

# Comments

## on the Radio Spectrum Policy Group Draft Opinion on Aspects of a European Approach to Collective Use of Spectrum

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### 1. Summary

- The spectrum bands for the Collective Use of Spectrum (CUS) approach listed in Annex 1 of the RSPG's Draft Opinion should be open to any user as long as new entrants do not constrain the non-CUS services and their development.
- If bands with non CUS services are considered for the CUS approach, a spectrum purity level which guarantees protection from all services including CUS services, should be included in the of non-CUS services.
- 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 for European funds for research on technologies for frequency ranges above 40 GHz.
- 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 .

## 2. General comment on the CUS concept as proposed by the RSPG

**Any spectrum bands designated for the RSPGs CUS approach should be open to any user as long as new entrants do not hinder the already existing licensed services and their development.**

In general, ARD and ZDF support the development of new innovative devices which are to be regulated under the CUS policy. Generally speaking, spectrum is a public good and the bands designated for a CUS approach should be open to additional users, as long as they do not hinder the development and the operation of non-CUS services. In this context, the term "harmful" used in the concept "harmful interference" should be unbiased and in particular not be defined by economical factors only, but should be determined according to the technical sensitivity of "existing services". Independently from the "harmful interference" attribute, administrations may define other criteria which are administratively agreed on the basis of economical and political considerations. It is crucial to separate clearly between the "harmful interference criterion" and the "administrative criterion" in order to allow decision makers to operate in full transparency.

The RSPG should also be aware that the broadcasting industry only accepted the actual values for Power line Communication (PLC) and Ultra Wide Band (UWB) as a compromise, keeping in mind that from a broadcasters point of view they are not technically sufficient to avoid harmful interference in regard to relevant broadcasting services. As regards UWB and PLC, ARD and ZDF also regret the lack of a clear distinction between the concept of "harmful interference" and the "administrative criterion".

**There are limitations to technological solutions to avoid interference and any regulatory measures related to Short Range Devices and UWB are proven to have practical constraints**

ARD and ZDF share the RSPG's view that the Quality of Service (QoS) of applications envisaged under the CUS approach cannot be guaranteed at all times, although that does not mean that devices using CUS only provide low quality of services. As a conclusion ARD and ZDF are convinced that applications where a constant QoS should be maintained are unsuited to be covered by the CUS concept. This is especially true for safety services but also for SAP/SAB services. The most crucial difficulty, however, is to guarantee the QoS for the existing services operating in case of sharing.

The RSPG judiciously points out the lack of clarity of the R&TTE directive when it states that "manufacturers are under an obligation to minimize the risk of harmful interference by deploying state of the art technology." In this context, ARD and ZDF would like to provide three examples which highlight concrete problems:

- Recently, the European Commission issued a mandate to CEPT on white space usage in the 470 – 862 MHz band. By contrast, in the case of ATSC (USA Television Standard), the actual white space sensing technology does not allow for

introduction of these devices without an unacceptable risk of harmful interference in relation to DVB-T services as confirmed by a CEPT report which states: "The feasibility of cognitive sharing schemes has not yet been conclusively demonstrated." DVB-T signal detection is proved to be more difficult than ATSC; a certain unacceptable likelihood of harmful interference would therefore be expected if such devices were to be introduced.

- FM micro transmitters do not always detect FM radio channels in use. Some devices also allow the connection of external antennas, which can cause much higher levels (more than 30 dB) of interference than initially intended for by the general authorization.
- W-LAN at 5 GHz operates with Dynamic Frequency Selection (DFS) which should avoid any interference case but is limited with 10 dB lower ERP than in the 2,4 GHz Band and limited to indoor use only. Nevertheless, nothing prevents a user to go outside with his or her equipment.

The above examples clearly illustrate the current "State of the Art" can not fully avoid harmful interference in regard to existing services. Furthermore, they show that with minor manipulations or modifications of the operation modes, "harmless devices" may create harmful interference to existing services.

In addition, as pointed out by the RSPG "the politeness rules" are only determined by "voluntary standards". Therefore, stakeholders representing the licensed services – also referred to as the victim service - have no influence on the definition of standards which rule this "politeness", and consequently on the interference caused to their services.

At the same time, general authorizations are not easy to handle and to implement in a reasonable time frame:

- When a case of interference has been discovered after the introduction of devices in the market, it is not realistic to remove devices in operation which can be found in million of households. In the case of FM micro-transmitters, actual experience shows that the major argument for the authorization in CEPT was that there were already a high number of devices illegally introduced in the European market.
- Another critical situation is encountered when a frequency range which was in use for unlicensed devices, is about to be reserved exclusively for other applications. Although the authorization for the unlicensed devices is removed, millions of devices will still be operational. For example, the 790 – 862 MHz band has been used for a very long time for wireless microphones. Now the frequency range is considered for IMT mobile services. It can be reasonably expected that these mobile services may suffer from interference, although wireless microphones will no longer be legally permitted.

Interference affects broadcasting services considerably more than any bidirectional service. In the case of interference, mobile or broadband user equipment can request an information packet anew and dynamically adjust the link budget (increase transmitting power, change the modulation scheme, electronically adapt the antenna). Such a

correction based on the existence of a return channel is not possible in the case of broadcast reception, because of its anonymous character. As a consequence, actual conditions are not sufficient to avoid unacceptable interference on non-CUS services. It is however legitimate that existing business models should not be threatened by "enthusiastic forecasts" on new potential business models.

**In case of non-dedicated bands, the risk should neither be placed on existing users nor on new entrants, but on the national regulatory authority.**

National regulatory authorities are confronted with two tasks. One is providing measures to limit interference. At the same time they should enable new entrants to access spectrum. ARD and ZDF recognize that spectrum should be provided for innovative technologies. They propose to include an additional right in the licenses that could be called "spectrum purity level, which would be guaranteed by the national regulation authority when a license is granted. In that sense, the responsible and liable body for authorizing interference under CUS approach is identical to the body which guarantees the avoidance of an interference level described by a spectrum purity level.

The national regulatory authority should be held responsible for any violation of a set spectrum purity level and should compensate the violation financially. The level of such a financial measure should be an incentive to national regulatory authorities not to allow devices which may damage existing business models. The financial compensation could be funded by a fee on the respective devices. Given the very high growth generated by this industry - as confirmed by the RSPG - a minimal fee should be sufficient. In any case, the level of compensation should not be dependent on the license fee of the licensed victim service but on the level of technical damage caused by the new entrant.

The provision "spectrum purity level" allows new additional CUS users. At the same time, it allows licensees to take all appropriate measures to ensure the continuity of their own service in case of additional potential CUS users. It can be seen as insurance for existing spectrum users. While allowing new entrants to access spectrum, it guarantees existing users the continuity of their business model on a legal basis as the "spectrum purity level" is intended as part of the license contract. As a consequence, the regulator has to ensure that all existing users have included a "spectrum purity level" provision in their license, taking into account the aggregate interfering signal, before any new additional user under the CUS approach is authorized.

ARD and ZDF are aware of the fact that a "spectrum purity level" is certainly difficult to determine and to define. In any case, a simple field strength level or pfd level and emission mask is technically proved not to be sufficient for characterizing interference. Certainly, the spectrum level should be sufficient for a licensed user to assess the potential impact on its service. For example, the interference impact on broadcasting services depends on the time and spectral structure as well as on the aggregation of different interfering signals and is not only a spectrum mask issue. Furthermore, while the "spectrum purity level" could be derived technically from protection requirements when the license is granted, it should be independent from the system of the service using the license, according to precise technical characteristics. New technologies development could therefore be introduced on both sides CUS user and the licensed user

without any difficulty.

With the transition from analogue to digital transmission and the increased congestion of the available spectrum, it will be unrealistic to request that European citizens are able to identify either the source of interference to a service or even the fact that a malfunction of their reception device is due to interference per se. The customary method proposed by national regulatory authorities in regard to complaints by users and verification is hence not sufficient to establish a case of violation of "spectrum purity level". For that purpose, any interference case should not be only established by real-time operations and complaints by citizen to the regulator but a technical demonstration or field trial should be sufficient to demonstrate a case of violation of the "spectrum purity level".

ARD and ZDF recognize that such measures pose challenges in regard to their implementation and that comprehensive studies would be needed. The new responsibilities for the regulator are high, but acceptable in the light of the fact that imposing them appears the only feasible way to avoid damage to existing representatives of the economy. As a result it will be much easier to implement CUS in bands exclusively dedicated to such a purpose.

Furthermore, some lower bands offer limited possibility for additional users, thus constituting a "wrong investment" of effort to seek activities for these purposes, when in fact other bands may offer more potential for new users in the Collective Use Category. For instance, the so called "white spaces" in the 470 – 862 MHz band are extensively and efficiently used by SAP/SAB services, under conditions that allow high QoS for both broadcast and the SAP/SAB services.

**The use of dedicated bands for CUS is the most realistic approach and higher frequencies offer the best potential for collective use of spectrum.**

For that reason, we share the RSPG's view that higher frequencies should be considered primarily when considering a CUS approach. This is even more justified as higher data rates are generally needed for the potential applications and only higher frequencies can offer the required bandwidth. The highest demand exists and is expected to occur in regard to short range and high data rates. In this light, ARD and ZDF also strongly endorse the RSPG's proposal for European funds for research on technologies for frequency ranges above 40 GHz.

**SAP/SAB services, the principal means for media information, should not be considered in the same manner as other applications under the CUS approach.**

Given the extreme importance of the access to information in an information society, ARD and ZDF would like to stress the fact that SAP/SAB services should be treated differently from other CUS users. A large majority of multimedia productions and journalistic works rely on SAP/SAB services. Although new mobile services offer new possibilities they are still regarded as minor means of transmission and production, mainly because of their varying QoS and limited capacity.

It is extremely important that SAB/SAP services continue to be operated under interference free conditions and have sufficient access to spectrum as interference or shortage of spectrum would have direct consequence on the quality of the information content provided to the society.

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### 3. Other specific comments

#### **Globalization and Economies of Scale**

ARD and ZDF support the RSPGs view that "the increasingly global nature of markets for equipment is especially relevant for a number of CUS applications such as SRDs" and that "regulatory frameworks need to be coordinated globally and in a timely manner." In this light, ARD and ZDF consider that harmonization processes and compatibility studies should involve the ITU. Additionally any harmonization measure and decision to extent possible "ITU proof" is important. To this purpose, it is necessary to have comprehensive technically founded studies in order to adopt the common approach in other regions than Europe.

#### **The term "Impact Assessment" in the Draft Opinion**

The term "impact assessment" probably points to economical impact assessments. It is crucial to have a reliable impact assessment which collects all views of stakeholders in transparency on the possibly impacted users of spectrum. Such an impact assessment should be subject to public consultation.

#### **Protection level as a function of the license fee in Annex B of the Draft Opinion**

The diagram in Annex B gives the impression that only bands submitted to market forces have the right for full protection. ARD and ZDF are wondering if this means that bands not submitted to market rules, like the frequency ranges for broadcasting services, have no protection? Is it the RSPG's opinion that GSM frequencies have less protection than UMTS frequencies because their license fees are lower and were not submitted to auctions? ARD and ZDF strongly support a solution which ensures that any service which is being granted a license has a right to a certain level of protection independent of the license fee. This is especially true for public safety services but also for broadcasting services.

#### **Balanced power of Industrial policy interests in standardization bodies**

As a general matter, ARD and ZDF promote open standards and horizontal markets which foster product innovation and competition. In regard to the RSPG's following statement: "There is a risk that overly specific rules could be driven by certain industrial policy interests that seek to promote certain technologies", ARD and ZDF believe that





there is a general problem for small players to be able to contribute actively to standards on an equal level with big market players. The difficulty is, however, independent from the specificity of rules. For instance at ETSI the number of units is proportional to the size of companies, leaving the definition of standards to big market players. We believe that new possibilities should be explored to allow small entities to contribute actively to standards. It is a question of granting access to European markets for small innovative companies.

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