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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**

RTX Telecom A/S designs and produces advanced wireless solutions for global clients across a variety of markets, including business-class telephony, industrial-grade communications, professional audio, consumer gaming, home automation, and smart metering. In addition, RTX provides a range of customizable ATE solutions for production testing of wireless devices. Since its founding in 1993, RTX has undertaken more than 700 projects incorporating technologies such as Bluetooth™, WiFi, DECT, CAT-iq, and VoIP. RTX is listed on the NASDAQ OMX Nordic stock exchange, is headquartered in Denmark, and has offices in Hong Kong and the US. For more information, please visit [www.rtx.dk](http://www.rtx.dk).

### **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 in the ISM (WiFi) band and the 1880-1900Mhz band for digital CTS is thought to be sufficient for existing needs. It is however imperative that the 1880-1900MHz band is de-licensed in the same way that the ISM (WiFi) is today. The license has so far discouraged users from taking advantage of the

CTS band. All over the world state of the art digital CTS works in a de-licensed 1880-1900Mhz band or 1910-1920Mhz band.

### **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. None of these technologies can provide efficient solution for private space. DECT systems for residential and SOHO applications provide single cell systems covering the whole living area including the basement (cellar) etc. DECT systems are also less expensive to use as it offers free intercom calls.

DECT enterprise systems provide on-premises local mobility. The services offered are the wireless PBX telephony service and different low and medium rate data services for supervision, control, maintenance and alarms. The DECT 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 equipment. This is not possible in the case of cellular pico-cell services. Revenue outflow, licensing and frequency planning are other issues related to cellular pico cells.

### **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.

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

Answer: Yes, it is in the best interest of the general public. CTS should have 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.

**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 1880-1900Mhz 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): 250 mW (24 dBm)

Antenna gain: < 12 dBi.

DECT residential and enterprise systems are mostly 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 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: No. All over the world, including America and Europe, DECT systems are co-existing with cellular systems both in the 1880-1900Mhz and 1910-1920Mhz band.

**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: The question of loss of revenue arises in the case of public services. CTS is a private space non-commercial application concept based on a de-licensed band as in the case of Wi-Fi bands and the earlier 46/49Mhz etc. It is adding revenue to the exchequer in terms of duties and taxes. It also enhances employment and revenue generation through manufacturing & R&D. Increased use of digital CTS will stem the decline of around 30 million existing land lines, increase ARPU on them and thus bring value to the huge sunk cost. Once landlines become popular again consumer will also go in for broad band, which is a Govt. initiative for e-governance, e-health, e-education. This will itself be biggest gain for the Nation of India.

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

Answer: CTS is using the public PSTN network like wired phones. No difference. Furthermore, the wireless digital CTS radio link uses ciphering and authentication with the same security level as GSM/UMTS, thus providing secure private communication within the residential or enterprise space. This is one of the main reasons for the popularity of

DECT systems globally as against the other private space services provided by commercial public telecom service providers.

**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: A defined etiquette based CTS is a much better option, in fact the only practical option. 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?**

Answer: With a de-licensing of the CTS band in India, RTX foresee a market especially in the Enterprise segment that could be very interesting for RTX. This could lead to initiatives in India resulting in partnering with local companies in India.