No 215669**

# **Deliverable**

**D9.2b**

### **Regulation and standardisation plan (updated)**

<b>Contractual data:</b>	<b>M18 (+60 days)</b>
<b>Actual data:</b>	<b>M21</b>
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<b>Work package:</b>	<b>WP9</b>
<b>Security:</b>	<b>PU</b>
<b>Nature:</b>	<b>Report</b>
<b>Version:</b>	<b>1.0</b>
<b>Total number of pages:</b>	<b>12</b>

#### **Abstract**

The present document provides the updated regulation and standardisation plan for the work items on which the different WPs are working on.

This plan is structured according to the applications and research areas covered in EUWB and will be provided to all WPs in EUWB.

It will be updated on a regular base and released in its final version in M27 based on inputs from the EUWB WPs and external regulatory and standardisation activities. The further activities in regulation and standardisation will be planned based on this living report.

#### **Keywords**

UWB, standardisation, regulations , ETSI, CEPT, APT, FCC, ITU.

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## Table of Contents

1 Executive Summary .....	5
2 Definitions .....	6
3 Introduction .....	7
4 Planning for the Application Platforms .....	8
4.1 Global Planning .....	8
4.1.1 “UWB in the Automotive Environment” (WP8b; BOSCH) and “UWB in the Home Entertainment” (WP8c; PHILIPS) .....	8
4.1.2 UWB in the Public Transport, e.g. Airborne UWB Applications (WP8a; EADS) .....	9
4.1.3 “UWB in Heterogeneous Access Networks” (WP6; TELEFÓNICA) .....	10
4.1.4 Cognitive Radio and Coexistence (WP2; CREATE-NET) .....	10
References .....	11
Acknowledgement .....	11
Annex 1 .....	12

## List of Figures

Figure 1: European standardisation process .....	12
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## Abbreviations

APT	Asian Pacific Telecommunity
CEPT	Committee on European Postal Regulations
DAA	Detect And Avoid
EC	European Commission
ECC	European Communication Committee
EIRP	Equivalent isotropically radiated power
ERO	European Radiocommunication Office
EUWB	CoExisting Short Range Radio by Advanced Ultra-WideBand Radio Technology
FCC	Federal Communication Commission
IDA	Infocomm Development Authority
ITU	International Telecommunication Union
LDC	Low Duty Cycle
LDR	Low Data Rate
MB-OFDM	Multi-Band OFDM
OFDM	Orthogonal Frequency Division Multiplexing
Q1/2/3/4	Quarter 1/2/3/4
RSC	Radio Spectrum Committee
SRDoc	System Reference Document
UWB	Ultra-Wideband
UWB-RT	Ultra-Wideband Radio Technology
WGFM	Working Group Frequency Management (sub group of CEPT ECC)
WGSE	Working Group Spectrum Engineering (sub group of CEPT ECC)
WiMAX	World-wide Interoperability for Microwave Access
WiMAX UL	WiMAX Uplink

## 1 Executive Summary

This regulation and standardisation plan is based on Deliverable D9.1 “World-wide regulation and standardisation overview”.

It is structured according to the applications and research areas covered in EUWB and will be provided to all WPs in UWB. It will be updated on a regular base and released then again in M27 based on inputs from the EUWB WPs and running external regulatory and standardisation activities.

The further activities in regulation and standardisation will be planned based on this living report.

The necessary actions for standardisation and regulation of the four EUWB application platforms and the Cognitive Radio principle as listed below are described:

1. “UWB in the Public Transport”, e.g. airborne UWB applications (WP8a; EADS (AIRBUS));
2. “UWB in the Automotive Environment” (WP8b; BOSCH);
3. “UWB in the Home Entertainment” (WP8c; PHILIPS);
4. “UWB in Heterogeneous Access Networks” (WP6; TELEFÓNICA);
5. “Cognitive Radio and Coexistence” (WP2; CREATE-NET).

Further on the status of these already started activities will be stated out.

This is: for all above mentioned items the necessary actions are addressed in the relevant European boards for frequency allocation and or standardisation.

The process is described in Annex I “Description of work” in the grant agreement of the EUWB project (v28 (approved 2009-11-30), Figure 25, page 61, which was copied to Annex 1 of this document.

## 2 Definitions

The use of “shall”, “should”, “must”, “will” and “may” shall observe the following rules:

- The word *shall* in the text denotes a mandatory requirement. Departure from such a requirement is not permissible without formal agreement.
- The word *should* in the text denotes a recommendation or advice on implementing such a requirement of the document. Such recommendations or advises are expected to be followed unless good reasons are stated for not doing so.
- The word *must* in the text is used for legislative or regulatory requirements (e.g. safety) and shall be complied with. It is not used to express a requirement.
- The word *will* in the text denotes a provision or service or an intention in connection with a requirement of this document.
- The word *may* in the text denotes a permissible practice or action. It does not express a requirement.

### 3 Introduction

The introduction of a new radio technology, especially when it is a wide band technology which has to work as an underlay radio application has to take into account the existing regulatory frame works and frequency allocations in the different regions (ITU Region 1–3) of the world.

Inside EUWB the different WPs are working on different aspects leading to deliverables which must fulfil at the end of the project regulatory and standardisation requirements.

With priority the European relevant requirements will be taken into account having in mind the different requirements in other countries outside Europe.

Besides scientific studies which will guide industry partners to gain competitiveness with their UWB applications the results will be four application platforms and one medium access principle which have the request to be regulated and/or standardised:

1. “UWB in the Public Transport”, e.g. airborne UWB applications (WP8a; EADS (AIRBUS));
2. “UWB in the Automotive Environment” (WP8b; BOSCH);
3. “UWB in the Home Entertainment” (WP8c; PHILIPS);
4. “UWB in Heterogeneous Access Networks” (WP6; TELEFÓNICA);
5. “Cognitive Radio and Coexistence” (WP2; CREATE-NET).

Beside the application platforms (1–4) which will lead to demonstrators the work package on “Cognitive UWB Radio and Coexistence” (WP2) will enable the paradigm shift for UWB communications, supporting the transition from the conventional concept of underlay radio to a context-aware Cognitive Radio (CR) approach. A cognitive UWB-Radio shall be capable of interacting with the surrounding wireless environment, taking autonomous and intelligent decisions and adapting its operating behaviour to coexist with various (heterogeneous) networks, in order to minimise the mutual interference.

Here the mechanisms and parameter have to be defined, confirmed by the regulatory bodies (CEPT) and standardised in a harmonised standard by ETSI.

These 5 items are based on inputs coming from other work packages and are the major areas on which regulatory and standardisation activities have to be applied.

## 4 Planning for the Application Platforms

### 4.1 Global Planning

All UWB applications in Europe which have a need for standardisation are handled in ETSI ERM TG31A and TG31C until 2008.

In 2009 both Task Groups have been merged to TG UWB (ETSI ERM TGUWB).

The chairman of TG UWB is coming from EUWB partner BOSCH. This leads to the fact that all relevant UWB application standardisation is controlled by the EUWB partner BOSCH.

Furthermore BOSCH is constantly present in the relevant CEPT panels like WGSE with its subgroups and WGFW with its subgroups to promote these work items coming from EUWB and other stakeholders.

This offers a certain influence capability of the overall planning inside and between the European panels responsible for the standardisation and regulation.

#### 4.1.1 “UWB in the Automotive Environment” (WP8b; BOSCH) and “UWB in the Home Entertainment” (WP8c; PHILIPS)

Both applications are summarised and described in one System Reference Document (SRDoc). ETSI TR 102 495-7.

*“Locations tracking and sensor applications for automotive and transportation environments operating in the frequency bands from 3.1 GHz to 4.8 GHz and 6.0 GHz to 8.5 GHz.”*

Planning milestones for this SRDoc:

- Start of activities in ETSI: November 2007
  - Amended with the inputs from EUWB and release for publication: December 2008 done
  - New WI for standardisation in TG31C: February 2009 done
- Work done: Creation of an updated version of TR 102 495-7. Technical characteristics for SRD equipment using Ultra Wide Band Sensor technology (UWB); System Reference Document as in TR 102 495-7 v1.1.1 needs to be updated in order to harmonise power spectral density values of application A with the ongoing ECC investigations and the updated EC regulation.
- SRDoc approved by ETSI ERM for publication (PU): November 2009 done
  - Approval of requested WI for a Harmonised Standard (EN 302 882) November 2009 done
- Content: Creation of new EN for location tracking and sensor applications for automotive and transportation environment (LTT). Based on TR 102 495-7 and the relevant parts of ECC and EC Decisions (ECC DEC (06)04, ECC DEC(06)12 and 2007/131/EC).
- Beginning of work on HS in TG UWB in Q1 2010 (depending on output from CEPT SE24 and FM47)

- Approval of preliminary draft standard in technical body (TG UWB) depends on frequency allocation done by WGFW and ECC expected in Q2 2010
- Approval for Public Enquiry (PE) expected for Q4 2010
- Resolution meeting out of PE in TG UWB in Q2 2011
- Depending on 1 step (or 2 step) approach for harmonisation start national vote in Europe in Q3 2011
- Depending on the national vote result: publication of the HS in the Official Journal (OJ) of the European commission end of 2011, which is the allowance for selling products.

*Note:* Delay of approximately 6 months in the compatibility/coexisting studies to be done by CEPT. Up to now this will not have a direct impact on the R&D project milestones.

#### **4.1.2 UWB in the Public Transport, e.g. Airborne UWB Applications (WP8a; EADS)**

Compared to the EUWB applications in Section 4.1.1 these applications needs additional effort for acceptance by CEPT.

The existing generic regulation framework on UWB applications excludes explicitly the usage of UWB devices on board of aeroplanes (ECC/DEC (06)04).

It is decided by CEPT that additional compatibility studies or an ECC report will be required.

This will be done by WGSE subgroup SE24 and the support of EUWB WP8a is strongly recommended.

A planning based on the already existing experience with a similar situation with UWB devices in rail and road vehicles, which have been excluded before too, may look like the following:

- |   |               |      |
|---|---------------|------|
| • New work item (WI) generated by ETSI TG31A                                      | December 2008 | done |
| • Preliminary draft SRDoc generated by TG31A<br>ETSI TR 102 834 v0.0.4 (2008-12)  | December 2008 | done |
| • In parallel draft SRDoc to CEPT WGSE (January 2009) and<br>WGFW for information | February 2009 | done |
| • Approval of the WI in the technical committee ETSI ERM                          | March 2009    | done |
| • Decision of WGFWM for an impact study (to be done in WGSE)                      | May 2009      | done |
| • Approval of the draft SRDoc for publication (PU) in ETSI ERM                    | November 2009 | done |
| • First results of the impact study for WGFWM                                     | Q2 2010       |      |
| • Start of work on harmonised Standard in TG UWB                                  | Q2 2010       |      |
| • Draft harmonised Standard approval for publication                              | Q4 2010.      |      |

Depending on the duration and outcome of the impact study it can be expected that a harmonised standard for these applications is available in 2010, beginning 2011.

That means the usage of UWB devices on board aircraft is from the regulatory and standardisation point of view in 2011 possible.

In parallel EUROCAE, responsible for “Environmental Conditions and Test Procedures for Airborne Equipment” has to be involved for their related investigations.

These activities should be triggered in the Q2 of 2009.

#### **4.1.3 “UWB in Heterogeneous Access Networks” (WP6; TELEFÓNICA)**

These applications are similar to the already regulated generic applications in Europe (ECC/DEC (06)04) and it is unlikely that standardisation in ETSI and a regulation in CEPT is furthermore necessary.

CEPT WGFM will be informed in Q1 2010 following the established process between ETSI and CEPT and has to confirm the assumption from ETSI TG UWB.

Requirement possibly to be investigated by CEPT: mobile/cell phones with an UWB interface will be used nomadic outdoor.

#### **4.1.4 Cognitive Radio and Coexistence (WP2; CREATE-NET)**

These standardisation activities are not directly under the responsibility of EUWB partners.

EUWB is involved and contributes in ETSI technical committee RRS which deals with Reconfigurable Radio Systems.

Activities in ETSI RRS have started in Q3 of 2008 and EUWB partner CREATE-NET is constantly co-operating with the related WG2 dealing with SDR and CR.

EUWB participates on ITU-R WP 1A/B meetings for monitoring purposes. The working parties are still employing with definitions for SDR and CR.

World wide acting network and service provider are intensively engaged in this Agenda Item (AI) for the World Radio Conference in 2012 (WRC12).

*AI 1.19 to consider regulatory measures and their relevance, in order to enable the introduction of software-defined radio and cognitive radio systems, based on the results of ITU-R studies, in accordance with Resolution 956 (WRC-07)*

## References

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## Acknowledgement

The EUWB consortium would like to acknowledge the support of the European Commission partly funding the EUWB project under Grant Agreement FP7-ICT-215669.

# Annex 1

Of typical European process for standardisation and regulation of new radiocommunications devices or systems

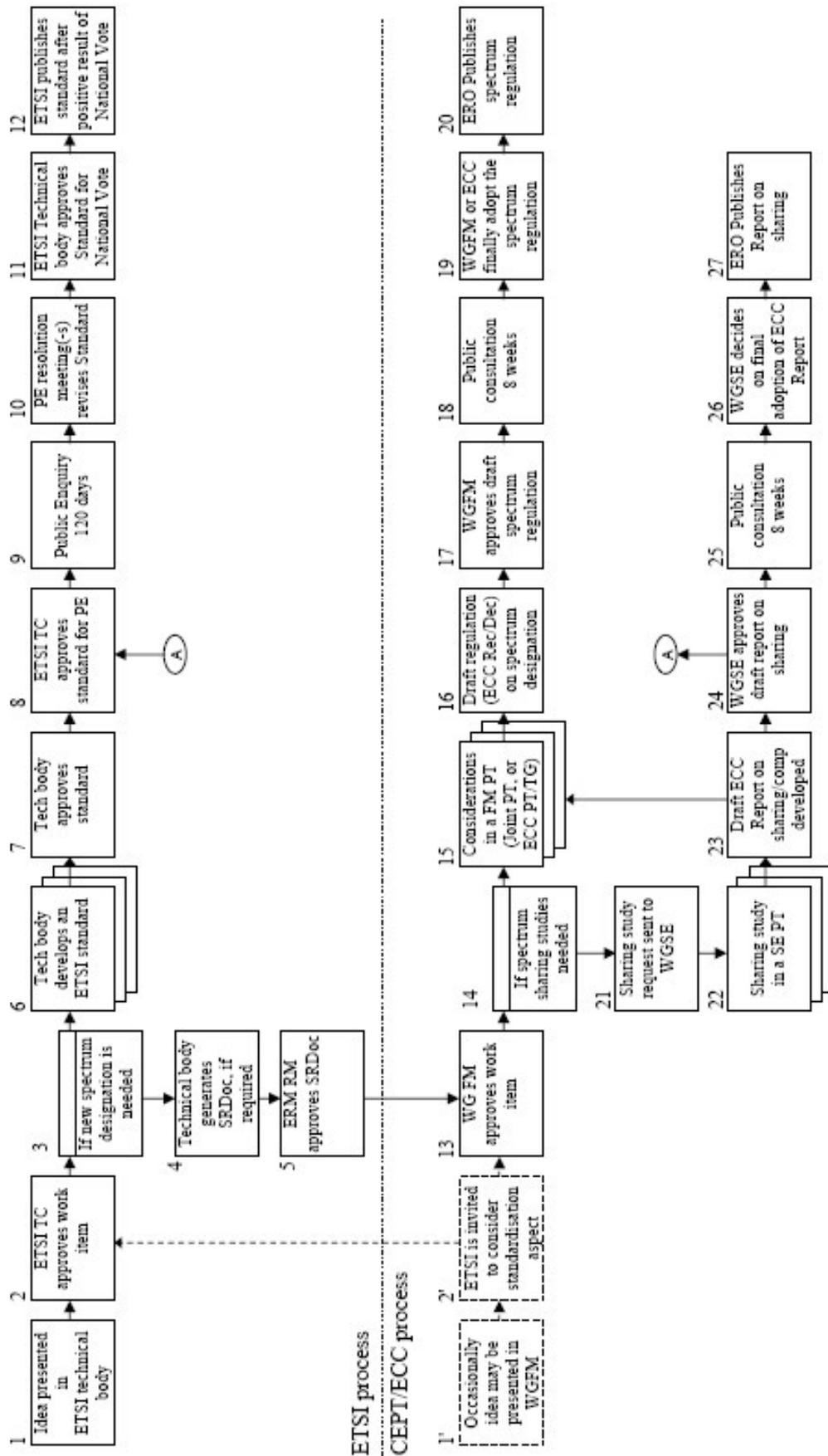


Figure 1: European standardisation process.