



Europe

Position Paper

Response to RADIO SPECTRUM POLICY GROUP REPORT ON "COGNITIVE TECHNOLOGIES"

24th December 2009

GSMA Europe would like to thank the Radio Spectrum Policy Group (RSPG) for giving stakeholders the opportunity to comment on their draft report on "COGNITIVE TECHNOLOGIES". In response to the public consultation, we would like to make the following points:

- Deployment scenarios for cognitive radio system should not be limited to opportunistic spectrum access but other scenarios such as the use of cognitive technology by an operator of a radio system to improve the management of its assigned spectrum resource or the use of the cognitive technology as an enabler for collaboration between the public land mobile networks and private networks.
- Impact of the features to obtain knowledge of the radio environment should be carefully analysed.
- Identification of regulatory requirements on deployment of cognitive radio devices will be necessary.
- Maturity of the solutions associated to the cognitive radio system needs to be carefully estimated before deployment and should have to be preferably harmonised world widely. In particular, impact of possible interference as well as regulatory viability of the co-existence need to be carefully evaluated at the CEPT and ETSI levels (producing appropriate Harmonised Standards in accordance with the R&TTE Directive) in close co-operation with existing license holders.
- Cognitive radio systems should not be allowed to operate in licensed bands used by existing networks and infrastructures without the consent of the respective license holders.

Arguments underpinning this point are detailed overleaf.

Please do not hesitate to contact us if you have any questions.

About GSMA Europe

GSMA Europe is the European interest group of the GSM Association, the premier global body behind the world's leading wireless communications standard. GSMA Europe represents 171 operators in 50 countries/areas in Europe and counts around 588 million subscribers.



Europe

1. General remarks

GSMA Europe would like to thank the Radio Spectrum Policy Group (RSPG) for giving stakeholders the opportunity to comment on their draft Report on cognitive technologies.

GSMA Europe believes that the Cognitive Radio should be considered as an emerging communication technology to address the spectrum scarcity challenge and that cognitive radio systems might have a profound effect on many aspects of communications, including spectrum utilization, as well as allocation. However, even if the cognitive radio technology looks promising for specific applications and uses, deployment maturity is not yet given and needs to be proven.

2. Deployment scenario for cognitive radio systems

GSMA Europe believes that the focus of the use of the cognitive radio system should not be limited to the opportunistic spectrum access (e.g. TV white spaces) and has the view that enlarging the scope of the scenarios in the final report would be highly beneficial.

GSMA Europe suggests that the report should distinguish between different use scenarios for cognitive radio systems, including opportunistic spectrum usage and as optimisation of mobile networks in licensed spectrum; several organisations, such as ETSI, have recently studied these potential usage scenarios.

For example, the use of cognitive radio technology by the operator of a radio system to improve the management of its assigned spectrum resource or as an enabler for collaboration between the public land mobile networks and private networks should be described in the final RSPG report.

3. Feature to obtain knowledge of the radio environment

▪ Sensing

As expressed in the draft report on cognitive technology, GSMA Europe believes that sensing technologies are still under development and not mature at all. The hidden node problems, as well as the ability to sense radio signals from other radio transmitters are still to be solved, including reliability of the entire process and terminal power consumption issues. Furthermore, GSMA Europe has the view that sensing approaches are unfortunately technology-based, and associated impact in term of usage evolution should be carefully considered, in order to avoid any risk to sterilise part of the spectrum due to the limited possibilities to evolve the technology of the primary services and to introduce new primary services.



Europe

- Database / Geolocation

GSMA Europe also considers that the database combined with geolocation systems could be an alternative solution to provide appropriate information about spectrum availability and associated technical conditions to the cognitive radio device.

This solution seems extremely attractive; however some issues should be carefully analysed before considering and authorising its implementation.

For this specific issue, GSMA Europe believes that access to the database should be based on a worldwide harmonized and standardized approach. In addition, the development of detailed procedure covering all the necessary aspects of the initial and periodic connections would be highly desirable.

The database needs to be appropriately designed, managed and correctly updated without transgressing confidentiality. GSMA Europe supports that open database concept, managed at the national level by the national regulators should be the preferred scenario of deployment and information to be sent to the database will be defined on the case by case basis, function of the scenario, frequency bands (including impact in the adjacent channels) and usage.

However, it needs to be considered that several key usages are based on indoor deployment and that geolocation based on satellite services cannot be used to correctly evaluate position.

- Beacon and pilot channel transmission

These solutions raise some concerns, mainly related to the cost of a beacon network deployment, and availability of sufficient spectrum for the pilot channel solution

4. Regulatory consideration

GSMA Europe believes that the uniqueness of the European regulatory environment should be carefully included in the reflection on the cognitive radio systems due to the fact that the R&TTE Directive regime in force in Europe is based on declaration of conformity and does include neither type approval, nor registration of the equipment, or equipment identifier. Furthermore, GSMA Europe also considers that generic essential requirements such as “so as to avoid harmful interference” are not appropriate for cognitive radio systems. In particular, impact of possible interference as well as viability of the coexistence need to be carefully evaluated at the CEPT and ETSI levels (producing appropriate Harmonised Standards in accordance with the R&TTE Directive) in close co-operation with existing license holders.

Finally, GSMA Europe supports that sharing responsibilities in case of malfunction of the cognitive radio based equipment as well as the network connections are key regulatory issues that need to be solved before expecting any deployment. Therefore, cognitive radio systems should not be allowed to operate in licensed bands used by existing networks and infrastructures without the consent of the respective licence holders.



Europe

5. Final conclusions

In conclusion, GSMA Europe does support major revision, based on concerns highlighted in this response, of the RSPG report on the “cognitive technologies” before final approval. Finally, GSMA Europe would like to reiterate its encouragement to the RSPG to further emphasize the involvement of the mobile industry in the coordination of EU spectrum interests.