

CPG07-9

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Subject: **Comments and recommendations concerning draft ECPs
on the 470-862 MHz and 3400-4200 MHz bands**

Summary:

As spectrum is a key prerequisite for mobile communications, the spectrum processes at international level need to be forward looking. Decisions of the ITU and in particular the results of the WRCs provide a framework for industry activities and facilitate cost effective large scale solutions. Therefore the UMTS Forum urges European Administrations to reconsider the current draft ECPs related to WRC-07 Agenda Item 1.4 in order to become more forward looking and to prepare adequately the future of mobile communications, namely :

- to ensure at WRC-07 an allocation of the entire 470-862 MHz band to the Mobile Service on a co-primary basis and identification of a harmonised sub-band of around 100 MHz for IMT;
- to ensure at WRC-07 an allocation of the entire 3400-4200 MHz band to the Mobile Service on a co-primary basis and its identification for IMT.

Proposal:

The UMTS Forum strongly supports the following statements presented at the last ECC/PT1 meeting held in Budapest from 27 to 29 June 2007:

- from Denmark, Finland, France, Norway, Sweden, the United Kingdom and the European Commission Services regarding the band 470 – 862 MHz: “consider that timely action at WRC-07 is essential and therefore these countries/EC do not support those elements of the draft ECP which propose NOC at WRC-07 and deferring action to WRC-11”, supported and further developed by the main industry players. The statement also noted that USA and Canada are considering a global mobile allocation and identification to IMT for the band 698-806 MHz.

- from the industry regarding the 3800-4200 MHz band: “noted with disappointment that an ECP proposing Mobile in the RR at WRC-07 as a co-primary service in the 3800 - 4200 MHz could not be agreed. (...) As a result even the minimum spectrum requirements as concluded in the ITU-R Report M.2078 can not be met.”

Therefore the UMTS Forum urges CPG to review the draft ECPs under WRC-07 Agenda Item 1.4 to allow co-primary Mobile allocation in the bands 470-862 MHz and 3400-4200 MHz as well as identification of a harmonised sub-band of around 100 MHz within 470-862 MHz and the entire 3400-4200 MHz for IMT.

These actions would enable the regulators to respond adequately to the expected capacity demand as well as to offer suitable and timely solution for the coverage of large areas of low population density.

Background:

Agenda Item 1.4 of the WRC-07 refers to the extended UMTS/IMT-2000 coverage needs in the bands below those already identified for IMT-2000 (Resolution 228) and

the overall capacity and needs for advanced high-bit rate services in the bands below 5GHz for the future development of UMTS/IMT-2000 and IMT-Advanced.

Coverage needs:

Deployment of UMTS/IMT-2000 networks continues strongly and currently the networks cover most densely populated areas. Users want to have access to the same services in the entire territory including sparsely populated areas. There is a need to develop solutions allowing for low cost delivery of advanced services also in sparsely populated areas. Access network is the crucial element in cost of delivery and therefore the solutions to reduce the number of UMTS BS are needed. There is a need to find solutions that extend the coverage of the networks. One of the solutions could be the availability of part of the spectrum within 470-862 MHz band and the Forum strongly supports that a harmonised sub-band of around 100 MHz is identified for IMT at WRC-07.

UMTS Forum is actively involved in the CEPT studies related to the feasibility of harmonising a sub-band of the frequency band 470-862 MHz for UMTS/IMT usage.

UMTS Forum has also carried out a study in order to analyse the feasibility of realising a 112 MHz sub-band in the upper part of the UHF band for deploying an IMT-2000/UMTS network, while ensuring that national digital terrestrial television broadcasting requirements are still fulfilled. This study was based on the GE-06 Agreement and showed that in some specific conditions it could be possible to create a 112 MHz sub-band in the upper part of the band in one country. These first results were contributed to TG4.

UMTS Forum has decided to expand these studies to the neighbouring countries to see whether a harmonized sub-band in the upper part of the UHF band could be feasible. The study will also analyse the possibility of converging through a harmonized sub-band across Europe. These studies intend to show that Administrations may have a possibility to reassign channels of allotments while keeping broadcasting resources obtained in GE-06 and ensuring protection of broadcasting services in neighbouring countries. For this reason, more than two countries would be studied at the same time, taking into account their respective border countries. First conclusions of these studies will be presented in October during the next ECC TG4 meeting.

Advanced high-bit rate services needs :

Based on the ITU-R studies, and taking into account the current 585 MHz of mobile spectrum in Europe, there is a need of 695 to 1135 MHz of new spectrum depending on the applicable market settings. The UMTS Forum supports the identification of the candidate bands 3400-4200 MHz and 4400-4990 MHz bands by the WRC-07 for IMT to respond to the expected market needs according to the higher market settings. Since Europe envisages only the candidate band 3400-4200 MHz, there is a need to consider the entire band for allocation to mobile on a co-primary basis and the identification of the entire band for IMT at WRC-07.

The current draft ECP considers only the 3400-3800 MHz band which in any case could not be enough to answer to future market needs even for the low market settings scenario. The UMTS Forum urges European Administrations to reconsider their position concerning the upper edge of this candidate band, namely the 3800-4200 MHz. The 3400-4200 MHz band offers the best potential due to its size and relatively better propagation characteristics for mobile and in-building applications, in comparison with other higher frequency candidate bands. This frequency band would allow use of smaller antenna size for terminals and base stations, which is a favourable feature to implement multiple-antenna techniques enabling high spectrum efficiency. This band would also provide

significant capacity and could accommodate IMT-Advanced systems which are envisaged with large carrier bandwidths, up to 100 MHz.

Currently the band 3400 – 4200 MHz is allocated for and used by FSS. Possible identification of the band for IMT has to take the possible future FSS usage into account. In fact, coordination between IMT-Advanced and FSS (geographical separation or separation in the frequency domain) needs to be envisaged.

Draft new ITU-R Report on sharing between IMT-Advanced systems and the Fixed Satellite Service in the 3400-4200 and 4500-4800 MHz frequency bands has recently been finalized by the ITU-R. The study addresses co-channel and adjacent band interferences and saturation of the LNA of the FSS receiver. The study concludes that in such cases an exclusion zone will be needed around the FSS Earth Stations ranging from less than a km to several hundreds of kms. Several mitigation techniques can be used to minimise the size of the exclusion zones.

As each FSS Earth Station receives using only a small portion of the whole band 3400-4200 MHz (typical range of FSS ES receiver carrier bandwidths is 4 kHz to 72 MHz) it should be noted that the remaining part of the full band could be used by IMT-Advanced networks inside the exclusion zones. Of course if multiple exclusion zones would overlap, all bands actually in use by the FSS Earth Stations would be unavailable for IMT-Advanced. However, in Europe there are only a few locations where several exclusion zones would overlap and even in those cases still only a portion of the full band would actually be used by the FSS earth stations receivers leaving the rest available for mobile use. Furthermore, in several European countries there are wide areas where there would be no exclusion zones due to the small number of FSS earth stations in use and in those areas there would be no limitations for IMT-Advanced from the FSS usage.

It is also foreseen that the IMT-Advanced networks will be able to use spectrum in a flexible way and they can easily adapt to frequency restriction changes, e.g. in case the unusable band within the exclusion zone would change the mobile network could adapt as soon as such a change would be requested.