



15th January 2014

**Shri Arvind Kumar,
Advisor (Networks, Spectrum and Licensing),
Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan
Jawahar Lal Nehru Marg (Old Minto road)
New Delhi-110002**

Subject: TRAI Consultation Paper No 13/2013 on Reserve Price for Auction of Spectrum in the 800 MHz Band dated 30th December 2013

Dear Sir,

With reference to your Consultation Paper **No 13/2013** dated 30th December 2013 on '**Reserve Price for Auction of Spectrum in the 800 MHz Band**' seeking comments of the stakeholders, please find attached herewith the comments of Tata Teleservices Limited and Tata Teleservices (Maharashtra) Limited (together referred as TTL) .

Thanking you,

Yours sincerely,

A handwritten signature in blue ink, appearing to be 'AD', with a stylized flourish at the end.

**Anand Dalal
Senior Vice President – Corporate Regulatory Affairs
Tata Teleservices Limited
And
Authorized Signatory
Tata Teleservices (Maharashtra) limited**

Enclosure: As above

TATA TELESERVICES LIMITED

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Tata Teleservices Response to TRAI Consultation Paper No 13/2013 on “Reserve Price for Auction of Spectrum in the 800 MHz Band” dated 30th December 2013

Q1. What should be the quantum of spectrum in the 800 MHz band that should be put up for auction?

TTL Comment:

- We would like to submit that all spectrum readily available in 800 MHz band should be put to auction. The Authority is aware that there is only 20 MHz of spectrum in 800 MHz band is available in India and there are 3-4 operators occupying this spectrum varying from 2.5 MHz to 5 MHz.
- The Authority is also aware that the CDMA spectrum expires as per different timelines across circles. In case of Tata Teleservices, three licenses would expire in 2017, four in 2021 and 12 in 2024. Similarly, other CDMA operators' license would expire in 2017 to 2021. Due to this reason, availability of spectrum in 800 MHz band at any given point of time in future is going to be very small. It is pertinent to mention here that due to allocation of spectrum in a fragmented manner across operators a good amount of spectrum is wasted in the form of guard bands. Therefore, it would be worth considering realignment of frequencies to free up wastage in guard bands and create a meaningful corpus of spectrum for a meaningful auction.
- **Based on above, TTL recommend that whatever spectrum is readily available now must be put to auction.**
- In the context of paragraph no 2.5 of the consultation paper, we would like to place on record that Tata Teleservices was permitted to surrender part of their CDMA spectrum in 800 MHz band without prejudice to its rights and contentions and pursuant there to, Tata Teleservices has completed the surrender.

Q2. What should be the block size in the 800 MHz band?

TTL Comment:

TTL is of the view that block size of 800 MHz auction should be 1.0 - 1.25 MHz.



Q3. Should the value of 800 MHz spectrum be derived on the basis of the value of 1800 MHz spectrum using technical efficiency factors?

TTL Comment:

- Valuation of 800 MHz spectrum is dependent upon several factors including currently deteriorating eco-system for usage of CDMA technology, limited availability, non-contiguity and fragmented allocation of frequency among existing players making it virtually impossible to deploy other technologies like LTE. However, a support system must be provided to continue servicing existing CDMA customer base. Accordingly, we would like submit that CDMA valuation in 800 MHz band should be done keeping in mind the following:
 - a. Use for CDMA
 - i. Dying eco-system, declining story in India.
 - ii. But need to continue to support existing base
 - iii. Not expected to grow significantly on voice; opportunity for significant growth in data exists
 - b. Use for other technologies
 - i. Limited availability of spectrum in 800 MHz band hence, not enough to support multiple players of new technologies
 - ii. Fragmented availability of spectrum in 800 MHz band with wastage in guard bands
 - iii. Becoming available at different times
- Following factors are also critical for correct spectrum valuation of 800 MHz band and should be taken into account while working on any spectrum valuation:
 - Global harmonization scale for current and next generation technologies
 - Device ecosystem and future migration path for 4G
 - Global Scalability of economy for a range of devices
 - Network Infra Equipment Roll out economics
 - Total quantum of contiguous spectrum available for growth path
 - Network loading efficiency for Mobile Broadband when noncontiguous of spectrum less than 5 MHz is only available.
 - Propagation characteristics of frequency.
- **Based on above, TTL recommend that the reserve price for 800 MHz spectrum band should be 0.65 times the reserve price for 1800 MHz spectrum as was done in the previous auction that was held in March 2013.**



Q4. Is there any case for application of a lower efficiency factor (1.3) over the valuation of 1800 MHz spectrum, for determining the valuation of 800 MHz, as was done in the previous auction? If yes, give detailed reasons for the same?

TTL Comment:

As already stated in response to Question no 3 above.

Q5. Should the value to be paid for 800 MHz spectrum be based upon the potential growth in data services? If yes, please state whether you agree with the assumptions made?

TTL Comment:

Opportunity for growth in data exists in CDMA. However, there is no merit in linking the 800 MHz spectrum value based only upon the potential growth in data services, considering the following disadvantages:

- Part of the CDMA spectrum is still required for supporting existing voice services.
- Fragmented nature and limited availability, that too at different points of time, limiting the possible use for certain data technologies.

Q6. Should the value of spectrum in the 800 MHz band be assessed on the basis of producer surplus on account of additional spectrum? If you are in the favour of this method, please furnish the detailed calculations and relevant data along with results?

TTL Comment:

- The producer surplus approach hinges on the inverse relationship between the quantum of spectrum available with an operator and the costs incurred in servicing the subscriber base.
- As it assesses the network cost elements by factoring the spectral efficiency of the spectrum band under consideration, it provides the engineering value of the spectrum.
- Engineering value may not always be a good indicator of the prices eventually discovered through auctions – one good example being Sweden’s experience of 800 MHz and 2.6 GHz auctions held in 2011 and 2008, respectively. In both these auctions, the value discovered through auctions was a fraction of the engineering value estimated for the spectrum. The deviation between the engineering value and auction prices ranged from a factor of 1.5 to as high as a factor of 10.



- Further, engineering value may not be an appropriate representation of the full economics of cellular business. Mobile business valuation depends on a host of parameters including existing and potential tele-density, mobile subscriber base, competitive intensity, voice & data revenue, capital expenditure on network and other elements, operating expenses including non-network related expenses such as personnel and marketing, etc. A player looking to enter the cellular business would evaluate all these parameters together to estimate the price it can pay for the spectrum. While the producer surplus approach offers close assessment of the network requirements and costs thereof, it overlooks the revenue potential of the market under consideration, as well as the non-network costs of running a wireless business. Hence, it provides only a limited view of the business dynamics and consequent price an operator would be willing to pay for spectrum.
- **TTL is of the view that the value of spectrum should not be assessed on the basis of producer surplus on account of additional spectrum as it provides only a limited view of the business dynamics and consequent price an operator would be willing to pay for spectrum.**

Q7. Should the value of spectrum in the LSAs in India for 800 MHz be determined by utilizing the data on international prices? What other variables do you suggest for arriving at robust value estimates using the multiple regression approach? Is there any alternate approach for valuation of spectrum in 800 MHz using the data on international auctions?

TTL Comment:

- No, the value of spectrum in the LSAs in India for 800 MHz should not be determined by utilizing the data on international prices.
- It is to be noted that CDMA band in India namely 824-844 and 869-889 has a total of 20 MHz spectrum which is internationally known as 850 MHz band i.e. Band 5. It is also designated as a global FDD LTE frequency band i.e. 4G i.e. Mobile high speed broadband services. However, for 4G usage to be techno commercial feasible, it is imperative to meet a primary prerequisite of having 5 MHz in contiguous mode (4 slots of 1.25 MHz in contiguous mode). Only the contiguous spectrum can make the current 850 MHz spectrum to be used effectively in the liberalized mode of operation. This is due to the fact that the spectral efficiency significantly reduces in less than 5 MHz slot thus impacting the techno commercial feasibility of using this band in a competitive mode with other popular bands for 4G usage. However, the future potential of 800 MHz band for advanced technologies is estimated to be of comparatively much lower scale than 900/1800 MHz bands due to the various reasons cited earlier (limited availability, fragmented allocation, etc) and it has seen limited adoption in global markets. Only a few countries like Bahamas, Belize, Bermuda, Brazil, Puerto Rico, USA (Sprint), Philippines, South Korea, have deployed advanced technologies like LTE in



the 800 MHz spectrum band. Further globally 1800MHz spectrum band is becoming the preferred band for deployment of LTE.

- It may be seen that EU has also adopted 800MHz band for LTE but the perusal of policy paper will show that it is the Digital dividend band of 700 MHz i.e. 790- 862 MHz (791-821 MHz downlink & 832- 862 MHz uplink) and not 800 MHz being deployed in India for CDMA.

Q8. Apart from the approaches discussed in the paper, is there any alternate approach for valuation of spectrum in 800 MHz that you would suggest? Please support your answer with detailed data and methodology.

TTL Comment:

No comments.

Q9. What should be the ratio adopted between the reserve price for the auction and the valuation of the spectrum? Would it be optimal to fix reserve price equal to valuation of spectrum?

TTL Comment:

We would recommend a ratio between the reserve price for the auction and the valuation of the spectrum at 0.5.

As referenced in 1.16 of the consultation paper on DoT's decision on non feasibility of adoption of E-GSM in the 800 MHz band and the Authority's decision to auction this band as it is and to go ahead with the exercise for determining the reserve price of spectrum in the 800 MHz band. We believe that adoption of EGSM is not feasible due to:

- Non global harmonization
- Not enough spectrum in the CDMA band to achieve a meaningful E-GSM deployment
- No possibility of redeployment of current CDMA customers to another band and redeploy the 800 MHz for EGSM band