

**Date:** 30<sup>th</sup> Jan 2012

**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 Background:**

Binatone established in 1958 is a market leader in digital communication devices. Innovation has always been a core philosophy behind Binatone’s product range. Binatone designs, Manufactures and Markets products worldwide and Headquartered in Hong Kong with subsidiaries in India, UK, USA, Germany and Russia Brands include Binatone, iDECT and Voxel. Binatone products are widely available in 55 countries worldwide. Binatone is a major OEM manufacturer for major telecommunications operators, Global distributor for Motorola Digital Baby Monitors, Global distributor for Motorola Digital Photo Frames and North American distributor for Motorola Telephones

Binatone has established its business in India and is a major supplier of CPE equipment to major Telecom operators in India. Binatone also has a significant R&D capability in India which develops the products for local and global market.



## **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?**

Answer: The current allocated spectrum for CTS(ISM band, Wi-Fi) is not sufficient to meet the requirements. ISM band(Wi-Fi) is suitable for data, but not for voice applications. The 1880-1900 band which is most suitable for voice is a licensed band and currently does not allow users to make use of this. This 1880-1900MHz/1910-1920MHz band is used worldwide which is a de-licensed band for voice telephony applications in short range for Home/SOHO use. The private space CTS for residential and enterprise cannot work in licensed regime as they are purchased off-the-shelf and require no frequency planning.

### **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?**

Answer: Yes, DECT technology and DECT phones are needed for providing good and efficient solution for home, SOHO private space. DECT can cover a whole multi-storied house/SOHO office with a single celled solution. DECT solution can also be used in a multiple co-located installations without any radio planning; co-located DECT systems automatically adjust to radio channels avoiding interference. Cellular systems cannot provide this service without radio planning.

DECT systems also allow making intercom calls between handsets of the same base station without any charge.

DECT in enterprise system provide local mobility and coverage through seamless handover between pico-cell base stations. Voice telephony, PCX services and low rate data services are provided. Low rate data services can be used for control and maintenance alarms. DECT provides better quality, coverage and integrates well with systems. DECT provides these services without any frequency planning / cost.

### **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?**

Answer: There is a basic difference between coexistence properties on a digital CTS band and on an ISM band (Wi-Fi).

The 20 MHz spectrum designated for digital CTS in other countries requires that equipment using this spectrum have to comply to 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.

The ISM bands (2,4 and 5 GHz) do not have any such feature. Opposite to a digital CTS spectrum having rules for uncoordinated compatible installations, the ISM bands allows



for uncoordinated usage of a variety of incompatible communication devices and also domestic (micro wave ovens), industrial, scientific and medical devices. Therefore maintenance of a high quality of service will not be guaranteed when different ISM band devices are used in the same local area. This applies especially to voice and video services, but is less critical for best effort packet data services, where non-time-critical retransmissions are applied when expected collisions occur.

The above intrinsic difference between digital CTS and Wi-Fi CTS is clearly demonstrated in countries where both are allowed, as in Europe and the US. In Europe where DECT has been established for many years, there is literally no market for Wi-Fi CTS. In the US DECT has quickly become the dominant CTS at the expense of earlier domination of ISM band digital phones. Wi-Fi has not been able to compete with digital CTS regarding mission critical voice and real time medium rate data applications for enterprises. (The diagram below shows the market share)

India needs a 1880-1900Mhz license exempt protected TDD spectrum (defined by a coexistence etiquette) to provide state of the art residential and enterprise mission critical voice and medium rate data services.

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

Answer: Yes it is absolutely essential in the best interest of the general public. CTS has to be license exempt to be successful on the market, in the same way that de-licensing has been the key for the success for the Wi-Fi technology on the 2,4 and 5 GHz ISM bands. Even the earlier analog CTS band was de-licensed. As indicated in Chapter I of this Paper, de-licensing is the only globally accepted norm for private space digital CTS application. A licensing regime cannot be practically implemented for residential and SOHO applications. This is more so as the terminals are purchased off the shelf and deployed in totally uncoordinated way.

### **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?**

Answer: The 1880-1900 MHz band (TDD mode) is already allocated for digital CTS. If in future there is more demand for digital CTS then 1910-1920 MHz band(TDD mode) could also be allocated.

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

Antenna gain: < 12dBi.

(This specification is taken from the European Harmonized Standard ETSI EN 301 406.)

The antenna gain of 12dBi is used in Europe and many other countries. In some countries other values are used. E.g. in the US 3dBi are used. In the ITU specification of DECT ITU IMT-2000 TDMA/FDMA (DECT), 4dBi is specified.....

DECT residential and enterprise systems are installed and used indoors. This is basically a non line of sight, NLOS, environment. In dispersive NLOS environments it is in principle the total power of all reflections, rather than the emission in a specific direction, that decides which power reaches the other end point. Thus the range as well as interference



estimates will basically be dependent on the totally emitted power (the conducted terminal power), and rather independent of the shape of the antenna pattern.

**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?**

Answer: DECT systems co-exist with cellular systems both in 1880-1900MHz and 1910-1920MHz band across the world. There is no adjacent band interference created because of this. All studies on this subject indicate no interference.

**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?**

Answer: CTS is a non-commercial application similar to Wi-Fi and earlier 46/49MHz bands for CTS. The de-licensing of the new band for CTS will create new opportunities in manufacturing and R&D. This will also lead to addition of Duties and taxes to the government revenue. This will also lead to better utilization of the 30crore landlines and increase the ARPU on them bringing value to the huge cost which has already been invested in creating this landline infrastructure. This will also be a step to greater broadband penetration.

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

Answer: CTS uses Radio link ciphering and authentication with the same security level as GSM/UMTS. This provides secure private communication in residential / enterprise space. This is one of the USP of DECT systems compared to other CTS options available.

**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?**

Answer: CTS services with a well defined etiquette are the standard in most of the other countries. This is the most practical and already proven option.

WPC in its note 57 to the NFAP-2011 has defined these etiquette parameters and other parameters could be added with the objective of de-licensing the band

Yours Sincerely,

*Sat Murthi*  
31/1/12



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