

An European Regulatory View – a WRC 12 Preview (Concerning SDR and CRS)

Horst Mennenga
Head of Section
Technical Regulation Mobile Radio Services



Wireless Innovation Forum's Technical Conference,
Arlington, Virginia
November 30th to December 3rd, 2010



Overview

Background

CEPT / ECC

International Telecommunication Union (ITU)

Ongoing

CEPT / ECC (CPG, WG FM, WG RA, WG SE, ECO)

ECC – ETSI

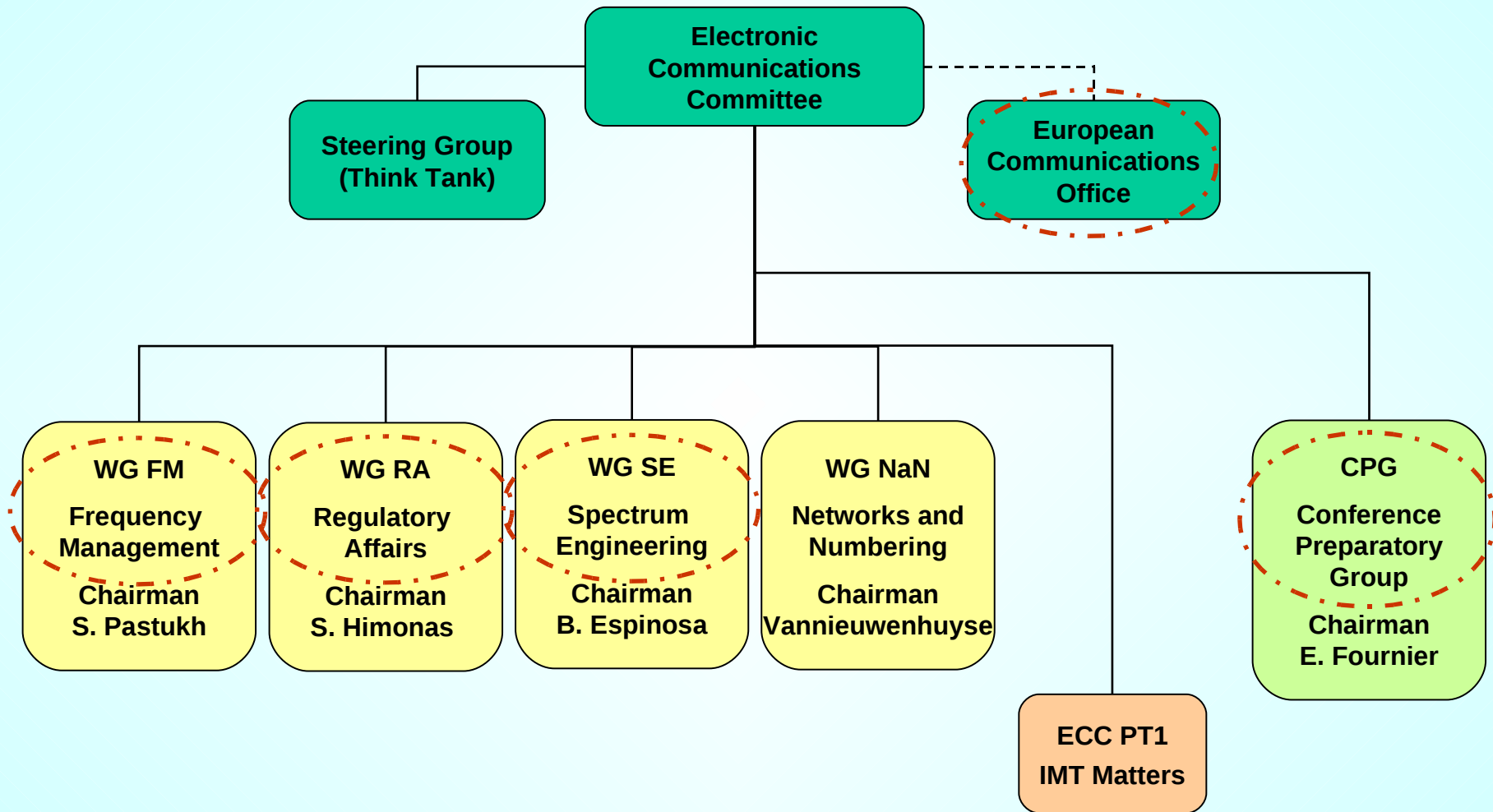
ITU

Mid term goals of ECC on SDR/CRS

Conclusions on the R&TTE Directive



Background CEPT / ECC



Ongoing CEPT ECC

WG FM established a Correspondence Group

... to consider

- ✓ *proposals of future work on CRS issues;*
- ✓ *coordinating the ECC activities; and*
- ✓ *identifying types of ECC deliverables*

that

- ✓ *identifies case scenarios - in a Report;*
- ✓ *assesses the various categories of suitable bands*
- ✓ *monitors EU research projects (e.g. Faramir, QUASAR, QoSMOS, OneFIT)*
- ✓ *ensures the Cooperation with ETSI and other stakeholders*

This activity will be helpful to build a common knowledge and understanding of foreseen CRS characteristics, the purpose of these cognitive features and the foreseen applications and services, and to assess possible impacts on spectrum use and spectrum management.

Ongoing CEPT ECC

WG SE established **Project Team SE43**(May 2009)

“ ... to investigate and define technical and operational requirements for the operation of cognitive radio systems in the ‘white spaces’ of the frequency band 470-790 MHz”

considering

- ✓ *to define technical and operational requirements for the operation of cognitive radio systems in the white spaces of the UHF broadcasting band (470-790 MHz) to ensure the protection of incumbent radio services/systems and investigate the consequential amount of spectrum potentially available as “white space”;*
- ✓ *to provide, if required, technical assistance on further issues related to white spaces and cognitive radio systems that ECC may identify in the future;*

established

the main requirements for the operation of White Space Devices under the geo-location database approach

ECC Report 159 „on technical and operational requirements for the possible operation of cognitive radio systems in the ‘white spaces’ of the frequency band 470-790 MHz”
(Under public consultation)

Ongoing CEPT ECC

WG RA established a Correspondence Group

... to consider issues associated with

- ✓ *management and enforcement;*
- ✓ *conformity and placing of CRS equipment on the market;*
- ✓ *authorization models; and*
- ✓ *harmonisation options*

to

liaise with WG SE and WG FM

- ✓ *on enforcement issues and database management*
currently related to the Draft Report of SEPT43

Ongoing CEPT ECC

CPG Project Team A

- ✓ *responsible for WRC-12 Agenda Item 1.19*
 - drafts CEPT Brief on AI 1.19*
- ✓ *extract preliminary CEPT Position: “ ...*
 - ...CEPT is of the view that Software Defined Radio (SDR) and Cognitive Radio System (CRS) are not radiocommunication services and the definitions of SDR and CRS should not be included into the Radio Regulations.*
 -CEPT is of the view that any radio system may implement SDR/CRS techniques within any radiocommunication service as long as it operates in accordance with the provisions of the RR applicable for that specific service in the frequency band allocated to it.*
 -CEPT is of the view that the possible worldwide implementation of a Cognitive Pilot Channel (CPC) could be supported by the development of an ITU-R Recommendation, subject to proper assessment and validation of the merits of this technological approach.*

Ongoing CEPT ECC

CPG Project Team A

- ✓ *responsible for WRC-12 Agenda Item 1.19*
 - drafts CEPT Brief on AI 1.19*
- ✓ *extract preliminary CEPT Position: “*
 - ...CEPT is of the view that, to satisfy the agenda item, No Change to the Radio Regulations would be required for CRS.*
 -CEPT supports an ITU-R Resolution to provide guidance for further studies on implementation and use of CRS in any Radiocommunication service within ITU-R outside the scope of a WRC Agenda item.*
 -CEPT is also of the view that no regulatory actions would be required for SDR. (personal comment: However, we still need to study possible requirements for SDR outside the Scope of the RR e.g. see work of SE 43 and TCAM)*

CEPT supports a

- ✓ *new ITU-R Resolution “Studies on the implementation and use of CRS”*
 - as alternative, administrations could support a WRC Resolution*
- *The CEPT Position is in line with the German position*



Ongoing CEPT ECC

ECO SEAMCAT

Mid Term Goals of ECC on SDR/CRS

following the Strategic Plan for:

- ✓ *continuation of introduction of innovation*
to enhance spectrum usage
- ✓ *direct impact of SDR/CRS to spectrum management*
to foster sharing and access
- ✓ *Further support of the development of SDR/CRS as key technology*
to support innovation

ECC aims to:

- ✓ *gather stakeholders and interested parties*
- ✓ *provision of forum to facilitate exchange of view*
- ✓ *consideration of regulatory schemes*
- ✓ *setting bases for regulatory measures, if needed*
- ✓ *representation of European interests in international fora*

Ongoing ECC - ETSI

Cooperation on different levels:

- ✓ *preparation of system reference documents (SRDoc)*
- ✓ *definition of protection criteria and sharing parameters*
- ✓ *Memorandum of understanding between ETSI and ECC*
- ✓ *studies are undertaken in full transparency with stakeholders*
- ✓ *parameters are to be separated for spectrum regulation (e.g. ECC- or EC Decisions) and standardization (R&TTE Directive, ECC Decisions may contain both)*
- ✓ *WGFM assists TCAM in identifying sub-classes*

Liaison and exchange of information among sub entities

- ✓ *especially on SDR/CRS: ECC WG FM and ETSI TC RRS**

* ETSI Technical Committee on Reconfigurable Radio Systems

ECC → ETSI → TCAM

development of new radio technologies

identification of spectrum

ETSI/Industry

ECC

compatibility studies

definition of criteria, sharing parameters

ETSI

preparation of system reference documents

establishment of European Harmonised Standard(s)

TCAM

compliance with the R&TTE Directive

Basic Principles

noting ...

the interrelation between the level of confidence by all stakeholders in the different steps of the regulatory process

- ✓ *that a loss of confidence in one step will significantly burden the others*
- ✓ *the significant impact of the R&TTE Directive on the development of sharing parameters in the ECC*
- ✓ *that the enforceability of regulatory provisions has always been key for the agreement of stakeholders on additional spectrum sharing*
- ✓ *that for SDR/CRS the air interface will set by the installed software*
- ✓ *the ongoing and preliminary work of the ECC on SDR/CRS*

concluding ...

Any revision of the R&TTE Directive for SDR/CRS technologies needs to ensure that the confidence in the compliance and enforceability of sharing parameters is maintained irrespective of a horizontal or vertical approach.

Relation to WRC 12

Planned Actions at ITU:

- Currently the adoption of a ITU-R Resolution for CRS is seen as sufficient
 - ✓ Ensure the start of further relevant studies at ITU-R



Thanks for your kind attention !

Annex

Examples of EU Research Projects in the Area of Cognitive Radio Systems (CRS)

- Faramir (Flexible and spectrum-Aware Radio Access through Measurements and Modelling)
<http://www.ict-faramir.eu/>
- QUASAR (Quantitative Assessment of Secondary Spectrum Access)
<http://www.quasarspectrum.eu/>
- QoSMOS (Quality of Service and Mobility driven cognitive radio Systems)
<http://www.ict-qosmos.eu/>
- OneFIT (Opportunistic networks and Cognitive Management Systems for Efficient Application Provision in the Future Internet)
<http://83.212.238.249/>