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Re: Consultation Paper on Spectrum Related Issues: Efficient Utilization, Spectrum Allocation, and Spectrum Pricing

The CDMA Development Group (CDG) appreciates this opportunity to provide comments to the Telecommunications Regulatory Authority of India (TRAI) May 2004 consultation paper, "Efficient Utilization, Spectrum Allocation, and Spectrum Pricing" as the agency commences an examination of critical spectrum issues affecting the growth of mobile services in India. Moreover, the CDG commends the TRAI for its recognition that spectrum is a scarce resource that should be managed effectively in order to ensure that the long-term viability of the mobile marketplace is accompanied by economic growth in the market.

The CDG is an international consortium of over 100 companies, including the world's leading operators and manufacturers of digital cellular, personal communications services (PCS) and third-generation systems based on Code Division Multiple Access (CDMA) technology.[1] The CDG's mission is to lead the rapid evolution and deployment of CDMA-based systems, embracing open standards and encompassing all core architectures to meet the needs of markets around the world.

CDMA was the latest digital technology to be introduced for second-generation mobile systems. In March 2004, there were 202 million users of CDMA technology worldwide. In one year, from March 2003 to 2004, the CDMA subscriber base grew by a record 43 million users, or 31 percent, and represents the highest subscriber growth rate for any leading cellular technology.

[1] CDMA is a digital air interface for mobile communications networks that builds on the concept of employing a unique code to distinguish each call, enabling the most efficient use of a given spectrum range, and providing greater capacity relative to other commercially available mobile technologies. CDMA is a spread spectrum technology that allows many users to occupy the same time and frequency allocations in a given band. It is the basis of several International Telecommunication Union standards for third generation (IMT-2000) networks, i.e., CDMA2000®, W-CDMA/UMTS, and TD-SCDMA.

Technologically superior to other technologies, CDMA has become a platform for the two dominant IMT-2000 (or 3G) mobile standards, CDMA2000® and WCDMA as outlined by ITU Resolution M.1457. CDMA2000 includes two current modes of operation, CDMA2000 1X and CDMA2000 1xEV-DO, with a third mode, CDMA2000 1xEV-DV, expected to be commercial in 2005. CDMA2000 offers efficient use of bandwidth, clear and seamless migration paths and overall cost efficiencies. CDMA2000 1X delivers peak data speeds of 307 kbps in mobile environments. CDMA2000 1xEV-DO increases the data rate to a peak of 3.01 Mbps, allowing access to more bandwidth-intensive applications such as video conferencing. CDMA2000 1xEV-DV provides integrated voice and high-speed packet data services at speeds of up to 3.09 Mbps. CDMA2000 was the first 3G technology to be deployed, with a commercial launch in the Republic of Korea in October 2000. Today, there are 89 CDMA2000 operators, 10 of which offer CDMA2000 1xEV-DO services, and over 86 million CDMA2000 users across six continents.

India is one of the fastest growing wireless markets in the world and CDMA is rapidly expanding and capturing significant market share. Since the full liberalization of the mobile market in late 2003, which removed obstacles to the deployment of CDMA technologies, the CDMA base grew by 745 percent in one year, and reached over 10.7 million users in June 2004, or 28 percent of the mobile market in India. More importantly, the introduction of CDMA services has created competition, lowered tariffs and offered many citizens access to communications services for the first time. There are seven CDMA carriers operating in India today and many of them have deployed IMT-2000 technologies based on CDMA2000. Some of them are introducing high-speed data CDMA2000 1xEV-DO services.

Executive Summary

The CDG commends the TRAI for its leadership in adopting policies that promote the use of wireless technologies in expanding the reach of telecommunication services and implementing advanced services in the market. By instituting a Unified License regime, which allows service providers to offer any or all services using the technology of their choice with area operations, India has taken steps to ensure greater choice and lower tariffs for consumers.

The CDG urges the TRAI to continue to promote policies that embrace the concepts of technology neutrality and spectrum flexibility to ensure the long-term growth of mobile services. Operators should be able to deploy any technology or technologies that are appropriate for meeting customer demands and providing the best service to their subscribers. Policies that allow for co-existence of multiple technologies in the market and in-band migration to IMT-2000 services have resulted in rapid growth in mobile penetration and faster deployment of advanced wireless services in many markets across the world, including Asia, Latin America and North America.

The CDG also urges TRAI to ensure that enough spectrum is available to all carriers to support growth and stimulate continued innovation and competition. The CDG strongly believes that it is essential that spectrum in the PCS 1900 MHz band be allocated to CDMA operators to ensure that they can co-exist and compete on a fair basis with other standards in India.

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 CDG believes that the 450 MHz band should be made available to all interested operators on a technology-neutral basis. Due to the favorable propagation characteristics of lower frequencies and their associated coverage benefits, systems in 450 MHz can offer a cost-effective solution to provide telecommunication services, especially in rural and sparsely populated areas. The TRAI should consider allocating 450 MHz spectrum on a technology-neutral basis and make it available to all interested parties, but not use it as a substitute for additional spectrum that CDMA operators require to service their existing markets.

(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?

The CDG notes that there is no one band that is applicable when considering IMT-2000. The ITU has identified multiple bands for IMT-2000 including 800 MHz, 1800 MHz and 1900 MHz bands that are used for 2G technologies. The CDG believes that it should be the market and operators that decide which technology to deploy in the available spectrum, and that if a country attempts to define the marketplace by issuing licenses for specific technology categories, the result will be the establishment of regulatory impediments that will hinder the growth of the cellular marketplace.

(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 operations only?

It is the CDG's view that the 1900 bands should be kept technology neutral. Any reservation of these bands for TDD exclusively would deter efficient use of the spectrum and would not be in the best interests of the marketplace.

Chapter 5: Spectrum Allocation

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

The CDG finds that Approach II is far more favorable to ensure the growth and viability of the mobile marketplace in India.

The CDG urges the TRAI to provide adequate spectrum to support growth and enable introduction of advanced data services and to ensure that all operators have equitable access to spectrum to maximize service deployment. Currently, CDMA operators are limited to 2 x 5 MHz of spectrum which is only half of what operators using other leading standards have been allocated, and not enough to support even the minimum capacity projections required over the next two years for voice services only. The CDG believes that each CDMA operator should have at least 2 x 10 MHz to 2 x 15 MHz of spectrum to be able to compete on a fair basis with other standards in India.

Furthermore, the CDG proposes that the TRAI allocate PCS frequency (1850-1910 MHz/1930-1990 MHz) to CDMA operators. Allocation of this band will allow for rapid deployment, as CDMA2000 equipment and handsets are readily available and widely deployed in these frequencies, and will enable roaming with key international markets in Asia and Americas. The assignment of a portion of the PCS band will not preclude the future use of most of the UMTS band, allowing the introduction of CDMA-based systems in both frequency bands.

The CDG notes that the DCS 1800 MHz (1710-1785 MHz p/w 1805-1880 MHz) band is not a viable option for CDMA operators in India since there are no CDMA systems operating in these bands, therefore, there is neither equipment nor devices available. The 1800 MHz systems deployed in Korea are also not applicable in India, since Korean PCS (1750-1780 MHz p/w 1840-1870 MHz) is not the same as the standard DCS 1800 band.

CDMA and GSM mobile services successfully co-exist in many markets around the world bringing more diversity and greater choice to the consumer and differentiation opportunities for operators. Multiple standards are deployed in some of the largest markets, such as Brazil, Canada, China, Japan, Mexico and the U.S. In fact, in many cases the introduction of a competing technology to the market has contributed to a sustained growth in wireless penetration and the rapid introduction of advanced services. For example, introduction of CDMA and then GSM services continues to fuel expansion of the wireless services in Brazil. Wireless penetration expands at around 25% per year and the number of cellular users will reach 58 million by the end of 2004, putting Brazil as the 5th largest cellular market in the world. In Japan, where WCDMA and CDMA2000 3G services co-exist, consumers have access to a wide range of the most

advanced data applications, including video and audio on-demand, as well as video-telephony. In March 2004, there were more than 16.7 million 3G subscribers in Japan.

In many of these countries, GSM and CDMA technologies operate in different parts of the same band without any interference. For example, in the United States, Canada, Mexico, Bolivia, Chile, and Argentina, CDMA and GSM systems are deployed in different segments of the 1850-1990 MHz bands without interference problems.

(xxi) What should be the amount of cap on the spectrum assigned to each operator?

In large part, a spectrum cap is intended to manage the development of competition and ensure that there is no anticompetitive behavior in the mobile marketplace. Therefore, the CDG recommends that the TRAI establishes a limit of 2 x 20 MHz of spectrum that each operator can hold at any given time to ensure that all operators have equal opportunity to participate in the development of wireless markets in India.

(xxv) Comments of stakeholders are invited on the minimum blocks such as 2 X 2.5 MHz/ 2 X 5 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.

Rather than blocks of 2 x 2.5 MHz, the CDG encourages the TRAI to allocate minimum blocks of 2 x 5 MHz. Blocks of this size would enable operators to gain access to additional capacity to further growth and flexibility and expand the range of services to be offered by all technologies.

(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 for IMT 2000 spectrum?

The CDG believes that India should not limit the bands in which IMT-2000 can be deployed and that there should be flexibility in band pairing. The CDG also believes that all existing as well as new entrants should be given equal opportunity to participate in auctions, deploy services and attract subscribers. With respect to IMT-2000 spectrum as a continuum to 2G, the CDG thinks that if an existing operator is below the specified spectrum cap allocation, it should be eligible for new spectrum.

Chapter 6: Refarming, Spectrum Trading, M&A and Surrender

(xxii) Should we open up the spectrum market for spectrum trading? If yes, what should be the timeframe for doing so?

The CDG believes that spectrum trading will facilitate efficient use of spectrum and will further stimulate growth and innovation in the provisioning of wireless services if it is based on an approach that embraces technology neutrality and flexible use of spectrum. Spectrum use should not be limited to a given licensee nor should there be restrictions on the type of technology that can be deployed.

Thus, by adopting a policy of technology neutrality and spectrum flexibility, the TRAI can ensure that there will be every opportunity for providers to take advantage of emerging transmission technologies and to deploy new and innovative services in the market in a timely manner. By not predetermining what a specific license can be used for, or proposing a limit on the kind of technology that must be used under a given license, the CDG believes that the TRAI will be able to approach spectrum trading in a manner that will maximize the ability to bring new services to market rapidly.

With respect to an appropriate timeframe, the CDG believes that the TRAI should be mindful that any contemplation of spectrum trading is premature until such time as there is a complete allocation and assignment of spectrum to all providers.

Conclusion

The CDG would like to express its appreciation to the TRAI for commencing this examination of spectrum related issues. We welcome the opportunity to provide input to the TRAI on these important matters.

Sincerely,

CDMA Development Group

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