

Deutsche Telekom / T-Mobile Position on Draft RSPG Opinion on Aspects of a European Approach to 'Collective Use of Spectrum'

Deutsche Telekom / T-Mobile (DT/TMO) welcome the opportunity to submit comments on the public consultation on the draft RSPG Opinion on "Aspects of a European Approach to Collective Use of Spectrum".

It is important that introducing CUS is not at the expense of other requirements for efficient and interference free spectrum use. In particular the protection of existing primary services must not be impaired.

It is stated in the draft opinion that designation of spectrum for CUS would cause some "long term effects" and *"refarming for any other use is likely to be difficult. Even if 'better' services emerge in future, old equipment is entitled to stay in use for many years. Since the location of this equipment will be unknown it may, in practice, be impossible to clear the band."* Therefore DT/TMO are of the opinion that new spectrum for CUS should only be designated in a very careful manner on a step by step basis with enough time to observe the consequences.

Operators of mobile networks have made huge investments to roll out their networks and offer high quality services to the public. They need to be sure that these investments are not endangered by increased interference levels which would decrease the return of investment and hence the value of the acquired spectrum.

Key proposals/statements of DT/TMO:

- **The extension of the CUS model should not be at the expense of individual licensed services and applications with exclusive spectrum user rights.**
- **Applications operating under the CUS approach should not cause harmful interference to a primary service/application.**
- **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.**

Details

- **The extension of the CUS model should not be at the expense of individual licensed services and applications with exclusive spectrum user rights.**

DT/TMO do not share the view that individual authorisations and the granting of exclusive spectrum user rights is "becoming less and less common" and may only be "appropriate under certain circumstances, primarily for safety of life services".

Individual licenses are a prerequisite for commercial mass market services like mobile services offered to the public. Services/applications operated under a CUS model do not deliver the required quality of service. Moreover, spectrum use by individual licenses enables the application of market based approaches (e. g. trading) for more efficient spectrum use. Market based approaches require exclusive spectrum user rights and can hence can not be applied under the CUS model.

Even sharing between CUS and individual licensed applications and services would considerably complicate and impede any later modification of the individual licensed service/application, be it

- the application of market based approaches for the services/applications sharing with CUS or
- refarming of such spectrum, which would be difficult if not impossible.

Therefore, extensive allocation of spectrum for CUS in lower bands is to be avoided as it would significantly restrict the further development of primary individual licensed services and applications.

- **Applications operating under the CUS approach should not cause harmful interference to a primary service/application.**

Primary services/applications require protection against harmful interference. It is stated in the draft opinion: *“Once the compatibility studies have been undertaken and a sharing scheme defined, the licence exempt device operating under the CUS approach and the primary users are closely tied. It means that any unexpected evolution in the licence exempt use of the spectrum may create a new interference environment to the primary users (e.g., if the deployment is larger than expected)”*.

It is clear that it is very difficult to define the sharing conditions for licence exempt CUS services/applications sharing spectrum with primary services.

It should be noted that power limits (e.i.r.p.) alone are often not sufficient to ensure coexistence. The recent example of RLANs interfering with meteorological radars at 5 GHz shows that it is important that a thorough compatibility analysis is required with the affected services.

Preferably sharing of primary services with services/applications operating under the CUS model should be avoided.

This applies also to sharing below certain power thresholds (like e.g. power spectral density of UWB varying between -85 and -41 dBm/MHz between 100 kHz and 10 GHz). For this type of sharing it is essential that the number of applications can be kept under a certain number as the accumulated emission level is increasing with the number of sources. As stated in the draft opinion it is hardly possible to limit the number of applications operating under the CUS model and hence it is impossible for CUS applications to share on that basis.

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), signal structure including duty cycle. These assumptions are not likely to be the same for other transmissions.

- **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.**

As already outlined above, designation of spectrum for CUS could cause some “long term effects” to other users which are difficult to control under the CUS model and could lead to an unexpected evolution of the interference environment. This may create new threats for other users. Therefore the best way is to minimise the risks and to restrict of new CUS applications and services to higher bands (where the level of congestion is low) and 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.**

The whole CUS model is in our opinion based on the availability of suitable technology (e. g. cognitive radio) which facilitates easier and better sharing. The EU Research programme could contribute to the development of such technology.

Best Regards

Karl-Heinz Laudan

Alfred Mutinelli

Public and Regulatory Affairs
Spectrum & Technology Policy

T-Mobile International AG

Address Landgrabenweg 151, 53227 Bonn, Germany

PO Box Postfach 301661, 53196 Bonn, Germany

Contact Telephone: +49 228 936-0, Telefax: +49 228 936-39360, Internet: www.t-mobile.net

Bank Information Dresdner Bank AG Bonn, Acct. No. 02 063 062 00, Bank No. 370 800 40, IBAN: DE13370800400206306200, SWIFT-Code: DRESDEFF380

Supervisory Board René Obermann (Chairman)

Board of Directors Hamid Akhavan (Chairman), Michael Günther, Lothar A. Harings, Katharina Hollender

Registered Amtsgericht Bonn, HRB 12276

VAT Reg.No. 205/5777/0518

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