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**To:**

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**Subject:** Comments on TRAI Consultation Paper No. 9/2011

“Allocation of Spectrum Resources for Residential and Enterprise Intra-telecommunication Requirements/ Cordless Telecommunication Systems (CTS)”.

**Company presentation**

Lantiq has a 20+ years record of technology leadership, innovation, and strong customer relationships. Its holistic understanding of broadband technology, complete applications, communication standards, and legacy networks enables the company to offer the broadest portfolio of highly integrated, flexible end-to-end semiconductor solutions for next generation networks and the digital home.

On the digital cordless segment, Lantiq offers a complete portfolio of solutions for DECT (Digital Enhanced Cordless Telecommunication), 2.4GHz WDCT and CAT-iq™ (Cordless Advanced Technology – internet and quality). With years of experience in this segment, today our portfolio covers market segments ranging from the entry-level models to the high-featured comfort models. The latest generation COSIC family is the first baseband processor, RF transceiver and power amplifier fully integrated single chip solution on the market.

Lantiq India, houses a system development team on DECT, that works on the CAT-iq roadmap to prepare solutions world-wide. The solutions are deployed on the field by some European carriers.

### **Issues for Consultation**

#### **3.1 Whether the current allocation of spectrum for CTS is sufficient to meet the requirements? If not, then how to meet the demand of cordless telephony spectrum requirements?**

The current allocated spectrum for CTS in the 1880-1900MHz or the 1910-1920 MHz band for digital CTS as indicated in the Consultation Paper, is sufficient for existing needs. All over the world state of the art digital CTS works in a de-licensed 1880-1900MHz band or 1910-1920MHz band. The allocated spectrum has to be license exempt (defined by co-existence etiquette) for successful residential voice applications.

#### **3.2 In view of the availability of cellular mobile services in the country and possibility of Fixed Mobile Convergence (FMC), is there any need to have DECT Phones?**

Yes, there is an absolute need for DECT phones.

Compared to the cellular mobile service, the single cell based DECT systems for residential and SOHO applications provide an efficient solution by covering the whole living area including the basement. In addition, DECT systems can be used with no interference and full security for multiple co-located installations with no radio planning or licensing requirements.

DECT enterprise systems provide on-premises local mobility and full coverage through seamless handover between the base stations. The DECT local mobility system is preferred as the cellular service is unable to provide the required quality, coverage, services or required integration with local key administrative and production systems. DECT can provide local messaging/broadcast and control functions for private space equipments.

With regard to FMC, DECT provides an attractive solution for synergizing the Fixed and cellular networks. For service providers, that offer both Fixed and cellular services, cellular calls can be offloaded to DECT based on subscriber's presence (e.g at home). This benefits the subscriber in terms of excellent voice quality even for a cellular call (e.g no call drops). It also benefits the service provider in that he can reuse the already existing fixed line network without the need for expensive tower installations.

#### **3.3 Is there any requirement of allocating spectrum for digital CTS, in view of similar solutions being available in already de-licensed band 2.4 & 5.8 GHz?**

The ISM bands (2,4 and 5 GHz) do not have any requirements to comply on dynamic channel selection procedures and usage of power levels. This has a huge impact (e.g interference) in maintaining high efficiency at the usage of the spectrum and on the radio links in an uncoordinated system installation. The ISM bands allows for

uncoordinated usage of a variety of incompatible communication devices, for e.g., domestic (micro wave ovens), industrial, scientific and medical devices. It is imperative that maintenance of a high quality of service cannot be guaranteed when different ISM band devices are used in the same local area. Due to this phenomenon, the voice and video services will suffer more as opposed to the packet data service where retransmissions are possible.

The 20 MHz spectrum designated for digital CTS requires that equipments using this spectrum have to comply with specific dynamic channel selection procedures, power levels etc. It provides for maintaining high spectrum efficiency and maintaining high quality radio links (e.g. speech and video) in an environment of a multitude of uncoordinated system installations. There is no interference between co-located systems and total spectrum is very efficiently shared between all the co-located systems.

In Europe, US and other countries that have adopted DECT, the above mentioned differences have been well understood. For e.g., an emergency calling feature over a Wi-Fi CTS cannot be trusted to work reliably in an uncoordinated environment. For these reasons, it should be noted that, there is no market for the Wi-Fi based CTS in any of those countries.

### **3.4 Whether de-licensing of the spectrum for digital CTS applications will be the right path?**

Yes, de-licensing of the spectrum from digital CTS applications is the right path, for the reasons stated above. Only a de-licensed spectrum can ensure a successful deployment and revenue generation for all stake holders.

### **3.5 Do you agree that the 1880-1900 or 1910-1920 MHz band (TDD Mode) be allocated for digital CTS applications? If yes, what should be the limits of emitted power (EIRP), power flux density (pfd), antenna gain etc?**

The 1880-1900 MHz band(TDD mode) is already allocated for digital CTS in other countries.

Terminal power (conducted): 250 mW (24 dBm)

Antenna gain: < 12 dBi.

### **3.6 Do you see any coexistence issues between existing cellular systems using adjacent band with low power CTS allocations in 1880-1900 or 1910-1920 MHz band?**

With reference to the use of 1880-1900 MHz or 1910-1920 MHz band for digital CTS and its interference possibilities into the adjacent cellular bands, there are plenty of documented studies on this subject as well as practical implementation in the EU, US and Asian regions to indicate that adjacent band (cellular) interference issues do not exist.

### **3.7 Whether the de-licensing of either 1880-1900 MHz or 1910-1920MHz band for low power CTS applications will result in loss of revenue to the government?**

The value it brings to the end subscriber and the service providers, has to be also kept in mind while considering the “notional” loss in revenue. For service providers, it provides an opportunity to rejuvenate their business models over the fixed line network and provide value added services on top. For subscribers, it is good voice quality with no call drops.

**3.8 Will there be any potential security threat using CTS? If yes, how to address the same?**

No, the CTS uses the public PSTN/ISDN/IP network like wired phones. The radio link is only over the last leg, i.e., from the residential base to the handset. Even for this, the DECT radio link uses ciphering and authentication with the same security level as cellular technologies. Call interception can be performed as it is done today on the fixed line networks.

**3.9 Amongst the various options of digital technologies available to meet the cordless telephony requirements, either spectrum allocation can be considered according to technology or the etiquettes/ specifications can be defined for the de-licensed spectrum band. What method of allocation of spectrum for digital CTS applications should be adopted?**

A defined etiquette based CTS is the only practical option to be adopted. Some of the etiquette parameters have already been defined by WPC in its Note 57 to the NFAP-2011. Other etiquette parameters could be added with the objective of de-licensing the band.

**3.10 Any other issue?**

None.