



## UMTS Forum

### UMTS Forum response to PTS public consultation on ‘The 800 MHz band - Planning and assignment proposals’

UMTS Forum welcomes the opportunity to comment on the Post- och telestyrelsens (PTS's) proposals on the planning and licensing of the band 800 MHz.

UMTS Forum largely welcomes and support the proposals made by the PTS. Then again, UMTS Forum would like initially to make the following more general comments on the proposals.

UMTS Forum is of the view that one should not overestimate the relative size of the available bandwidth in the frequency band 791 – 862 MHz (the band 800 MHz); however, the band will provide a good starting point and will allow for the introduction of internet based services supporting high peak data rates for all consumers that so wish, in combination with other bands available for mobile broadband services. Considering that the ever increasing availability of bandwidth in urban areas will be followed by similar demands on data rate in sparsely populated areas, it follows that the frequency band 791 - 862 MHz is generally on the low side in terms of bandwidth in the medium term. These 72 MHz should be compared with the 112 MHz initially recommended by the UMTS Forum during the early discussions on the Digital Dividend. Taking into account the progress of the digital dividend outside of Europe, UMTS Forum believes that studies may be required in order to determine how more spectrum below 790 MHz could be made available for mobile in Europe in a harmonized way.

#### **1. The point in time of the assignment is proposed to be the autumn of 2010 (Sub-section 3.2)**

UMTS Forum understands that an early allocation of the frequency band 800 MHz during the autumn of 2010 makes it easier for stakeholders to introduce the popular mobile broadband services, even in sparsely populated areas in a cost effective manner by taking advantage of the favorable propagation characteristics of radio waves. For greater clarity for stakeholders, it may be advantageous to fix a date for the licensing at an early stage following the summer next year.

#### **3. Technology and service-neutral licence conditions (Sub-section 4.1)**

UMTS Forum strongly supports the PTS's proposal to use the frequency division duplex (FDD) method in frequency band 791 - 862 MHz in line with the CEPT ECC decision preferred channel arrangement.

For Sweden to achieve the objective of providing broadband to all consumers, UMTS Forum is convinced that a predetermined and harmonized FDD frequency arrangement is the



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preferred solution, because this access method allows for an easy co-existence in the frequency band 791 - 862 MHz when multiple license holders must compete to serve the consumers.

UMTS Forum feels that it is perhaps not made clear in the consultation document on what is meant by "neutrality". For example, the Long Term Evolution (LTE) is a technology that can handle several functionalities (including both FDD and TDD access methods). Other modern and future standards can similarly support both FDD and TDD. Therefore, it is believed that "neutrality" in the band 791 - 821 MHz / 832 - 862 MHz is achieved even when FDD (2 x 30 MHz) is selected as the single duplexing method, due to the fact that modern standards support both FDD and TDD access methods.

UMTS Forum understands that conversely, if both FDD and TDD access methods are allowed, the likelihood of interference problems would be significantly higher. Under such unfavorable frequency management regime, either FDD or TDD access method could be chosen by the various license holders. A license holder's choice of access method would adversely affect the quality of radio services that the neighboring band owner has chosen. Under such frequency management regime, the industry must develop or adapt unique radio communication solutions for each individual license holder.

As such, the UMTS Forum believes that, in order to be "technologically neutral", the PTS should decide before a licensing procedure how the band should be commonly organized and that PTS should only consider FDD duplexing method in the band 800 MHz.

**4. The 800 MHz band is planned as an FDD, with six paired channels of 2 x 5 MHz each (Sub-section 4.2)**

UMTS Forum is convinced that the choice of FDD method, in line with the CEPT preferred channel arrangement, is by far the best solution for the Swedish consumers because it provides advantages in the areas of coexistence, propagation characteristics and the possibility of harmonization within Europe and in other parts of the ITU Region 1.

UMTS Forum believes that an appropriate technical channel bandwidth in this band could be an arrangement using 2 x 10 MHz.

With respect to the channel bandwidth allocated in the pre-auction process, the UMTS Forum has no comments.

**5. National licences (Sub-section 4.3)**

UMTS Forum understands, from past experiences, that national licenses allow the operators to better respond to the consumer needs, and would maximize the availability of mobile broadband networks to Swedish consumers. This experience is expected to be valid also for the licenses in the 800 MHz spectrum space.

**7. The auction object is a frequency blocks in the form of paired channels of 2 x 5 MHz (Sub-section 5.1.2)**



UMTS Forum believes that the band plan described in proposal 4 above is beneficial and that the division of the channel blocks of 2 x 5 MHz allows for “technology neutrality”.

UMTS Forum believes that an appropriate technical channel bandwidth in this band could be an arrangement using 2 x 10 MHz, which is enabled by an auction based on 5MHz frequency blocks.

#### **9. The spectrum cap at the auction is 2 x 20 MHz (Sub-section 5.2.1)**

UMTS Forum has no comment with regards to the spectrum cap. However, the UMTS Forum would like to highlight the likely links between a spectrum cap and the band plan proposed in Section 4. Specifically, the UMTS Forum believes that an appropriate technical channel bandwidth in this band could be an arrangement using 2 x 10 MHz.

#### **13. Basic spectrum mask (Sub-section 6.1)**

The UMTS Forum is concerned with the potentially erroneous interpretation of the conclusions of the CEPT Report 30 and the ECC Decision ECC/DEC/(09)EE. The framework of radio-waves regulations separates the out-of-band domain and the spurious domain\*. While unwanted emission in the out-of-band domain are usually tightly constrained since they correspond to wideband emissions that are likely to occur at all time, whenever the transmitter is on. On the other hand, spurious emissions are usually transient phenomena. The regulations acknowledge this difference by clearly separating the criteria for out-of-band emission and spurious emissions. The spurious domain is regulated in Europe, among other requirements, by the recommendation ERC/REC/74-01. The requirements set out in the ERC/REC/74-01 are an integral part of harmonized standards.

The UMTS Forum is concerned that the conclusions of the CEPT Report 30 and the ECC Decision ECC/DEC/(09)EE may be erroneously extrapolated to the spurious domain. The conclusions of these reports and decisions are only valid in the domain of out-of-band emission.

Specifically, the basic requirements for the mobile base station (BS) out-of-block e.i.r.p. and the limit per channel - i.e. the different cases "A", "B" and "C" – could only be applied in the out-of band domain in order not to with the general statutory principle of maximum permissible level of spurious signals (according to ERC / REC 74-01).

Should PTS request the application of these levels to all broadcasting channels below 790MHz, including broadcasting channels clearly falling in the spurious domain of the interfering BS, the initial level of 0 dBm / 8 MHz with respect to the case 'A' would be more stringent than the general spurious signal level for stations in the land mobile service at -36 dBm / 100 kHz if the BS's transmission power is lower than 57 dBm.

The band 470-790MHz is subject to spurious emissions not only from BSs in the 800MHz band but also from all other emitting devices. Among them, BS in the 900MHz band, 1800MHz band, 2GHz band and 2.6GHz band, but also broadcasting transmitters in the 470-790MHz band themselves. The UMTS Forum considers that:



- Adopting new spurious domain regulation for BS in the 800MHz would require a general revision of all spurious domain regulations, including the ERC/REC/74-01, for all equipments.
- It would be extremely dangerous to adopt such a drastic move on the base of studies which were solely addressing the out-of and domain.

As such, the UMTS Forum recommends the PTS to recognize that the conclusions and requirements set out in the CEPT Report 30 and the ECC Decision ECC/DEC/(09)EE only apply to the out-of-band domain, and that the spurious domain regulations are not affected by these conclusions.

*(\*) The most common definition of spurious signaling domain is that it starts with a frequency offset of 250 % of the occupied bandwidth of a transmitter. That is, for a 10 MHz LTE BS spurious signal domain begins at 25 MHz away from the center frequency of LTE BS's channel.*

#### **14. Technical conditions for protecting terrestrial television broadcasting reception (Sub-section 6.2)**

UMTS Forum understands that an appropriate solution is to avoid using channel 60 (frequency space from 782 - 790 MHz) across the country. The UMTS Forum recommends to rely on the use of passive filters for TV receivers in the exceptional circumstances where disturbances could occur at the TV reception below the frequency 782 MHz.

The proposal to allow only antennas with vertical polarization in areas, where channel 60 is in use would have a great impact on operators, as it would prevent the use of cross-polarized antennas that are commonly used today e.g. in the 900 MHz band. This means that operators cannot use the same antennas in 800 MHz, which means additional antennas as well as additional costs for operators.

However, first and foremost, it is regarded as relevant to consider the replanning of use channel 60 in Sweden.

#### **About the UMTS Forum**

Mobile broadband is changing the way the world communicates. The UMTS Forum helps all players in this dynamic new value chain understand and profit from the opportunities of 3G/UMTS networks and their Long Term Evolution (LTE).

The UMTS Forum participates actively in the work of the ITU, EC, ETSI, 3GPP and CEPT as well as other technical and commercial organisations globally. It also contributes to the timely licensing and deployment of mobile broadband globally through regular dialogue with regulators and responses to public consultations.

The UMTS Forum supports the interests of its membership with a range of studies, reports and other outputs. Principal focus areas include markets trends, mobile broadband services and applications, key growth markets, spectrum & regulation, technology & implementation. A strong promotional voice is maintained via a high-profile presence at conferences, seminars and workshops as well as regular briefings to the media, analysts and other stakeholders.



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Membership of the UMTS Forum draws together everyone with an interest in mobile broadband, including network operators, regulators and the manufacturers of network infrastructure and terminal equipment.