



Akshantula Ramesh &lt;ramesh.al.tra@gmail.com&gt;

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**Fwd: RCOM response to TRAI consultation paper on Valuation & RP of 700,800,900,1800,2100 and 2500 MHz bands**

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**Sanjeev Banzal, Advisor TRAI** <advmn@tra.gov.in>

Tue, Dec 22, 2015 at 9:45 AM

To: sbanzal@gmail.com, vinod.kotwal@nic.in, fa@tra.gov.in, ramesh.al.tra@gmail.com

----- Original Message -----

From: [Saurabh.A.Bhatnagar@relianceada.com](mailto:Saurabh.A.Bhatnagar@relianceada.com)

Date: Dec 21, 2015 10:53:14 PM

Subject: RCOM response to TRAI consultation paper on Valuation &amp; RP of 700,800,900,1800,2100 and 2500 MHz bands

To: [advmn@tra.gov.in](mailto:advmn@tra.gov.in), [tra.jams@gmail.com](mailto:tra.jams@gmail.com)Cc: [A.Mathur@relianceada.com](mailto:A.Mathur@relianceada.com), [Sumit.Monga@relianceada.com](mailto:Sumit.Monga@relianceada.com)

Dear sir

Please find enclosed RCom response on the subject matter.

Regards

Saurabh

8470034243

Sent from IBM Notes Traveler

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**RCOM response to CP on Valuation and Pricing final21122015.pdf**

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**Reliance Communications Ltd Response to TRAI Consultation Paper on Valuation and Reserve price of Spectrum in 700, 800, 900, 1800, 2100, 2300 and 2500 MHz Bands**

**Executive Summary**

1. Efforts should be made to ensure that not only the expiring licensee spectrum and the spectrum left in Mar'15 auction, but additional spectrum too is made available for auction of 800 MHz band.
2. Harmonization exercise should be carried out for increasing the availability of spectrum in 800 MHz band for the upcoming auction. This can be done by rearranging 800 MHz frequency band with 1.25 MHz carrier bandwidth instead of current allocation of 1.23 MHz block. Guard band between the operators may be done away with once the full 1.25 MHz carrier is allocated.
3. There exists 2.5 MHz of spectrum without guard band in Kerala. We recommend that at least 1.25 MHz spectrum be made available with slight realignment for guard bands as has been done previously in Karnataka , Tamil Nadu & Kolkata.
4. Spectrum in 700 MHz should be auctioned in the block size of 5 MHz.
5. Block size for 800, 900, 1800 and 2100 MHz bands should be as per the latest NIA dated Jan 09, 2015 i.e. 2 x 200 KHz in both 900 & 1800 MHz bands, 2 x 1.25 MHz in 800 MHz and 2 x 5 MHz in 2100 MHz band. For 800 MHz, 1.25 MHz should translate into allocation of full 1.25 MHz instead of 1.23 MHz.
6. We suggest the following band wise minimum quantum of spectrum, to be bid by various categories (new entrant/existing licenses/expiry licensee) of operators, for the forthcoming auction:
  - a. **800 MHz:**
    - i. **A new entrant** should be required to bid: **1.** For a minimum of 4 blocks, in those LSAs where 4 or more blocks are available. **2.** For a minimum of 3 blocks, in those LSAs where less than 4 blocks but equal to 3 blocks is available. **3.** For a minimum of 2 blocks, in those LSAs where less than 3 blocks but equal to 2 blocks is available.
    - ii. **Existing licensees** holding spectrum in 800 MHz band should bid for a minimum of 1 block.

- iii. **Expiry license** holding 800 MHz acquired in 2015 auction, should be allowed to bid for minimum of 1.25 MHz
  
  - b. **900 MHz:** Since, the spectrum availability in 900 MHz is less than 10 MHz, therefore in line with TRAI recommendations of Oct'14, we suggest a minimum block size of 2.4 MHz for New entrants. For existing TSPs holding spectrum in 900 MHz, a min. block size of 0.6 MHz should be allowed.
  
  - c. **1800 MHz:** Minimum bid quantum for new entrants should be 2.4 MHz. For existing Licensees holding spectrum in 1800 MHz, a min. bid of 0.6 MHz should be allowed.
  
  - d. **2100 MHz:** Minimum one block of 5 MHz (Paired).
7. **There is 221.9 MHz of unallocated spectrum in the 1800 MHz band. Accounting for the licenses that would expire during the 2016-18 period, we recommend that the entire spectrum bank in the 1800 MHz band be made available for auction and allocated post harmonisation.**
8. **It is suggested that the spectrum, in both 2300 MHz and 2500 MHz bands should be auctioned in block size of 20 MHz (unpaired).**
9. **In the sub GHz bands (700/800/900 MHz), the spectrum cap of 50% of earmarked spectrum for commercial use should be applicable.**
10. **2.3GHz and 2.5 GHz should be treated separately.**
11. **Rollout obligation should be linked to the license instead of specific spectrum bands/blocks**
12. **Rollout obligation should not be mandated to villages/ urban areas separately.**
13. **The issue in TDD regarding sufficient guard band or synchronisation etc should be left to the service providers' mutual discretion.**
14. **ISPs should not be permitted to acquire 2300 & 2500 MHz spectrum.**
15. **Guidelines for Liberalisation of administratively allocated 900 MHz should be similar to what has been done for 800 MHz and 1800 MHz bands.**

16. Liberalisation of spectrum in 800/900/1800 MHz should not be made mandatory.
17. Mar'15 auction determined price should be the valuation for the forthcoming auction in 800/900/1800/2100 MHz band.
18. For the circles wherein the spectrum was not put up for auction in the last auction, TRAI determined RP for Mar'15 auction should be the RP for the forthcoming auction.
19. For the circles wherein the spectrum was put up for auction but not sold in Mar'15 auction, the last defined valuation by DoT should be used.
20. 700 MHz price should clearly reflect the revenue potential and ability of this band to launch premium data services.
21. 700 MHz price should be calculated by indexing the last auction determined price of 800 MHz and then levying a 25% premium over and above the price arrived at after indexation.
22. The value of 2300 MHz spectrum in the next round of auction should be based on the value of May 2010 auction determined price with applicable SBI PLR rates.
23. Valuation of the 2500 MHz spectrum should be based on the valuation arrived at for the 2300 MHz spectrum.
24. It is suggested that the RP should be 80% of the valuation.

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**Q1. Whether the entire spectrum available with DoT in the 800 MHz band be put for auction? Justify your answer.**

**AND**

**Q2. How can the spectrum in the 800 MHz band, which is not proposed to be auctioned due to non-availability of inter-operator guard band, be utilised?**

**RCom Comments:**

**All efforts should be made to ensure that not only the expiring licensee spectrum and the spectrum left in Mar'15 auction, but additional spectrum too is made available for auction of 800 MHz band.**

1. It is submitted that all spectrum which is available with DoT should be put up for auction. This should include the spectrum becoming available due to expiry of licenses during May'16 to Mar'18 and the spectrum that has remained unsold in Mar'15 auction.
2. Efforts should also be made for harmonization of 800 MHz band for availability of additional spectrum in the upcoming auction. In this regard, it is proposed that WPC may rearrange 800 MHz frequency band with 1.25 MHz carrier bandwidth instead of current allocation of 1.23 MHz block. With the availability of 1.25 MHz carrier guard band between operators may not be required. Moreover, the allocation of complete 1.25 MHz block will not only resolve inter-operator guard band issue between the operators but will also help WPC to carve out more number of carriers in the 800 MHz band for the auction.
3. Further in last auction of Mar'15, 800 MHz spectrum was not put up for auction in Rajasthan and Kerala circles, and now with the availability of spectrum in Rajasthan circle, 5 MHz is being proposed for 2016 auction. Hence we request that opportunity should be provided to operators to acquire spectrum in Kerala as well. In this regard, it is submitted that **there exists 2.5 MHz of spectrum without guard band in Kerala. We therefore recommend that at least 1.25 MHz spectrum be made available with slight realignment for guard bands as has been done previously in Karnataka, Tamil Nadu & Kolkata circles.**
4. Our Recommendations:
  - a. **Efforts should be made to ensure that not only the expiring licensee spectrum and the spectrum left in Mar'15 auction, but additional spectrum is made available for auction of 800 MHz band.**
  - b. **Harmonization exercise should be carried out for increasing the availability of spectrum in 800 MHz band for the upcoming auction. This can be done by rearranging 800 MHz frequency band with 1.25 MHz carrier bandwidth instead of current allocation of 1.23 MHz block. Guard band between the operators may be done away with once the full 1.25 MHz carrier is allocated.**

- c. **There exists 2.5 MHz of spectrum without guard band in Kerala. We recommend that at least 1.25 MHz spectrum be made available with slight realignment for guard bands as has been done previously in Karnataka , Tamil Nadu & Kolkata.**

### **Q3. What should be the block size in the 700 MHz band?**

#### **RCom Comments:**

1. Currently, 700 MHz is not being used by the existing operators in India for provisioning telecom services. Given the fact that this band of the digital dividend is widely accepted for the provision of mobile broadband mobile services such as LTE, it is essential that this spectrum is not sold in small pieces. Though it is possible to provision LTE services with lesser amount of spectrum, however, in order to ensure a minimum QoS it is suggested that the spectrum, in 700 MHz band should be auctioned in block size of 5 MHz for provisioning LTE services.
2. Additionally, as brought out in the CP, this will ensure enough competition in the market with an opportunity for 7 operators to possess 700 MHz band.
3. Our Recommendations:
  - a. **Spectrum in 700 MHz should be auctioned in the block size of 5 MHz.**

### **Q4. Whether there is any requirement to change the provisions of the latest NIA with respect to block size and minimum quantum of spectrum that a new entrant/existing licenses/expiry licensee is required to bid for in 800, 900, 1800 and 2100 MHz bands. Please give justification for the same.**

#### **RCom Comments:**

##### **A. Block Size:**

1. Block size for 800, 900, 1800 and 2100 MHz bands should be as per the latest NIA dated Jan 09, 2015 i.e. 2 x 200 KHz in both 900 & 1800 MHz bands, 2 x 1.25 MHz in 800 MHz and 2 x 5 MHz in 2100 MHz band. For 800 MHz 1.25 MHz the block size should translate into allocation of full 1.25 MHz instead of 1.23 MHz (as indicated in our reply to question 1&2).

##### **B. Minimum Bid Criteria:**

2. We suggest the following band wise minimum quantum of spectrum, to be bid by various categories (new entrant/existing licenses/expiry licensee) of operators, for the forthcoming auction:

2.1. **800 MHz:** We suggest that following minimum bid criteria, as mentioned in the NIA dated Jan 09, 2015, should be followed:

2.1.1. **New Entrant:** A new entrant should be required to bid: **1.** For a minimum of 4 blocks, in those LSAs where 4 or more blocks are available. **2.** For a minimum of 3 blocks, in those LSAs where less than 4 blocks but equal to 3 blocks is available. **3.** For a minimum of 2 blocks, in those LSAs where less than 3 blocks but equal to 2 blocks is available.

2.1.2. **Existing Licensee:** Existing licensees holding spectrum in 800 MHz band should be permitted to bid for a minimum of 1 block.

2.1.3. **Expiry Licensee:** Further, as per clause 2.1(a) of NIA 2015, the new entrants were required to bid for a minimum 5 MHz of spectrum. Those licensees, whose permits were expiring in 2015-16 and did not hold any spectrum in 1800 MHz through auctions held since November 2012 too, were required to bid for a minimum of 5MHz. But the licensees whose permits were expiring in 2015-16 and were already holding spectrum in 1800 MHz band that was acquired through auctions held since November 2012 were allowed to bid for minimum of 0.6 MHz.

While the above principle has been established for 1800 MHz in the March 2015 auctions, there was no such clause for 800 MHz band, as there were no operators whose licenses were expiring and who had won spectrum in 800 MHz band during the last auction.

However, the situation would be different in the forthcoming round of auction wherein some operators, whose licenses are expiring in September 2017 in some circles have taken spectrum in these circles in the last auctions in the 800 MHz band. In this situation, as per the above principle of 1800 MHz band as established in March 2015 auctions, such expiry license operators should be allowed to bid for minimum of 1.25 MHz in 800 MHz band instead of 5 MHz."

2.2. **900 MHz:** Since, the spectrum availability in 900 MHz is less than 10 MHz, therefore in line with TRAI recommendations of Oct'14, we suggest a minimum

block size of 2.4 MHz for New entrants. For existing TSPs holding spectrum in 900 MHz, a min. block size of 0.6 MHz should be allowed.

2.3. **1800 MHz:** In view of limited availability of spectrum (less than 10MHz) in all the circles and the Oct '14 recommendations of TRAI wherein for 900 MHz, minimum quantity of 2.4MHz was allowed to be bid. We suggest that the same principle should be followed for 1800 MHz and the minimum bid quantum for new entrants should be 2.4 MHz. For existing Licensees holding spectrum in 1800 MHz, a min. bid of 0.6 MHz should be allowed.

2.4. **2100 MHz:** Min. one block of 5 MHz (Paired) should be mandated for bidding.

**C. Additional Spectrum in 1800 MHz band:**

3. There is 221.9 MHz of unallocated spectrum in the 1800 MHz band. Accounting for the licenses that would expire during the 2016-18 period, we recommend that the entire spectrum bank in the 1800 MHz band be made available for auction and allocated post harmonisation:

#	LSA	Total spectrum assigned	Total to be made available for auction
		(A)	55 MHz-(A)
		MHz	MHz
1	DEL	40	15
2	MUM	52.4	2.6
3	KOL	48.8	6.2
4	MH	45.45	9.55
5	GUJ	46	9
6	AP	54.6	0.4
7	KTK	50.4	4.6
8	TN	44.6	10.4
9	KL	52.45	2.55
10	PB	52.45	2.55
11	HR	47.1	7.9
12	UP (W)	39.9	15.1
13	UP (E)	47.25	7.75
14	RAJ	46.2	8.8
15	MP	51.7	3.3
16	WB	34.15	20.85



17	HP	43.05	11.95
18	BH	40.35	14.65
19	OR	52.5	2.5
20	AS	34.55	20.45
21	NE	43.5	11.5
22	J&K	20.7	34.3
	<b>Total</b>	<b>988.1</b>	<b>221.9</b>

4. Our Recommendations:

a. **Block size for 800, 900, 1800 and 2100 MHz bands should be as per the latest NIA dated Jan 09, 2015 i.e. 2 x 200 KHz in both 900 & 1800 MHz bands, 2 x 1.25 MHz in 800 MHz and 2 x 5 MHz in 2100 MHz band. For 800 MHz, 1.25 MHz should translate into allocation of full 1.25 MHz instead of 1.23 MHz.**

b. Minimum quantum of spectrum, to be bid by various categories (new entrant/existing licenses/expiry licensee) of operators, for the forthcoming auction:

i. **800 MHz:**

- **A new entrant** is required to bid: **1.** For a minimum of 4 blocks, in those LSAs where 4 or more blocks are available. **2.** For a minimum of 3 blocks, in those LSAs where less than 4 blocks but equal to 3 blocks is available. **3.** For a minimum of 2 blocks, in those LSAs where less than 3 blocks but equal to 2 blocks is available.
- **Existing licensees** holding spectrum in 800 MHz band may bid for a minimum of 1 block.
- **Expiry license** holding 800 MHz acquired in 2015 auction, should be allowed to bid for minimum of 1.25 MHz.

ii. **900 MHz:**

- Since, the spectrum availability in 900 MHz is less than 10 MHz, therefore in line with TRAI recommendations of Oct'14, we suggest a minimum block size of 2.4 MHz for New entrants/expiry licensee in

Gujarat and Bihar service area. For existing TSPs holding spectrum in 900 MHz, a min. block size of 0.6 MHz should be allowed.

iii. **1800 MHz:**

- Minimum bid quantum for new entrants should be 2.4 MHz. For existing Licensees holding spectrum in 1800 MHz, a min. bid of 0.6 MHz should be allowed.

iv. **2100 MHz:**

- Minimum one block of 5 MHz (Paired).

- c. **There is 221.9 MHz of unallocated spectrum in the 1800 MHz band. Accounting for the licenses that would expire during the 2016-18 period, we recommend that the entire spectrum bank in the 1800 MHz band be made available for auction and allocated post harmonisation.**

#### **Q5. What should be the block size in the 2300 MHz and 2500 bands?**

##### **RCom Comments:**

1. It is suggested that the spectrum, in both 2300 MHz and 2500 MHz bands should be auctioned in block size of 20 MHz (unpaired)

**Q6. Considering the fact that one more sub-1 GHz band (i.e. 700 MHz band) is being put to auction, is there a need to modify the provisions of spectrum cap within a band?**

**AND**

**Q7. Is there any need to specify a separate spectrum cap exclusively for the spectrum in 700 MHz band?**

**AND**

**Q8. Should a cap on the spectrum holding within all bands in sub-1 GHz frequencies be specified? And in such a case, should the existing provision of band specific cap (50% of total spectrum assigned in a band) be done away with?**

##### **RCom Comments:**

1. Sub GHz spectrum (700 MHz, 800 MHz & 900 MHz) share inherently similar propagation characteristics and thus hold similar economic value.

2. The clubbing of all spectrum under 1 GHz band thus ascribes to the similar nature of the bands and importantly shall help rationalize the capping structure irrespective of the quantum of spectrum held/available within each band.
3. Therefore, it is recommended to transit from a 50% cap on an individual band basis to cover the entire Sub GHz band.

#### 4. Our Recommendations:

**In the sub GHz bands (700/800/900 MHz), the spectrum cap of 50% of earmarked spectrum for commercial use should be applicable.**

**"Q9. Should 2300 MHz and 2500 MHz bands be treated as same band for the purpose of imposing intra-band Spectrum Cap?"**

**Please support your suggestions for Q6 to Q9 with proper justifications."**

#### **RCom Comments:**

1. **No, 2300 MHz and 2500 MHz bands should not be treated as same band.**
2. It may be noticed that 2.3 GHz and 2.5 GHz are separate bands and cannot be clubbed together for usage.
3. Our Recommendations:

**a. 2.3 GHz and 2.5 GHz should not be treated as same bands.**

**Q10. Suggest an appropriate coverage obligation upon the successful bidders in 700 MHz band? Whether these obligations be imposed on some specific blocks of spectrum (as was done in Sweden and UK) or uniformly on all the spectrum blocks?**

**AND**

**Q11. Should it be mandated to cover the villages/rural areas first and then urban areas as part of roll-out obligations in the 700 MHz band?**

**AND**

**"Q12. In the auction held in March 2015, specific roll-out obligations were mandated for the successful bidders in 800 MHz, 900 MHz, 1800 MHz and 2100 MHz spectrum bands. Stakeholders are requested to suggest:**

**(a) How the roll-out obligations be modified to enhance mobile coverage in the villages? Which of the approaches discussed in para 2.58 should be used?"**

(b) Should there be any roll out obligation for the existing service providers who are already operating their services in these bands.

Please support your answer with justification."

AND

"Q13. In the auction held in 2010, specific roll-out obligations were mandated for the successful bidders in 2300 MHz spectrum band. Same were made applicable to the licensee having spectrum in 2500 MHz band. Stakeholders are requested to suggest:

(a) Should the same roll-out obligations which were specified during the 2010 auctions for BWA spectrum be retained for the upcoming auctions in the 2300 MHz and 2500 MHz bands? Should both these bands be treated as same band for the purpose of roll-out obligations?

(b) In case existing service providers who are already operating their services in 2300 MHz band acquire additional block of spectrum in 2300 or 2500 MHz band, should there be any additional roll out obligation imposed on them?"

#### RCOM Comments:

1. As per the license agreement, operators have already carried out extensive rollout in all circles for voice, video and data services. Mandating band wise rollout obligations in the present technology agnostic era wherein various bands are being combined to deliver telecom services, band wise rollout obligation should not be a precondition. Thus, there is no necessity of any additional rollout obligations to be imposed on some specific blocks of spectrum purchased through auction if the TSP has already covered or in the process of completing the rollout obligation.
2. **We therefore, suggest that rollout obligation should be linked to the license instead of specific spectrum bands/blocks.** To clarify, if an operator has already rolled out services using any technology in any band and is buying new spectrum in a separate band not available with him earlier, then the TSP should not be obligated for additional roll out for a new band/blocks purchased through auction for the same service.
3. For expiry licensee left with no spectrum post expiry and buying spectrum in the same band, the roll out obligation carried out earlier should be transferred to the new license. This is similar to the resource transfer allowed in the licensee vide amendment dated 13<sup>th</sup> November 2014.
4. Authority may also note the fact that current hyper competitive market is well placed to ensure that the TSP's ensure maximum coverage and hence strive to achieve the

stipulated roll out obligations on their own. Accordingly, **rollout obligation should not be mandated to villages/ urban areas separately and left to the TSPs business discretion.**

5. Further, out of the 6 Lacs villages nearly 5.5 lacs are already covered and the operators are going deeper in villages for better services. Hence, any specific village coverage requirement will be akin to duplication of efforts and will be economically unviable.
6. Our Recommendations:
  - a. **Rollout obligation should be linked to the license instead of specific spectrum bands/blocks.**
  - b. **Rollout obligation should not be mandated to villages/ urban areas separately.**

**Q14. Keeping sufficient guard band or synchronization of TDD networks using adjacent spectrum blocks are the two possible approaches for interference management. Considering that guard band between adjacent spectrum blocks in 2300 MHz band is only 2.5 MHz in a number of LSAs, should the network synchronization amongst TSPs be mandated or should it be left to the TSPs for the interference free operation in this band? Please support your suggestion with proper justifications.**

**AND**

**Q15. In case, synchronization of the TDD networks is to be dealt by the regulator/licensor, what are the parameters that the regulator/licensor should specify? What methodology should be adopted to decide the values of the frame synchronization parameters?**

**AND**

**Q16. If synchronization of the TDD networks is ensured, is there a need for any guard band at all? If no guard band is required, how best the spectrum left as inter-operator guard band be utilised?**

#### **RCom Comments:**

The issue in TDD regarding sufficient guard band or synchronisation etc should be left to the discretion of the service providers, who would take care of these aspects through mutual discussion with all concerned. We do not consider involvement of the licensor/regulator for the purpose of synchronization etc. is required. In case it is not resolved then both parties can approach licensor/WPC.

**Q17. Whether the ISP category 'A' licensee should be permitted to acquire the spectrum in 2300 and 2500 MHz bands or the same eligibility criteria that has been made applicable for other bands viz. 800 MHz, 900 MHz, 1800 MHz and 2100 MHz band should be made applicable for 2300 MHz and 2500 MHz bands also?**

**RCom Comments:**

No, ISPs should not be permitted to acquire 2300 & 2500 MHz spectrum. It has been observed that many of the ISPs who had acquired spectrum in 2300 MHz band in earlier auctions ultimately did not carry out any deployment in this band and sold out their spectrum to the UASL/Unified Licensees. Even, the sole pan India holder of 2300 MHz too has migrated to UL. **We, therefore, do not find any reason for permitting ISPs to acquire spectrum in 2300 & 2500 MHz bands.**

**"Q18. Stakeholder are requested to comment on**

**(a) Whether the guidelines for liberalisation of administratively allotted spectrum in 900 MHz band should be similar to what has been spelt out by the DoT for 800 and 1800 MHz band? In case of any disagreement, detailed justifications may be provided.**

**(b) Should the liberalization of spectrum in 800, 900 and 1800 MHz be made mandatory?"**

**RCom Comments:**

- 1. Guidelines for Liberalisation of administratively allocated 900 MHz should be similar to what has been done for 800 MHz and 1800 MHz bands.**
- 2. Liberalisation of spectrum should not be made mandatory and operators should have the choice to liberalize their spectrum holding based on their business plan.**

**Q19. Can the prices revealed in the March 2015 auction for 800/900/1800/2100 MHz spectrum be taken as the value of spectrum in the respective band for the forthcoming auction in the individual LSA? If yes, would it be appropriate to index it for the time gap (even if this is less than one year) between the auction held in March 2015 and the next round of auction and what rate should be adopted for indexation?**

**AND**

**Q20. If the answer to Q.19 is negative, should the valuation for respective bands be estimated on the basis of various valuation approaches/methodologies adopted by the Authority (as given in Annexure 3.1) in its Recommendations issued since 2013 including those bands (in a LSA) for which no bids were received or spectrum was not offered for auction?**

**RCom Comments:**

1. TRAI in its Oct 14 recommendations had used various approaches/methodologies for arriving at the valuations and the RP for the 800/900/1800/2100 MHz. The various scientific approaches like producer surplus, production function and revenue surplus were used to determine the price of 1800 MHz even after the winning price was available from feb'14 auction. This price of 1800 MHz was later set as premise to calculate the price of 800/900/2100 MHz using the technical efficiency factor, economic efficiency premium and other attributable approaches of data revenue etc.
2. Since, the economic value of spectrum is a function of Market Information, Technological factors and Macro/Micro economic variables and had been arrived at through a detailed economic modeling exercise by TRAI prior to the Mar-2015 auctions, **it is highly unlikely that the majority of these variables would undergo a significant change in the intervening period leading up to Auctions 2016.** It is therefore recommend that the last auction i.e. Mar'15 determined price should be the valuation for the forthcoming auction in 800/900/1800/2100 MHz band.
3. For the circles wherein the spectrum was not sold in the last auction, TRAI determined RP is available for setting the RP in the forthcoming auction.
4. Our Recommendations:
  - a. **Last auction i.e. Mar'15 determined price should be the valuation for the forthcoming auction in 800/900/1800/2100 MHz band.**
  - b. **For the circles wherein the spectrum was not put up for auction in the last auction, TRAI determined RP for Mar'15 auction should be the RP for the forthcoming auction.**
  - c. **For the circles wherein the spectrum was put up for auction but not sold in Mar'15 auction, the last defined valuation by DoT should be used.**

**Q21. Should the value of 700 MHz spectrum be derived on the basis of the value of 1800 MHz spectrum using technical efficiency factor? If yes, what rate of**

efficiency factor should be used? Please support your views along with supporting documents/literature.

AND

**Q22. Should the valuation of 700 MHz spectrum be derived on the basis of other sub-GHz spectrum bands (i.e. 800 MHz/900 MHz)? If yes, what rate of efficiency factor should be used? Please support your views along with supporting documents/literature.**

AND

**Q23. In the absence of financial or non-financial information on 700 MHz, no cost or revenue based valuation approach is possible. Therefore, please suggest any other valuation method/approach to value 700 MHz spectrum band along with detailed methodologies and related assumptions.**

#### **RCom Comments:**

1. 700 MHz spectrum is a valuable spectrum fast gaining traction in 4G deployments worldwide. It offers superior propagation and in building characteristics over > 1GHz bands and has its performance edge over 800/900 MHz bands.
2. It is also learnt from the data available on the GSA website that **42 countries have allocated, committed to or recommended APT700 FDD (band 28) for LTE systems as follows:**
  - **LAC region:** Argentina, Brazil, Chile, Colombia, Costa Rica, Curaçao, Dominican Republic, Ecuador, Honduras, Mexico, Panama, Peru, Venezuela
  - **APAC/Oceania:** Afghanistan, Australia, Bangladesh, Bhutan, Brunei, Cambodia, Fiji, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, New Zealand, Pakistan, Papua New Guinea, Singapore, South Korea, Taiwan, Thailand, Tonga, Vanuatu, Vietnam
  - **Middle East:** UAE confirmed adoption of the APT700 lower 2 x 30 MHz duplexer. This is also the preferred frequency arrangement for 700 MHz allocations in Europe and throughout ITU Region 1
  - **Europe:** Finland, France, Germany, Sweden, and UK
  - **APT700 band 28** is licensed to mobile operators in 13 countries: Argentina, Australia, Brazil, Chile, Ecuador, Fiji, Japan, Mexico, New Zealand, Panama, Papua New Guinea, South Korea, and Taiwan



- **12 Networks commercially launched available in APT 700 MHz and 139 user devices launched recently by different OEMs.**
3. This is clear from above that 700 MHz (Band 28) is being used worldwide for the high speed data services i.e. LTE and with the proliferation of data services in India, it is important that the pricing of 700 MHz should clearly reflect the revenue potential and **ability of this band to launch premium data services.**
  4. **Therefore similar to 800 MHz, wherein the Authority had earlier used the revenue from data services as one of the driver for determining the price, 700 MHz price be determined by indexing (using SBI PLR) the last auction determined winning price of 800 MHz and then a premium of 25% over derived prices for the respective LSA should be levied.**
  5. This would be in line with the TRAI own recommendations of April 23, 2012 wherein TRAI had mentioned that 700 MHz provides 25% more CAPEX saving than 800 MHz. We therefore suggest that the same factor of 1.25 times may be used to calculate the price of 700 MHz, post indexation (using SBI PLR) over the last auction determined price of 800 MHz.
  6. Our Recommendations:
    - a. **700 MHz price should clearly reflect the revenue potential and ability of this band to launch premium data services.**
    - b. **700 MHz price should be calculated by indexing the last auction determined price of 800 MHz and then levying a 25% premium over and above the price arrived at after indexation.**

**Q24. Should the value of May 2010 auction determined prices be used as one possible valuation for 2300 MHz spectrum in the next round of auction? If yes, then how? And, if not, then why not?**

**Q25. Should the value of the 2300 MHz spectrum be derived on the basis of the value of any other spectrum band using the technical efficiency factor? If yes, please indicate the spectrum band and technical efficiency factor with 2300 MHz spectrum along with supporting documents.**

1. **The value of 2300 MHz spectrum in the next round of auction should be based on the value of May 2010 auction determined price with applicable SBI PLR rates.**

2. As 2300 MHz spectrum has already been auctioned earlier, there is no necessity of any technical efficiency factor being considered for determining its Reserve Price.

Q26. Should the valuation of the 2500 MHz spectrum be equal to the valuation arrived at for the 2300 MHz spectrum? If no, then why not? Please support your comments with supporting documents/ literature.

**RCom Comments:**

The valuation of the 2500 MHz spectrum be based on the valuation arrived at for the 2300 MHz spectrum.

Q27. Is there any other method/approach than discussed above that could be used for arriving at the valuation of 700/800/900/1800/2100/2300/2500 MHz spectrum bands or any international auction experience/ approach that could be used for valuation of any of these bands? Please support your suggestions with detailed methodology and related assumptions.

**AND**

Q28. As was adopted by the Authority in September 2013 and subsequent Recommendations and adopting the same basic principle of equal-probability of occurrence of each valuation, should the average valuation of the spectrum band be taken as the simple mean of the valuations obtained from the different approaches/methods attempted for that spectrum band? If no, please suggest with justification that which single approach under each spectrum band, should be adopted to value that spectrum band.

**RCom Comments:**

Refer to our response to Q19 & Q20.

Q29. What should be the ratio adopted between the reserve price for the auction and the valuation of the spectrum in different spectrum bands and why?

**RCom Comments:**

It is suggested that the RP should be 80% of the valuation.

Q30. Should the realized prices in the recent March 2015 auction for 800/900/1800/2100 MHz spectrum bands be taken as the reserve price in respective spectrum bands for the forthcoming auction? If yes, would it be

appropriate to index it for the time gap (even if less than one year) between the auction held in March 2015 and the forthcoming auction? If yes, then at which rate the indexation should be done?"

**RCom Comments:**

**Refer to our response to Q19 & Q20.**