

RJIL/TRAI/2015-16/457 21st December 2015

To,
Sh. Sanjeev Banzal,
Advisor (NSL),
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
Jawaharlal Nehru Marg,
New Delhi - 110002

Subject: Comments on TRAI's Consultation Paper on 'Valuation and Reserve Price of Spectrum in 700, 800, 900, 1800, 2100, 2300 and 2500 MHz Bands' (Consultation Paper No. 06/2015 dated 26.11.2015)

Dear Sir,

Please find enclosed herewith comments of Reliance Jio Infocomm Limited on the issues raised in the Consultation Paper on 'Valuation and Reserve Price of Spectrum in 700, 800, 900, 1800, 2100, 2300 and 2500 MHz Bands' dated 26.11.2015.

Thanking You,

Yours sincerely,
For Reliance Jio Infocomm Limited,

Kapoor Singh Guliani Authorised Signatory

Enclosure: As above.

Reliance Jio Infocomm Limited (RJIL) Response to the TRAI Consultation paper on "Valuation and Reserve Price of Spectrum in 700, 800, 900, 1800, 2100, 2300 and 2500 MHz Bands"

At the outset, we thank the Authority for issuing this consultation paper to deliberate the vital issues related to valuation and reserve price of spectrum in various bands pursuant to the reference from DOT dated 09.07.2015 seeking TRAI recommendation on Reserve Price for next round of Auction.

Overall, the spectrum auctions in India have been a tremendous success, putting essential spectrum in the hands of those best able to use it. The auctions have also fostered innovation and competition in wireless communication services and led to the introduction of new technologies in India and brought in large amount of investments, which in turn will boost the economy of the country. The greatest beneficiary has been the common man through state-of-the-art telecommunication services delivered at most affordable tariffs.

The proposed auction is an enormous exercise, which will put all available spectrum identified for mobile usage on the block. This coupled with the promulgation of the policies on spectrum trading, spectrum sharing and spectrum liberalisation will without doubt revolutionize the Indian telecom market consequently enabling the operators to deliver more benefits to consumers.

We appreciate the alacrity shown by the Government and the Authority in making the much needed spectrum available to the industry. The Government has embarked upon the ambitious Digital India programme and it is well recognized that mobile broadband will play the most vital role in making this programme a success. It is no doubt that this understanding has led the Government in deciding upon the auction of all identified spectrum in commercial bands. In fact sufficient availability of spectrum for commercial use will also be the key enabler to achieve the critical goal of the National Telecom Policy 2012 i.e. the development of a "network that provides seamless coverage and proliferation of affordable and high quality broadband services across the nation."

We have always believed that the entire commercial spectrum should be put to auction. We understand that the fundamental principles for valuation of spectrum are well established and do not warrant much change. The latest auction discovered market price should be a key determinant in valuation of spectrum as it best reflects the market realities and results in most efficient allocation of the scarce natural resource. The other methods used by the Authority in valuation of spectrum are also important but the market discovered price should always play the lead role in valuation of spectrum.

Keeping above in view, our response to the various questions raised in the consultation paper are provided seriatim in this paper.



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

RJIL Response:

RJIL has always maintained that all commercially usable spectrum which will help in enhancing the network capacity of operators and is suitable for deployment of new technology (i.e. has appropriate guard band) should be put to auction as and when it is available for market use. Considering the importance of guard band in the 800 MHz band because of significant interference issues (as discussed later), especially across technologies, there should be adequate provision of guard band. All spectrum available after providing for guard band should be auctioned.

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?

RJIL Response:

Interference is a serious problem which jeopardizes the optimum utilization of spectrum. Although the spectrum is now liberalised, still the existence of legacy networks in the 800 MHz spectrum band implies that the possibility of interference in different technology deployed in adjacent bands remains.

In principle the Inter-operator guard band will be required between two adjacent non-collocated carriers, if one of them belongs to CDMA. This is because CDMA technology utilizes the entire allotted spectrum for its carriers with no edge guard band. Whereas, both a 5 MHz UMTS carrier (3.84 MHz digital bandwidth and 4.2 MHz RF bandwidth) and a 5 MHz LTE carrier (4.5 MHz digital bandwidth and 5 MHz RF bandwidth), have an inherent edge guard band to take care of the adjacent channel and out-of-band emission related interference issues that arise from the non-collocated deployment scenarios. As CDMA technology is currently deployed in the 800 MHz band in non-collocated adjacent carriers and there being no timelines to phase it out, there is a requirement for at least 300 kHz of minimum edge guard band (i.e., minimum inter-operator guard band between non-collocated adjacent CDMA850 and LTE850 carriers).

Given the flexibility that the Government and the Authority would like to provide to operators for deployment of alternate technologies, it may become difficult to generate requisite guard bands once spectrum has been allotted to operators. We therefore suggest that inter-operator guard band be provided in all cases irrespective of technology deployed. Consequently, DOT should auction spectrum only once inter-operator guard band has been created in all cases.

The Consultation paper also discusses the possibility of DoT exercising the power to suo-moto reshuffle the carrier assignment amongst the TSPs to reduce the inter-operator guard band. While RJIL welcomes this as an opportunity to make the spectrum holdings contiguous and release more spectrum for commercial consumption, it might be prudent to take note of the



objections of operators with legacy network elements. Therefore we suggest that DoT should take all the operators in confidence on this and free more contiguous spectrum for auction.

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

RJIL Response:

We agree with the Authority's view that as the spectrum in the 700 MHz band will be put to auction for the very first time and sufficient spectrum is available in this band, it is desirable that this spectrum is not sold in small pieces.

While new technologies like LTE can be deployed on smaller blocks than 5 MHz, however in order to achieve better technical efficiency and to avoid unnecessary fragmentation, we agree that the block size in the 700 MHz band should be of 5 MHz contiguous blocks so that each successful bidder gets at least 5 MHz spectrum. It may also be noted that worldwide no auction has taken place with less than 5 MHz spectrum and no network is operating at less than 5 MHz because of less efficient utilization of the spectrum due to increased overhead and increased cost of deployment per MHz.

We believe that it will also be prudent to decide on the right timing for auction of spectrum in 700 MHz band. The 700MHz band is very fragmented today.

Internationally the device ecosystem is still evolving and it will take some time for this to attain a semblance of maturity. Large countries like China, which play an important role in creation of device ecosystem, are still mulling their options and from reports it appears that China is still undecided on whether to adopt FDD or TDD configuration on this band, with no final word available as on date. China is not only a large market but also a major manufacturing hub, and therefore it contributes significantly towards building the eco-system for a spectrum band.

Current status of device availability in the 700 MHz band is still at nascent stage. The GSA report of October 2015 indicates a relatively small number of LTE FDD devices in this band. Till date only 12 operators have commercially launched services in this band internationally despite it being auctioned in many countries and such commercially launched operations are also in relatively small markets such as Panama, Taiwan, New Zealand and Papua New Guinea (total addressable market of less than 60 million, with significantly smaller current uptake). These networks are relatively new and still growing.

The U.S., which is another large market, follows a different plan from 700 APT. The 700 MHz band in the U.S. was carved out of spectrum vacated by broadcast television after the FCC mandated digital TV. However, the U.S. version of 700 MHz is broken into distinct blocks of spectrum, designated as 4 different bands. In addition to being fragmented frequency blocks, two of these bands are "reversed duplexed", meaning the uplink frequencies and downlink frequencies follow non-standard configurations. Because of these differences, each operator has its own devices which are not necessarily compatible or interoperable with the networks of other operators in the same market making the ecosystem not harmonized and making it



expensive to support. However, it is expected that in the next 24 months, there will be a much clearer path to convergence leveraging the 700 APT and having that developed first ensures that the investment we make and the ecosystem we support in India is not one-off and follows an agreed standard ensuring affordable devices so that there is no need to develop any devices with set of bands that are unique. Rather the infrastructure we deploy is standards based and the devices work across operators and countries.

For availability of affordable devices and overall vendor ecosystem, it might be sensible to wait for major international markets/ manufacturers like China and the U.S. to act on this first so that synergies could be used to achieve efficient price points on device as well as infrastructure costs by using similar technology. Therefore logically it would be more viable and economical to auction spectrum in 700 MHz band once the ecosystem is developed and technology choices are made at international level so that vital investments are not lost in experimentation leading to non-affordable devices and network infrastructure.

The delay in creation of a device and vendor ecosystem will result in the spectrum not getting utilized in the near term, which will also have an adverse impact on the valuation that operators would be willing to pay for such spectrum. This may result in loss of revenues for the exchequer.

Additionally, the actual benefits of the digital dividend spectrum are yet to be seen. The currently available commercial spectrum bands are still going through phases of harmonization and optimization. Moreover, spectrum in most of the bands are facing serious problem of interference. Therefore, in the 700 MHz spectrum band TRAI and DOT should jointly examine the interference issues before taking any decision on spectrum auction in this band. In view of this, it will be prudent to not auction the spectrum in 700 MHz band now. A recommended approach would be to do an ecosystem evaluation in two years' time and plan the auctions accordingly.

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.

RJIL Response:

The NIA 2015 provided for spectrum blocks of 1.25 MHz, 0.2 MHz, 0.2 MHz and 5 MHz size for the spectrum in 800 MHz, 900 MHz, 1800 MHz and 2100 MHz spectrum bands respectively. The minimum quantum that an existing service provider was required to bid was 1.25 MHz, 0.6 MHz, 0.6 MHz and 5 MHz for the spectrum in the 800 MHz, 900 MHz, 1800 MHz and 2100 MHz spectrum bands respectively. The minimum spectrum bid for a new entrant/expiry licensee was kept at 5 MHz in all these spectrum bands. The same block and minimum bid sizes have been used in earlier auctions as well and we do not see any need for changing this. The Authority should maintain consistency in such rules as they have a meaningful impact on the conduct and outcome of auctions and therefore associated spectrum strategy of operators.



In case of new entrants/ expiry licensee, the NIA 2015 stipulated that a new entrant/ expiry licensee needs to make a minimum bid of 5 MHz in a spectrum band subject to the availability of the total spectrum in that band and in case the total spectrum availability in a band was less that 5 MHz, then the minimum bid for a new entrant/ expiry licensee was reduced accordingly. This provision could also be continued with.

Thus for spectrum in 800 MHz, 900 MHz, 1800 MHz and 2100 MHz bands the minimum spectrum bid for an existing licensee should be kept at 1.25 MHz, 0.6 MHz, 0.6 MHz and 5 MHz respectively. In case of a new entrant, the minimum spectrum bid should be 5 MHz in 800 MHz, 900 MHz, 1800 MHz and 2100 MHz spectrum bands as the 3G/4G services are less efficient in smaller spectrum blocks.

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

RJIL Response:

Currently there are only two spectrum holders in the 2300 MHz band each holding the spectrum block of 20 MHz. Further we have proposed in this response that the 2300 MHz and 2500 MHz spectrum bands may be considered as one band for all practical purposes. We propose that the block size for 2300 MHz and 2500 MHz spectrum bands may be kept at 10 MHz. The minimum spectrum that a new entrant can bid in this band should be 20 MHz as that is the minimum optimum block size in these bands for meaningful business operations and is in line with past policy, and the minimum spectrum that an existing operator can bid in this band should be 10 MHz.

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?

&

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

8

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?

RJIL Response:

RJIL believes that with liberalisation of spectrum, the intra-band spectrum caps have lost their relevance. Earlier the spectrum allocation was based on the technology to be utilized for a particular spectrum band and the intra-band spectrum cap served the purpose of curbing the



monopolistic and predatory practices in a particular band, however the auctioned spectrum is technology neutral and post liberalisation of spectrum, it can be used to deploy any technology, therefore the intra-band spectrum caps have now become redundant.

Intra band spectrum caps in fact constraint the service providers as with the prevailing caps, the service providers are forced to opt for multiple bands owing to limited availability of spectrum in specific bands, thereby denying the benefits of higher quantum of spectrum for mobile broadband services in terms of enhanced spectral efficiencies.

Another major objective of the spectrum caps is to maintain a minimum level of competition in the markets. Indian market is already hyper-competitive thus that purpose is self-served by the markets and regulatory interventions are not warranted. Further the overall spectrum cap of 25% of the total spectrum may be continued to guard against market consolidation leading to monopolies. Such a cap will ensure that there would be atleast 4 operators in any market, and infact in most cases, there would be more than 4 operators, thereby ensuring adequate competition. Once such competition has been ensured, operators should be allowed the flexibility to develop own spectrum portfolio across spectrum bands to meet their requirements.

In view of the above the intra-band spectrum caps should be completely done away with.

The spectrum cap in 700 MHz band and the spectrum caps in sub-1 GHz frequencies also become redundant for the reasons discussed above.

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.

RJIL Response:

We would reiterate that the provision of intra-band spectrum caps has become redundant after running its time, thus it should be done away with. However, in case Authority persists with the intra-band spectrum caps then in that scenario the 2300 MHz and 2500 MHz bands should be treated as same band for the purpose of imposing intra-band Spectrum Cap.

The Authority's proposal for treating 2300 MHz and 2500 MHz spectrum bands as same band for the purpose of intra-band spectrum cap stems from the fact that the availability of spectrum in these bands is also limited. Also, historically the spectrum in 2300 MHz and 2500 MHz bands has been treated as one band in India. DoT itself has treated these as same band while allocating spectrum to PSUs during the 2010 spectrum auctions and publishing the spectrum holdings before the auction in March 2015.

The 2300 MHz and 2500 MHz spectrum bands have a lot of similarities and therefore may be treated as same band for all practical purposes. Further, given their suitability for deployment of LTE-TDD Radio access technology, larger blocks of spectrum need to be auctioned.



The 2500 MHz band is proposed to be auctioned in TDD configuration since China ecosystem is developing for this band with TDD configuration which can help India for affordable devices and services. Moreover, existing BWA operators are allocated TDD spectrum in 2300 MHz band, so carrier aggregation with another TDD system could be deployed to enhance customer experience.

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?

&

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?

RJIL Response:

RJIL firmly believes that roll-out obligations are redundant in the era of auctioned spectrum. Operators are incentivized to use the spectrum promptly having paid full market price for such spectrum. Infact operators who have prompt roll out capability are likely to pay higher value of spectrum, and therefore commercial rationale will result in rapid roll out of services.

However, roll out obligations may be mandated for a completely new entrant to the telecom sector, i.e. a new entrant with no access spectrum holdings in any of the spectrum bands and there should be no roll-out obligations for an existing service provider in a service area.

In India the licensor and Regulator are following the principle of mandating roll-out obligations as a part of spectrum allocation for over 20 years now. However the desired goals of universal mobile coverage all over the country is yet to be achieved. Various modes of roll-out obligations have been tried including mandatory roll out in District Headquarters, Block Headquarters and Rural SDCAs etc. The licenses have also contained strict and onerous liquidated damages. Further, the Government collects a large levy from the operators as a part of Universal Service Obligation, a large amount of which remains unutilized.

Internationally there are instances of following the policy of "rewards and retributions" vis-àvis roll out obligations. In India, we have generally refrained from exploring the utility of positive incentives to help achieve the universal coverage. The Authority may mull direct financial assistance to any Service Provider who proposes to cover the rural and remote areas. This can be in the form of BOOT model with Government subsidizing the CAPEX / OPEX required for new roll outs in rural remote areas.

The Government also needs to identify and rectify all the factors hindering roll out in remote and rural areas. The availability of reliable power and other infrastructure like roads etc. are major inhibiting factors to rolling out in remote and rural areas. Further the availability of diesel, security arrangements for the tower infrastructure etc. are additional concern areas.



These concerns become more pronounced in naxal-affected areas, where it becomes impossible to maintain mobile infrastructure.

We appreciate the fact that only by rolling out telecom infrastructure in rural and remote parts of India, the cherished goals of Digital India can be achieved, however we request that the Government and the Authority may look beyond the mandatory roll-out obligations to achieve these goals. Favorable consideration of the aforementioned issues, rectification of deterrents and financial incentives will go a long way in realizing the dream of Digital India across wider geographies.

- 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.

RJIL Response:

We reiterate that to enhance coverage in the villages, DoT may use the approach of incentivizing new roll-out in villages as suggested in the preceding comments. This incentive offer may be implemented for the existing roll-out obligations as well. The additional roll-out should not be mandatory roll-out, instead it should be incentive based and open to all. Thus any operator may choose to do additional roll-out and on achieving the same it should get the incentives.

Therefore, in order to achieve better results in achieving the coverage of villages, the Authority may mandate that the incentives will be provided for making additional roll outs, using any of the access spectrum allocated in a service area. However the roll out obligations may be mandated for a complete new entrant in a particular service area, i.e. a new entrant with no spectrum holdings in any of the spectrum bands.

- 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?



RJIL Response:

We reiterate that the 2300 MHz and 2500 MHz band may be treated as same band for all practical purposes and that applies to the roll-out obligations as well. We also reiterate our stand on the rollout obligation as detailed in previous comments that roll out obligations should only be mandated in case of new entrants.

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.

RJIL Response:

The guard band requirement between two adjacent un-synchronized TDD networks is very high (the 2.5 MHz of guard band is not sufficient). ETSI studies have shown that > 10 MHz of guard band is required between two un-synchronized adjacent TDD carriers or between two TDD and FDD carriers (example: between band 7 and band 38 carriers). Hence, time synchronization between adjacent TDD networks is a must. This is because TDD networks use the same spectrum for both uplink and downlink, in a time division duplexing fashion. If the time based frame synchronization between two adjacent carriers does not exist, then both TDD networks would suffer performance issues from severe UL-DL type of interference problem. If frame synchronization is lost, then at a particular time, there is a possibility for one TDD operator to use its spectrum for downlink, while the other TDD operator uses its adjacent spectrum for uplink, resulting in UL-DL type of interference issues. In addition to the time synchronization mentioned above, it is also necessary to mandate that the same UL-DL sub-frame configurations be used as well.

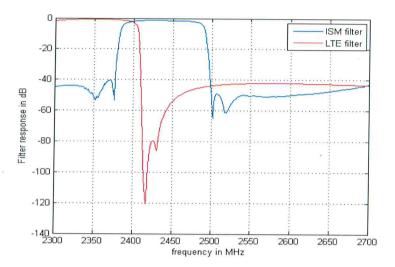
It may be noted that in spite of ensuring both timing and frame synchronization, interference may still be experienced at large distances due to tropospheric propagation ducting phenomenon. Being TDD spectrum, this particular issue may be experienced from own frequency band as well as from other operator bands within the same circle as well as adjoining circle.

Therefore it is strongly recommended that Network synchronization should be mandated with the following guiding principles:

- Before putting up fresh spectrum for auction, spectrum harmonization should be carried out across India for existing allocations whereby same spectrum block is allocated in all circles for each operator;
- b. Common frame configuration and special sub-frame configuration should be mandated;
- c. Clock and Frame synchronization should be mandated;



d. Minimum 20 MHz guard band is required from the Wi-Fi band. The ISM band (Wi-Fi) devices have filter characteristics with roll-off around 2380 MHz as depicted in below diagram.



e. Special provision should be made for the spectrum allocation in adjoining circles with hilly terrain. Minimum guard band of 10 MHz should be provided for same operator in adjoining circles in such scenarios.

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?

RJIL Response:

The Authority's mandate should broadly include Frame Synchronization to particular reference signal (ex, GPS signal), clock synchronization, DL/UL configuration and special subframe configuration. The Authority may evaluate the efficacy of all the modes in time based synchronization and recommend the most suitable methods. In our opinion, currently GPS based and IEEE 1588 v2 based time synchronization methods are most suitable. However the possibility of more suitable methods coming up at a later date cannot be denied.

Thus the Authority may mandate either GPS based or IEEE 1588 v2 based time synchronization methods for all TDD operators in any TDD band as on date, while providing for other modes of time synchronization on mutual agreement between operators under intimation to the Authority. Further to avoid UL-DL type of interference issues, the Regulator may mandate all TDD operators to follow the same (a common) TDD UL-DL sub-frame configuration.

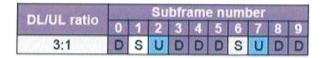


1. Clock synchronization

Operators should be mandated to ensure clock synchronization. Common Reference Time: GPS for outdoor eNodeB and IEEE 1588 v2 for indoors.

2. TDD Frame Configuration

The Authority should mandate that the operators operating within a specific frequency proximity, say within one bandwidth (for 10MHz channel, this is 10MHz, for 20MHz channel this is 20MHz, etc.), shall mutually agree and use the same configuration. In case of failure to arrive at an agreement the Authority may mandate the TDD Configuration 2 to all operators in order to ensure no UL/DL interference from each other's eNodeB.



Based on the deployed networks in mature markets, it has been observed that the ratio of DL and UL is around 80:20. Therefore it is strongly recommended to mandate the TDD Frame Configuration 2 which maximizes the DL.

Same TDD Configuration 2 is deployed in very large commercial networks.

3. Sub-Frame synchronization

The Authority may mandate that the operator shall ensure that frames start at a common reference time (every 10 ms) so that all operators' frames are aligned and transmissions synchronized (for example start frame at GPS stamp 0.000, 0.010, 0.020 second etc.)

4. <u>Special Sub-Frame synchronization</u>

While the same sub frame configuration does not need to be mandated, it becomes imperative in the non-harmonized spectrum scenarios due to inter-circle propagation over large distances that both operators follow common special sub-frame format. The operators may be encouraged to arrive at mutual agreements.

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?

RJIL Response:

In case of non-harmonization of spectrum, it is imperative to have minimum 10MHz guard band between intra and inter circles, however for optimum utilization, it shall be equal to the



licensed channel bandwidth (i.e. 10 MHz for a 10 MHz channel, 20 MHz for a 20 MHz channel and so on so forth).

Even in case of spectrum harmonization, guard band will still be necessary in some cases where large distance propagation is experienced due to tropospheric ducting, which may be evaluated and dealt with, on case to case basis.

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?

RJIL Response:

The Access Spectrum, as defined by the DOT in Unified License, includes spectrum in 800/900/1800/2100/2300/2500 MHz bands. Therefore the eligibility for the access spectrums in all spectrum bands should be the same.

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?

RJIL Response:

There should be no variation in liberalisation policy for different spectrum bands. The guidelines to liberalise administratively allotted spectrum in 900 MHz band should be similar to what has been spelt out by the DoT for 800 MHz and 1800 MHz bands.

There is merit in moving towards complete liberalization of all spectrum in the 800 MHz, 900 MHz and 1800 MHz spectrum bands for various reasons:

- a) Operators will be incentivized to roll out newer and more efficient technologies which will enhance overall quality of networks and improve customer service standards. India needs to catch-up with respect to quality of its telecom networks, and this could be a good way for ensuring that such upgradation happens;
- b) It will bring parity in the spectrum holdings of all operators such that individual operators do not benefit or suffer on account of different nature of spectrum holdings;
- It will become easier to operationalize initiatives such as spectrum harmonization with all liberalized spectrum, as otherwise there are constraints in making the spectrum footprint more efficient;



d) The level of regulatory oversight required would reduce in case of all liberalized spectrum, which would benefit the Authority and DoT as well as the operators.

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?

&

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?

RJIL Response:

RJIL firmly believes that the prices revealed in the last auction, if available, should be taken as the value of spectrum and the same should be treated as the market price of the spectrum without any other conditions.

It has been an accepted stand of both the Authority and Government that there should not be any indexation in case the time gap between two auctions is less than one year and it should be persisted with.

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.

&

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.

8

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.



RJIL Response:

We reiterate our comments that this is not the right time to auction the spectrum in 700 MHz band. Therefore the valuation of the spectrum in 700 MHz bands may be deliberated at the appropriate time under a separate consultation paper.

However, the Authority may also bear in mind that the sub-1 GHz spectrum bands have been deemed to be of immense value by all stakeholders. In fact TRAI in its earlier recommendations had mentioned that the sub-1 GHz bands are similar in terms of their propagation characteristics and are more efficient as compared to spectrum in higher frequency bands. In view of the above, when the time is right to auction spectrum in 700 MHz band, the valuation of this spectrum may be done on comparable basis taking into consideration and providing for suitable adjustments on account of efficiency delta, infrastructure delta and TDD vs FDD delta.

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.

&

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.

RJIL Response:

We would like to reiterate the points discussed in the aforementioned paragraphs emphasizing that spectrum in 2300 MHz and 2500 MHz may be treated as the same band and therefore the valuation of spectrum should be the same.

Further this is the second time that spectrum in the 2300 MHz band is being auctioned. We would like to point out that the NIA 2010 for the 'Auction of 3G and BWA Spectrum' stipulated in para 4.7 that "in case of auction within 1 year from date of completion of relevant auction, the reserve price would be same as successful bid amount for the respective LSA."

In view of that the auction discovered price should be kept as the reserve price for the current auction, however as there is a lapse of 5 years in the two auctions, the point to ponder is whether there should be any indexing done for this spectrum pricing.



We would request the Authority to compare the spectrum availability and other telecom scenarios in 2010 and 2015. In 2010 there was spectrum scarcity and the auction realized prices in the 2010 auction was many times more than the reserve price set for that auction because of a significant supply constraint. Further, the higher demand for spectrum was also caused by excessive competition due to entry of new licencees in 2008. All these conditions are not present in the current scenario. The spectrum auctions are being held every year and thus supply side constraints on spectrum availability do not exist anymore. The 1800 MHz band has emerged as the primary LTE band world over with superior device and network ecosystem. Therefore we do not see much possibility of increase in valuation of spectrum in the 2300 MHz / 2500 MHz bands.

Further, in case the Authority seeks to index the 2300 MHz spectrum price by SBI PLR with the auction discovered price in 2010, then in that case in many key service areas the reserve price for spectrum in 2300 MHz spectrum will exceed the market discovered auction price in 1800 MHz band and will be comparable with the market price of spectrum in 2100 MHz. This combined with the limited growth in eco-system for 2300 MHz spectrum will make this band commercially unattractive.

In view of the above observations, we recommend that the valuation of the spectrum for the 2300 MHz / 2500 MHz band may be kept at the same level as the winning price in the auction of spectrum in 2300 MHz band in 2010.

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.

RJIL Response:

In India, successful spectrum auctions have been conducted in the years 2010, 2012, 2014 and 2015. The underlying principle for the valuation of spectrum has been that the last auction discovered price of spectrum shall be the basis for valuation of spectrum. So far this has served us well and there seems no justification in changing the same.

The only points of discussion remaining are the valuation of spectrum in 700 MHz and 2300 MHz/ 2500 MHz spectrum bands for which we have shared detailed views in preceding comments.

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.

&

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?

RJIL Response:

Reserve price should be kept at the market price, wherein the last auction price is the most relevant benchmark. Considering that price of spectrum in a new auction should not ideally be less than the price discovered in an earlier auction, keeping the reserve price at a discount to the auction price may not be feasible in most cases as auction could clear at reserve price, which should not be less than the last auction price.

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?

RJIL Response:

Yes, the market price discovered in auction in March 2015 should be taken as the reserve price and there is no requirement of indexation as the time elapsed is quite less.

OTHER SUGGESTIONS

1. Financial conditions of Spectrum Usage charges

Currently TSPs are paying Spectrum Usage Charge (SUC) in four quarterly advance instalments as per notification no L-14047/07/2002-NTG dated 26.03.2002 and L-14025/01/2001-NT dated 03.04.2002. We understand that the intent of these notifications was to securitize SUC charges for administratively allotted spectrum. However in the current scenario of auctioned spectrum, the advance payment of SUC seems inconsistent and irrational, therefore we recommend that the SUC may be collected alongwith License Fee at the end of a quarter. In addition, since the market price has been paid for the spectrum, we recommend doing away with the provision of minimum AGR for the payment of SUC. The Authority has also in its recommendations dated 6th January 2015 on definition of AGR stated that the concept of minimum AGR is not relevant under the present auction-based spectrum allocation regime.



2. Start date for Financial, Non-Financial obligations

We would like to highlight an anomaly which has crept in the NIAs since the auction of spectrum in 2010. The recent NIAs mandate that the start date of all the financials and non-financial obligations of a TSP is the date of Letter of Intent (LOI), instead of the actual date of allotment of spectrum. We seek to bring the Authority's attention to the fact that in many cases there is a large time gap in the date of LOI and date of allotment of spectrum, which is a source of major inconvenience to operators. We request Authority to recommend that the start date of all financial and non-financial obligations with respect to auctioned spectrum shall be the date of allotment of spectrum.

