

Alcatel Response to the TRAI Consultation on “Spectrum related issues: Efficient Utilisation, Spectrum Allocation and Spectrum Pricing”

Alcatel welcomes this opportunity to respond to the Telecommunication Regulatory Authority of India (TRAI) on Spectrum related issues. This response to the TRAI consultation highlights in a synthetic form Alcatel’s key messages regarding what are our policies for an optimized spectrum policy and spectrum allocations for 2G, 3G and also spectrum pricing.

About Alcatel

Alcatel provides communications solutions to telecommunication carriers, Internet service providers and enterprises for delivery of voice, data and video applications to their customers or to their employees. Alcatel leverages its leading position in fixed and mobile broadband networks, applications and services to bring value to its customers in the framework of a broadband world. With sales of EURO 12.5 billion in 2003, Alcatel operates in more than 130 countries.

About Alcatel in India

Alcatel is a leading provider of end-to-end telecommunications and Internet based solutions in India. It was the first company manufacture digital switching equipment in the country and about half of India's fixed service lines, are powered by Alcatel technology. In addition to fixed line switches, Alcatel is active in the areas of GSM infrastructure, transmission equipment, development and implementation of IN platform, mobile phones, broadband equipment, space equipment and telecom infrastructure projects in Railways, Roads and Aviation.



ALCATEL KEY MESSAGES SUMMARY

(1) Alcatel is in favour of licensing the IMT2000 bands separately from 2G licensing. The IMT2000 technologies should be allocated in the IMT2000 bands in accordance with ITU-R Recommendation M.1026-2 frequency arrangement "B1" which is 1920-1980 MHz/2110-2170 MHz band known as the "core band" for IMT2000.

Therefore Alcatel strongly recommends that the Telecom Regulatory Authority of India (TRAI) allocate the WRC'92 Band for 3G in India as the only future proof solution.

Global roaming and mass-market volumes are key enablers to the success of 3G and would have considerable impact on the cost of designing equipment and terminals for the national mobile market. It should be noted that around 130 issued 3G FDD licenses worldwide utilise the band 1920-1980, paired with 2110-2170 MHz.

TRAI should also take into account that a common frequency band greatly simplifies global roaming, since it avoids multi-band 3G terminals. They are costly and many types will coexist. If different 3G frequency bands are used, many combinations of terminals and frequencies might not reach the necessary volume and come late into the Indian market or never (for instance the GSM/ANSI 95 as an example). Therefore, a common frequency band is the best enabler of Global Roaming and a 3G mass market. The use of the WRC '92 FDD band in India ensures your country's participation in a mass market for terminals and infrastructure to the benefit of Indian consumers.

The WARC95/WRC97 allocated IMT2000 frequency bands of 230 MHz. The split of this band is 1885-2025 MHz and 2110-2200 MHz. This spectrum also includes 20 MHz MSS bands as indicated in the document. The 155 MHz portion of 230 MHz is allocated for

terrestrial users only. Furthermore, this 155 MHz is split into paired FDD and TDD spectrum, also in line with ITU proposals. FDD is for paired bands of 2x60 MHz (1920-1980 MHz and 2110-2170 MHz) and TDD is for unpaired bands of 1900-1920 MHz and 2010-2025 MHz according to the type of application, but specifically for outdoor and indoor mobile applications, respectively. In many countries in Region 2 and Region 3, most of these bands are reserved for IMT2000 or 3G terrestrial applications, hence, these countries are in a comfortable situation as regards allocation, and with this approach they are completely aligned with the countries of Region 1. However, an issue remains regarding harmonisation with other countries in Region 3.

Therefore, ALCATEL recommends licensing 2x15 MHz (FDD) plus 5 MHz (TDD) of IMT2000 spectrum per operator. This approach ideally fills all the available IMT2000 bands (60 MHz for both uplink and for downlink) in India at an equal basis. Furthermore, it gives a balanced opportunity to each operator as far as the allocations of bands are concerned.

It should be mentioned that, although in a limited number of countries, 2x10 MHz bands have been assigned in order to exploit both existing systems. For the sake of broadband service delivery and adequate traffic rate capacities, the best solution should be considered as blocks of 2x15 MHz in line with many international recommendations like UMTS Forum and others. Any alternative solution could harm 3G system performances and certainly mitigate service capacity.

(2) On whether incumbent operators and new operators obtaining 3G mobile spectrum should receive equal amounts of spectrum or not?

In India, we still do not know how many 3G operators will be foreseen however, some of them will be existing GSM operators and the rest will be new entrants. If the mode of licensing is performed by auctioning, there could be some (limited) advantages for the new entrant.

It should be noted that auctioning needs careful planning and they could be impracticable for high volume and low value licenses. ALCATEL supports transparent beauty contests possibly combined with an auctioning approach since this is considered as the most appropriate method of allocating frequencies and is the most efficient method for fair use of frequencies. Indeed, the recent development of excess license fees for 3G spectrum in Europe has severely affected the industry's investment capital. From supplier's point of view, such high entry fees amount to merely transferring public debt onto the private sector with the sole effect of hampering market development, innovative R&D and, more importantly, the capacity of operators to adequately invest in their first phase 3G service offerings.

3) The 1880-1900 MHz band lies in the IMT2000 core band as specified in ITU-R M.1457-3 allocated by ITU for TDD. However, it should remain technology neutral.

a) Assignment of TDD spectrum at the same time as FDD spectrum

ALCATEL believes that both technologies, namely, TDD and FDD present advantages and one should therefore not prejudge the market choices with spectrum band allocations in favour of one technology, TDD or FDD – both should be assigned simultaneously.

b) Considerations should be taken into account when assigning TDD spectrum

ALCATEL is in favor of the assignment of both the paired and unpaired IMT2000 core bands to the 3G network provider. In spite of the fact that there is no clear entry date foreseen for large-scale deployment of TDD-based very dense user area services, operators should have the possibility to accelerate or adapt rapidly to demand as soon as it appears (e.g. in business districts, city centers, and airports ...). This approach would both relieve FDD usage while allowing development of highly innovative and well-focused services for "leading edge" consumers.

c) Assignment of 2010-2025 MHz bands

Although this band is already allocated by ITU for TDD, ALCATEL suggests that there may be some interest not to exclude other complementary techniques (e.g. WiMAX), which could also be operated under licensing conditions.

- (4) Spectrum in the bands 1710-1785 MHz paired with 1805-1880 MHz should only be decided for 2G/2.5G use, this should be considered as an extension band later in line with the international consensus on 3G introduction.
- (5) The 450 MHz band may be useful for rural applications. Prior to its assignment, the band should be analysed for other potential uses. It should be licensed on a technology neutral basis.
- (6) 3G policy should be decided soon in India by announcing the IMT2000 core bands as specified in ITU-R M.1036-2 under option B1 for 3G/IMT2000.
- (7) We support the re-farming process for the benefit of more mobile spectrum in the future.
- (8) The spectrum efficiency comparisons given in the chapter 3 of the TRAI document are unbalanced. We recommend not using its conclusions for spectrum decisions.

It is clear that national licenses have distinctive advantages because:

- ? Market demand is usually for national coverage,
- ? 3G may not be rolled out in some areas where the business case is not sustainable, however 2G will generally be available, possibly with enhanced capabilities towards 3G,
- ? Marketing services on a national basis provides economic advantages.

In India, there are already many 2G regional operators in competition with three national operators in each region. However, there are some additional constraints (like coverage obligations) on regional operators. Taking into account these points, it is more efficient to use the spectrum assigned on a national basis.

Whether licenses should be regional or not, this depends on market demand in each region. Considering the problem mentioned above, regional licenses should only be considered as a secondary step. In addition, as competition is the key element, some licenses should be reserved for new operators.

(9) Alcatel recommendations on Standards

ITU has approved five standards for the air-interface of 3G terrestrial systems (IMT-DS, IMT-TC, IMT-MC, IMT-SC and IMT-FT). In Region 1, most of the operators selected the W-CDMA standard specified by 3GPP. As mentioned before, selection of one standard facilitates national and international roaming. However, in line with the existing situation in India, each individual operator should be able to choose the standard he will deploy for 3G. Moreover, according to WTO rules, TRAI cannot mandate a single standard for the Indian market. Operators should be able to choose, even though divergent standards would complicate the roaming procedure.

Consequently, it is clear that mandating one single standard would not be advisable and even contradictory to WTO rules. In case of a single 3G standard, for some operators the migration path could be easier and for others more difficult. For example, the worldwide success of GSM will impose the IMT-DS (WCDMA) standard as the prime evolution path for a great number of countries –thereby assuming maximum international roaming accessibility for their subscribers, using lower price terminals benefiting from economies of scale.

Nevertheless, ALCATEL believes that the policy should be based on “technology neutral regulation” and 3G operators should accordingly remain free to introduce any IMT2000 standard. The existing market conditions, in particular the strong footprint of GSM, will certainly influence the operator when choosing his preferred 3G technology.

(10) Alcatel views on international roaming

International roaming has been a key element of the success of GSM radio technology. Every GSM Operator has signed a large number of roaming agreements and the free circulation of type-approved GSM terminals has contributed to lowering the price of pocket handsets and building up a huge base of GSM subscribers worldwide. ALCATEL is convinced that 3G technology deserves the same incentive to let the consumer benefit from the same freedom to circulate around the globe while keeping reachable from his homeland. International roaming capabilities will no doubt be a key factor to stimulate the growth of the 3G market. This has been acknowledged by ITU-R, with the creation of a working group dedicated to the provision of rules ensuring the free circulation of user equipment, within ITU-R WP-8F.

The remaining issue with regard to international roaming comes from the variety of IMT2000 radio terrestrial technologies, which put on terminals manufacturers the burden of supporting various standards within a single pocket handset. There is no doubt that, in the short term, roaming between different 3G radio access networks can hardly be envisaged. However, unlike what happened for 2G technologies, the various standardisation bodies in charge of specifying 3G radio terrestrial interfaces have worked out the inter-working aspects. For instance, technical specifications exist to ensure proper inter-working between W-CDMA and CDMA Multi-carrier radio access networks.

(11) Spectrum trading in India would be premature. We, first recommend that India observe and participate to international developments, for example in the European Union where spectrum trading has been enabled in theory by the new regulatory framework, but has just reached

the policy makers' agenda (without any clear policy approach to date). Certain families of frequency applications, such as satellite (in particular trans-border applications) are poorly adapted to frequency trading models and present complex interference issues. It should be only introduced in the framework of ITU-R harmonised spectrum arrangements.

(12) Spectrum Pricing: Money is the basis of our economic system and can be extended to regulated spectrum allocation. Knowing that the spectrum users come from different domains with very different constraints and motivations, Alcatel recommends that

- ? Spectrum pricing should be proportionate to the business for which spectrum is to be used (opposition to high prices to get a license),
- ? Safe harbour for public interest applications (military and scientific applications) – different pricing or even no pricing should apply,
- ? Finally, Alcatel believes that paying is not enough, if one pays for frequency, one should use it as well for the benefit of all.



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