

**Comments submitted by Orange**

to the

**Telecom Regulatory Authority of India**

Consultation on Spectrum related issues

Efficient Utilisation  
Spectrum Allocation  
Spectrum Pricing

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## Introduction

Orange welcomes the opportunity to comment to the TRAI consultation concerning the spectrum related issues of public mobile networks. With its public consultation document relating, inter alia, to the introduction of 3G in India, TRAI offers to the industry the possibility to comment on the evolution of the use of frequency bands below 3 GHz to support the introduction of IMT-2000 systems.

Orange is today present in 24 countries, serving over 50 million subscribers with 2G technologies and is also developing 3G networks and services in a large number of countries. We are pleased to provide comments and express views, since the regulatory decisions that will be made following this public consultation will have an important impact, shaping the future mobile communication environment.

We hereby submit some limited comments on spectrum related issues. However, these comments should only be interpreted as a contribution to promote industry standards which will turn out to be beneficial in supporting the Indian authorities in their move, as an active player within the international community, to promote new services which will deliver benefits to the Indian people.

We can understand that some operators in India would like to obtain more spectrum for 2G infrastructures. However we hope that TRAI will take into account the value of a worldwide harmonised band for mobile communications when developing their strategic decision concerning 3G with the assignment of new spectrum in the harmonised IMT 2000 bands.

**We would like to highlight the importance of the India decision concerning the future use of the IMT 2000 spectrum at 2 GHz band (1920-1980 / 2110-2170 MHz) for IMT-2000/UMTS.**

**UMTS licenses were awarded in many countries world-wide in the 2 GHz band using the frequency plan: 1920-1980 MHz paired with 2110-2170 MHz. UMTS global deployment allows economies of scale and global roaming.**

**To conclude, we believe that UMTS technology has the best potential to be a global standard at 2GHz band.**

## Some detailed comments

### Chapter 2: Current spectrum availability and requirement

(i) Should the 450 MHz or any other band be utilized particularly to meet the spectrum requirement of service providers using CDMA technology?

The 450 MHz band offers to operators an advantage due to more beneficial propagation characteristics than in higher frequency bands and could be considered as a coverage band. However the amount of spectrum that could be made available at 450 MHz is not sufficient to really fulfil the operators' capacity needs. This band is not identified globally and does not provide enough spectrum to allow its usage by more than one operator. Therefore we believe that the 450 MHz band is not appropriate for public mobile operators.

Furthermore, if the 450 MHz band was to be used for public mobile services, we do not see any reason why it should be used only by service providers using CDMA technology. It should be open for any suitable technology.

(ii) The consultation paper has discussed ITU method for assessment of spectrum requirement. Based upon the methodology submit your requirement of spectrum for next 5 years. While calculating the required spectrum, please, give various assumptions and its basis.

According to the consultation document, the ITU methodology was developed prior to WRC-2000 in order to allow the estimation of the total spectrum needs for IMT-2000/3G networks. This methodology can be used for general calculation. However it is inappropriate to use this methodology for the calculation of spectrum needed per operator.

Estimation of spectrum amount for operator can be done using other means and in particular it should take into account the relative market share, development of subscriber numbers, carried traffic and their forecasted development.

In Europe, the UMTS Forum estimations<sup>1</sup> were used by Administrations when delivering 3G licenses with 2X15 MHz (FDD) plus 5 MHz (TDD) of IMT-2000 spectrum per operator in almost all countries. This amount of spectrum will provide sufficient capacity to each operator for the development of 3G services in the initial phase. We believe than more spectrum will be needed later on with increase in market demand and the development of a wider

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<sup>1</sup> Report N°5, Minimum spectrum demand per public terrestrial UMTS operator in the initial phase, 1998

range of new services and data applications. This additional spectrum will be delivered in the 2.5 GHz band according to market demand.

(iii) Whether IMT-2000 band should be expanded to cover whole or part of 1710-1785 MHz paired with 1805-1880 MHz?

WRC-2000 identified the whole band 1710-1785/1805-1880 MHz as an IMT-2000 band. However, this band is currently heavily used by a number of existing public mobile networks. This band will be widely used for IMT-2000/UMTS in the future. This band cannot replace the 1920-1980 / 2110-2170 MHz band from equipment availability or roaming point of view.

(iv) Should IMT-2000 spectrum be considered as extension of 2G mobile services and be treated in the same manner as 2G or should it be considered separately and provided to operators only for providing IMT-2000 services?

IMT-2000 spectrum cannot be considered only as extension of capacity for 2G mobile services and cannot be treated in the same manner as 2G spectrum. IMT-2000 spectrum should be considered by itself, taking into account the situation of 2G mobile services but independently from 2G networks, i.e. both 2G and non-2G operators should be allowed to bid for the IMT-2000 spectrum to provide IMT-2000 services. However it should be recognised that some 2G and 3G services do overlap and that new services, that can be offered only by IMT-2000 technologies, will complement 2G mobile services. Therefore, IMT-2000 spectrum shall be provided to operators for providing IMT-2000 services, including both the services that can be provided by 2G networks and the new services.

(v) Reorganization of spot frequencies allotted to various service providers so as to ensure the availability of contiguous frequency band is desirable feature for efficient utilization of spectrum. Please, suggest the ways and means to achieve it.

The availability of contiguous frequency band is highly recommended. Wider frequency blocks give more flexibility for operators in their networks operation and allow more spectrum efficient usage. The existing operators blocks should be reorganised if possible. However any reorganisation has to be done with the full involvement of all concerned operators.

(vi) Whether the band 1880-1900 MHz be made technology neutral for all BSOs /CMSPs / UASLs and be made available with the pair 1970-1990 MHz or should it be kept technology neutral but reserved for TDD operation only?

We believe that it is inappropriate to make the pairing of the 1880-1900 MHz band with 1970-1990 MHz band. The band 1880-1900 MHz should be reserved for IMT-2000/UMTS TDD technologies.

### **Chapter 3: Technical efficiency of spectrum utilization**

(vii) Please offer your comments on the methodology outlined in this chapter for determining the efficient utilization of spectrum. Also, provide your comments, if any, on the assumptions made.

There is number of issues which has to be taken into account when evaluating if a particular network has been built spectrum efficiently e.g. operator business model, operator status etc. Theoretical considerations are not sufficient to draw conclusions on efficient spectrum usage.

(viii) Please provide your perception of the likely use of data services on cellular mobile systems and its likely impact on the required spectrum including the timeframe when such requirement would develop?

We believe that the use of data services on cellular mobile systems is increasing and that provision of data services should be planed by all operators. It should be stressed that the basic data features are already included in all mobile equipment.

### **Chapter 4: Spectrum pricing**

(xiii) In case of Auction methodology is used for pricing the spectrum, please, give suggestions to ensure that spectrum pricing does not become very high and spectrum is available to those who need it.

We consider that the method of 'beauty contest' is the most appropriate since it allows the evaluation on the basis of quality of presented demand and spectrum could be made available to those who need it.

## Chapter 5: spectrum allocation

(xviii) How much minimum spectrum (refer approach (I) and (II) in section 5.4) should each operator be provided? Give the basis for your comments.

We consider that the minimum spectrum which should be provided in the initial phase to each public UMTS operator is :

2x15 MHz (paired) + 5 MHz (unpaired).

With this amount of spectrum an operator can build a UMTS network capable of providing all expected UMTS services. Therefore, depending on spectrum availability, more paired or unpaired spectrum could be allocated to an operator if higher traffic demands it.

(xx) Should spectrum be allocated in a service and technology neutral manner?

The bands 1920-1980 / 2110-2170 MHz (WARC-92) and 1710-1785/1805-1880 MHz, 2500-2690 MHz (WRC-2000) has been designated in the Radio Regulations for IMT-2000. These bands are currently harmonised for use by IMT-2000/UMTS allowing economies of scale, open standards, roaming etc. Opening these bands for technologies other than IMT-2000 would jeopardise all these harmonisation efforts.

The IMT-2000 bands, as identified by ITU-R, should be allocated to IMT-2000 technologies. This would give flexibility for operators, benefits of harmonisation and ensure the future development and evolution of the current 2G networks.

(xxii) What procedure for spectrum allocation be adopted for areas where there is no spectrum scarcity and in areas where there is scarcity?

A unique procedure for spectrum allocation should be adopted and applied to areas that are meaningful in terms of mobile market. These areas may include both areas where there is no spectrum scarcity and areas where there is scarcity. The best solution is to assign spectrum on a national basis to ensure wide availability of service. In this respect, lessons can be drawn from the success of second generation mobile communications in Europe, where licences have been issued as national licences. It will allow also a more efficient use of spectrum.

(xxiii) Which competitive spectrum allocation procedure (Auction / Beauty Contest) be adopted in cases where there are scarcity?

Beauty Contest should be adopted as the most appropriate spectrum allocation procedure. It is also relevant in cases where there are scarcity.

(xiv) Should we consider giving some spectrum in 900 MHz band to fourth CMSPs?

If there is some spectrum available in the 900 MHz band it will be better to assign it to the existing operators.

(xxv) Comments of stakeholders are invited on the minimum blocks such as 2x2.5 MHz / 2x5 MHz of additional spectrum to be allocated to existing service providers in situations where IMT-2000 band is opened as well as in situation where it is not opened. Additionally, comments are also invited on the minimum allocation to new entrants.

The minimum blocks such as 2x2.5 MHz are unacceptable for IMT-2000.

The minimum blocks such as 2x5 MHz per public operator can be studied however this allocation will allow the deployment of a one layer IMT-2000/UMTS network. One layer network will not provide the full range of UMTS services. Therefore the scenario 2x5 MHz is not recommended.

The minimum spectrum needed per operators is 2x15 MHz + 5MHz and applies for both existing operators and new entrants.

(xxvi) In the event that IMT-2000 spectrum is treated as continuum to 2G, should existing operators using spectrum below the specified benchmark be treated as those eligible from IMT-2000 spectrum?

IMT-2000 spectrum are the bands which has been designated in the Radio Regulations for IMT-2000:

- 1920-1980 / 2110-2170 MHz identified by WARC-92 for initial deployment and
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- 880-915/925-960 MHz, 1710-1785/1805-1880 MHz, 2500-2690 MHz identified by WRC-2000 as extension bands.

IMT-2000 is a continuum to 2G. IMT-2000/UMTS has been standardised and specified to be a continuity of GSM (2G) networks. GSM provides a clear evolutionary path via GPRS to UMTS. Large GSM subscriber base drives economies of scale for operators, manufacturers and end users. UMTS builds on investments in GSM providing a network optimisation opportunity for operators. GSM operators should be eligible for IMT-2000 spectrum and in particular it should be recognised that they need to have access to the 2 GHz band - where initial deployment of IMT-2000 is ongoing world-wide - to extend their capacity and service offering. GSM/UMTS operators can retain their existing 2G core network, IT and service platforms; can also re-use existing sites and site sharing. It should be noted that more than 98% of operators holding IMT-2000 spectrum at 2GHz (approaching 120 operators) will deploy UMTS.