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DG INFSO/B4

**RSPG08-243**

**REPORT FROM THE WORKING GROUP ON THE RSPG OPINION**

ON

**ASPECTS OF A EUROPEAN APPROACH TO 'COLLECTIVE USE OF SPECTRUM'**

The Working Group on Collective Use of Spectrum met in London on 15 October in order to consider responses to the public consultation on the draft Opinion. The purpose of the meeting was to consider changes that should be made to the draft Opinion as a result of the responses received from stakeholders.

In total nine responses to the consultation (from Microsoft, EICTA, ARD, Metil, Telefonica, GSM Association, Deutsche Telecom/T-mobile, PWMS Manufacturers Group and TU Delft) were received. A summary of the main points raised by the respondents is set out at Annex 1 to this report, please note that this summary is intended for internal RSPG use only and is not intended for publication.

As a result of these responses a number of changes were made to the Opinion. Most significantly a new Section (Section 5) was added to the Opinion summarising the key points made by stakeholders. This explains that while most respondents were generally supportive of the CUS model, there were different views as to the extent of its use and the way in which it should be applied. Some spectrum users (such as Microsoft) were very favourable to the CUS model and felt it had significant potential in terms of encouraging innovation. On the other hand, others (such as the mobile network operators) tended to be more cautious in relation to deployment of the CUS model.

Apart from the new Section 5, other changes made to the Opinion, primarily as a result of the responses to the consultation include:

- Improved structure obtained by moving some of the text
- Clarification of the relationship between the CUS Opinion and the WAPECS Opinion
- Consideration of the quality of service and investment potential under a CUS approach and likely implications for the services offered
- Recognition of the role that standards can play to achieve quality of service
- Clarification of sharing opportunities and of the distinction between individual licensing and exclusive use

- Simplification of the table at Annex A

Those participants of the October Working Group supported these changes and the draft was subsequently circulated to all members of the Working Group following the meeting.

As a result, a final draft of the Opinion has been distributed to the RSPG members (doc. RSPG08-244). The Working Group submits this draft to the November meeting of the RSPG for adoption.

**Chris Woolford**

Rapporteur for RSPG WG on CUS

October 2008

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## ANNEX 1

### **Collective Use of Spectrum: comments from the consultation**

#### **Microsoft**

- The collective use model is a vital part of spectrum management, with the potential to stimulate service and technology innovation
- To gain full potential of the CUS model should:
  - Extend the CUS model across all bands – more CUS spectrum at lower frequencies (below 2GHz)
  - Hold to an application and technology-neutral approach in regulating CUS
  - Work for global harmonisation of CUS spectrum
- Sharing spectrum is vital to meet growing demand for communications capacity
- Technology developments offer potential to enable more dynamic and adaptable spectrum sharing
- Manufacturers should have maximum freedom to innovate- regulators should consider how they can encourage device specifications to allow greater spectrum occupation
- Transmission power limits on licence-exempt devices should be established with care to ensure that innovation is not unduly constrained and should be kept under review
- Suggests an alternative classification to the one considered by RSPG (p. 9). Where the RSPG considers multiple classes of collective use associated with a particular piece of spectrum, Microsoft offers an alternative; classification of devices according to two distinct profiles:
  - Mainstream: the bulk of devices making intensive use of spectrum (should support politeness protocols)
  - Primitive: light occasional users (no need to support politeness protocols)
- Agrees more UWB type allocations and low population trial zones should be explored
- Some doubt over the value of Impact Assessments – believes instead there should be a bias towards allocation under CUS

## EICTA

- Generally supports RSPG's views but comments in relation to short-range devices, in particular:
  - In carrying out Impact Assessments, the benefits of SRDs are of equal importance to measuring the opportunity cost
  - SRDs always share spectrum with other radio services... helps to encourage rapid innovation and diversity in services.... Further sharing should be encouraged
  - Do not see any reason to change the regulatory framework currently in place for SRDs (including EC Decision 2006/771/EC) – economic impact assessments only where justified and proportionate
- Welcomes possible support through EU Research programmes but emphasises SRDs will continue to require spectrum (at least for foreseeable future) below 40GHz

## ARD

- The spectrum bands open for the Collective Use of Spectrum (CUS) approach should be open to any user as long as new entrants do not constrain the existing licensed services and their development.
- If bands with non CUS services are considered for the CUS approach, a “spectrum purity” level which guarantees protection to incumbents – compensation should be paid where purity level is breached.
- The optimum benefit from a CUS approach can be expected if it is applied to dedicated bands at higher frequencies. In doing so sharing conflicts with licensed users can be minimized.
- ARD and ZDF strongly endorse the RSPG's proposal to explore if European funds for research on technologies for frequency ranges above 40 GHz could be made available.
- Under a CUS approach SAP/SAB services should not be considered in the same manner as other applications.
- Any EC mandate issued should ensure that compatibility studies and impact assessments are carried out reflecting the point of view of all stakeholders (including the broadcast and consumer industry) in an unbiased manner, especially if bands with existing users are the subject of those studies. Mandates for studies should allocate sufficient time to draw conclusions on compatibility that are sufficiently technically founded. The European Commission should ensure that all relevant documents in this process are made available for public consultation in a fully transparent manner.
- CUS applications can not guarantee QoS, hence is QoS is required CUS is unsuitable.

- Impact assessments should collect all views of stakeholders and should be subject to public consultation.
- Need to allow small players to contribute actively to the development of standards on an equal level with big market players.

### **Metil**

- Potential to use interleaved spectrum (between broadcast channels) for broadband wireless access, especially in rural and low income areas.
- Need to encourage innovative engineering in networking architectures (link with FP7).

### **Telefonica**

- Need to identify the right mix between different licensing models and approaches to spectrum management...but most services currently provided over the radio spectrum need individual rights to ensure quality of service.
- If further CUS allocations being considered, this should only be approved if benefits significantly outweigh long-term benefits of alternative applications
- Sufficient spectrum has been made available for CUS and would not expect any increase in the short to medium term
- Not appropriate to extend UWB limits...
- Role of mobile operators to promote innovation in CUS applications...requires stable regulatory framework with suitable sharing conditions
- Importance of international harmonisation

### **GSM Association**

- Designating spectrum for CUS can, in practice, represent an irreversible decision. As such, spectrum should only be designated as CUS if there is sufficient certainty that the likely benefits of CUS will outweigh the benefits of alternative applications.
- Frequency owners need certainty that no interference will change the spectrum value itself and will not jeopardise infrastructure investments based on certain assumptions for spectrum use.
- UWB limits should not be applied to non-UWB equipment without a thorough analysis. The power spectral density limits for UWB have been derived based on assumptions regarding the characteristics of UWB devices e.g. with respect to the number of devices, deployment scenarios (UWB devices are assumed to be operated mainly indoor), mitigation techniques such as low duty cycle or detect

and avoid. These assumptions are not likely to be the same for other transmissions from CUS.

- If further spectrum can be justified for CUS, we agree that one approach is to make spectrum available in higher frequencies (for example above 40 GHz where spectrum is more widely available and where flexible approaches are most appropriate).
- RSPG should be more specific in possible cases where CUS is considered superior.
- The term ‘user’ should be clarified, as should the term ‘private commons’
- Exclusive licences are still the dominating principle applied in spectrum management. Concern about relying on cognitive technologies....also concerns that greater licence-exempt use could have negative impact on the quality of services of licensed (mobile) operators and their investments.

### **Deutsche Telecom/T-Mobile**

- The extension of the CUS model should not be at the expense of individual licensed services and applications with exclusive spectrum user rights and must not endanger investment (by mobile network operators). Do not agree that exclusive spectrum user rights are becoming less common.
- Applications operating under the CUS approach should not cause harmful interference to a primary service/application.
- UWB limits should not be applied to non-UWB equipment without thorough analysis.
- New CUS applications and services should predominantly be deployed in higher bands with a low level of congestion and should be restricted to low power, short distance applications
- The current EU Research programme could help facilitate the development of new radio technologies above 40 GHz for CUS applications

### **PWMS manufacturers group**

- PMSE relies on interleaved spectrum between existing TV broadcasts: much use in the 470-862 MHz band across Europe – concern that much of this band may be lost to PMSE as a result of the WRC-07 decision
- PMSE contributes to European cohesion in culture, media, social and education.
- Wireless microphones need protection against interference

## TU Delft

- What constitutes a ‘well-defined set of conditions’ in the definition of CUS?
- Not clear how CUS differs from WAPECS (which they note was said to operate on both a licensed and ‘licence-exempt basis’)
- Focuses on how WiFi has been a success as a result of government policy simplifying rules for use of spectrum; this example illustrates how “innovation can be triggered by policy, developed by the industry and shaped by users”
- The standardisation process is long and (at least in the case of WiFi) has been a learning experience for the firms involved. The success of WiFi saw a gestation period of almost 15 years, followed by rapid take-up in the last 5-6 years. It took longer than anticipated to be a success and in the end it was users that shaped the emerging market.
- Notes WiFi is relevant as it can be considered the first large scale deployment of radio comms on a ‘common use’ basis: also highly efficient as no further spectrum required.
- WiFi illustrates the innovation potential of licence-exempt use and of pro-active allocation. Also illustrates need for industry to provide leadership in the development of standards, harmonisation of spectrum, and compatibility of products. Close co-operation between industry and regulators facilitates collective use and end-users will drive product development in unforeseen directions.
- Summarises:
  - CUS is in fact highly regulated
  - Co-operation between the market and regulators is crucial in crafting the rules
  - The lead time for the development and deployment of CUS applications is likely to be long
  - Continuous monitoring of the use of CUS is needed