

TVR/VEL/032
14 March 2010

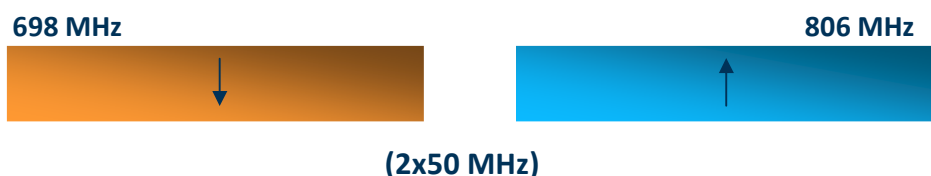
The Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan
Jawahar Lal Nehru Marg (Old Minto Road)
Next to Zakir Hussain College
New Delhi 110002

Dear Sirs,

Subject: Pre-consultation paper on “IMT-Advanced (4G) Mobile wireless broadband services”

1. We welcome the initiative of the Authority to discuss and develop a clear future roadmap for the growth and development of mobile services in the country. As is well recognized, wireless is going to be the predominant path/platform for achievement of India's broadband objectives, especially in rural areas.
2. Besides empowering the rural consumer, early introduction of mobile broadband services will also have a beneficial impact on the overall economy. An India specific study carried out by ICRIER has established significant benefits from increase in tele density, i.e. States with higher penetration are expected to grow faster, around 1.2% points higher for every 10% increase in penetration. This study was based on the impact of 2G. For mobile broadband, the benefits can be expected to be multiple times higher.
3. We note that the Authority has indicated that the purpose of this consultation is to deliberate on various connected issues such as Allocation and pricing of spectrum for such services and issues related to licensing, etc. In this regard, it may however be pertinent to point out that under the CMSP/UAS licenses that are awarded by the Government; the licensees are already permitted to provide all types of mobile /access services. Furthermore these Licenses are technology neutral, subject only to caveat that the technology should be 'digital'.
4. Moreover, it may be appreciated that 2G, 3G or 4G services can be delivered across a number of frequency bands. The services which can be deployed is really a function of the amount of spectrum available with the operators and the demand /appetite of the market for these services – voice, data, video, etc.
5. We thus believe that the core issue that may be addressed in the present consultation is really the identification and availability of spectrum that may be allocated for mobile broadband services and consideration/resolution of the technical issues, if any, associated with the same.
6. It is also important to appreciate that as and how India moves towards delivery of advanced mobile services, there will be a need to identify and allocate large blocks of spectrum. This is imperative for the industry to deliver on India's broadband objectives. In this context, the initiation of the current consultation process is indeed both timely and opportune.

7. In view of the need for large blocks of spectrum required for mobile broadband, we would like to suggest that and request that the prime frequency band that the Authority should consider is allocation of the 700MHz band for mobile broadband services.
8. In most countries, this band had historically been allocated to analog broadcasting, but given the fundamental economic importance of mobile broadband services, such countries are increasingly moving to digital television to release this spectrum for the “digital dividend” which can be gained if these frequencies are redeployed for mobile broadband services. In the matter of this band, India also has a definite advantage over other countries as this band is largely unused and is therefore far easier to allocate.
9. We believe that the 700 MHz band is ideally placed for delivery of Mobile Broadband services because of its propagation characteristics. This band will allow mobile operators to provide cost-effective and seamless broadband experience, allowing for improved rural coverage and better quality coverage in urban areas.
10. Allocation of this band for mobile broadband services will also go a long way towards addressing the severe spectrum constraints in other bands and allow for allocations that are more in line with international averages.
11. As regards the possible band plan arrangements, the Authority may be aware that while Regions 1 and 2 have already adopted their respective band plan arrangements, Region 3 (including India) is yet to finalize its band plan arrangements for 700MHz. We believe that the most efficient solution in this band is likely to be a FDD duplexing mode with a 2 X 50 MHz arrangement (with 8 MHz center gap).



12. This will:
 - a. Deliver large contiguous blocks of spectrum for mobile broadband.
 - b. Maximize the use of limited spectrum available in India and is hence the most spectrally efficient arrangement.
 - c. Avoid the potential fragmentation of the band thereby reducing the complexity of the terminals.
 - d. Ensure better co-existence with adjacent radio communication (broadcast) services with reverse duplex arrangement. It is also very likely that Europe will adopt a reverse duplex direction in this band giving alignment with scale deployments in Europe.

Any other FDD arrangement in 698-806 will result in lesser quantum of available spectrum (as more guard band will be required) apart from interference issues. We suggest, however, that these questions, especially duplex direction, be revisited during the consultation process as rapid developments in other markets mean that the potential to harness alignment and economies of scale is becoming clearer.

13. We also believe that in Region 3, India will be one of the key markets to drive economies of scale and is thus well placed to lead the initiative to develop a band plan for Region 3 and can thus advocate/push for adoption of the above-mentioned band plan in order to provide affordable mobile broadband services and to

help develop a knowledge-based economy. An early vacation and allocation of this spectrum to mobile services would accelerate the shift to wireless broadband.

14. Given the important of mobile broadband services to consumers and economic development, however, and the ongoing development of mobile broadband services in other bands globally, the Authority should not consider this band alone. Rather, there are a number of other frequency bands which should be examined since there may be significant incremental value in making these additional frequencies available for mobile broadband. In particular, the Authority should study the benefits of allocating for mobile broadband services:
 - a. The 2.5GHz band, in which we understand that a significant amount of spectrum is already cleared and available for allocation; and
 - b. The TRAI should also study the benefits of providing incentives to relocate current users in other bands where other significant international markets are likely to deploy mobile broadband services, particularly LTE. There may well be substantial benefits through alignment of frequency allocations with major international markets, and therefore benefits through reduced cost of deployment following from increased procurement scale. This may well mean that there is a net benefit in re-assigning spectrum from current uses even after incentives are provided to current users in order to encourage vacation of such bands (we do not suggest and would not support mandatory re-allocation). Eg, the 2.5GHz band could be studied from this perspective.
15. As a matter of terminology, we note that the title to the consultation refers to IMT Advanced (4G), but the body of the consultation refers to the networks deployed in Sweden and Norway as examples of such technology. For the purposes of clarity, we note that the networks deployed in these markets are in fact on the basis of LTE which is not technically regarded as IMT Advanced. Given this, and India's technologically-neutral regulatory environment, we would therefore suggest that consultation be termed "spectrum requirements for wireless broadband systems".

We hope that our submissions will merit the kind consideration and support of the Authority and look forward to providing more detailed comments during the main consultation process. We would of course be pleased to meet with the Authority at any time or provide further details on any of the above topics.

Kind regards,

Sincerely yours,

T. V. Ramachandran

Resident Director

Regulatory Affairs & Government Relations

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