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No. RP/ FY 14-15/ 081/ 035

Dated: 8th Sep, 2014

Shri Arvind Kumar,
Advisor (NSL)
Telecom Regulatory Authority of India,
Mahanagar Door Sanchar Bhawan,
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Sub: Consultation Paper on Valuation and Reserve Price of Spectrum: Licenses expiring in 2015-16

Ref: TRAI Consultation Paper No. 10/2014, dated 7th August, 2014

Dear Sir,

This is with reference to your above mentioned Consultation Paper. In this regard, please find enclosed our response for your kind consideration.

Thanking you.
Yours Sincerely
For Bharti Airtel Limited

Ravi P. Gandhi
Chief Regulatory Officer (Policy)

Encl : As Above

Bharti Airtel's Response to TRAI's Consultation paper on "Valuation & Reserve Price of Spectrum: Licenses expiring in 2015-16"

Spectrum is a critical resource for the next telecommunications revolution. The unprecedented growth of telecommunications in India has direct nexus with the growth of voice services, and the next phase will undeniably rest on the growth of broadband services.

A central tenet of the National Telecom Policy 2012 is the development of a "network that provides seamless coverage and proliferation of **affordable and high quality broadband services** across the nation."

The Hon'ble Prime Minister's Digital India project aims to ensure that every Indian has a smart phone by 2019 and to use mobile phones as the delivery mechanism to offer one-stop shop for the Government. While communicating about the project, the Minister of Communications & IT has also stated *"The government feels that open access to "broadband highways" across cities, towns and villages would give a fillip to trade across the country. The other important benefit we see is surge in e-commerce. If we can bring broadband to the remotest corners of the country it will give rise to trade and warehousing,"*

Considering the skewed economics associated with an ecosystem that supports 914 million wireless subscribers as opposed to a mere 28 million wireline consumers, it is plausible to assume that the above goals would be best served through wireless broadband services. It is important to note that without adequate access to spectrum, this growth will essentially be unattainable.

The current consultation paper on the Valuation and Reserve Price of Spectrum has been issued with specific reference to the upcoming auction of spectrum presently held under licenses expiring in 2015-16 ('extension licenses'). Unlike other auctions where new/ additional spectrum is put up for auction, this auction is peculiar since it proposes to auction primarily the spectrum currently held by the extension licensee. Thus, the very question of business continuity and customer service continuity with respect to expiring licenses takes precedence over all other objectives.

Vide the National Telecom Policy 2012, the Government has notified the endeavor to create an investor friendly environment as a critical policy objective. As per our estimates, the sector requires cumulative investments to the amount of Rs.3,00,000 Crores for building these 'broadband highways'. Such investments are essentially unattainable, if existing investments and operations are put to such risk that threatens continuity of business, and plausibly increases premature exits and associated industry losses.

As telecom is a large-investment and long-gestation business, an assurance of extension on a continuous basis for *"10 years at a time"* with bundled spectrum was embedded in our license. Such a provision was and continues to be a precondition for attracting investments and financing from banks, private investors, VCs, as well as for ensuring the continuity and affordability of telecom services.

Licensees who were originally awarded licenses with bundled spectrum for a period of 20 years that is approaching expiry in 2015-16, have invested significant amounts to roll out

networks and continue to do so on the premise that their licenses along with their existing spectrum holdings will be extended for another period of 10 years. The Authority has also recommended in Jul, 2008 & Oct, 2012, that the extension of mobile licenses would help maintain continuity of business. Such assurances have also been communicated vide a press release dated 15th Feb, 2014 by the then Minister of Communications & IT

Therefore, the Governments' reference to the Regulator for auctioning this spectrum is fundamentally flawed on two points. This reference not only undermines the commitment of extension expressed in licence agreements, but the auction process itself would increase the scope for unprecedented arbitrage. Under this reference, the Government intends to auction only the spectrum currently in use by existing operators without adding any further quantity in the 900/1800MHz bands. The extension licensees have reaffirmed that they are ready to pay the market price of spectrum if determined in a free and unhindered way.

While a similar process was followed in the last spectrum auction, where the government did not extend telecom licences along with spectrum in Delhi, Mumbai and Kolkata and put their spectrum to auction, the government did at least put up additional spectrum in 1800MHz, which enabled operators to ensure business continuity on 1800 MHz if they failed to maintain their 900MHz spectrum holdings. For example, in the Delhi circle, while 16 MHz of 900 MHz spectrum and 4 MHz of 1800 MHz spectrum was vacated by the expiring licenses, 17 MHz of additional spectrum in 1800 MHz band was also put to auction. As a result, this auction did not risk continuity of business to as great an extent as the upcoming auction.

However, in the upcoming auction, existing licensees would not be afforded such an option. **The quantum of spectrum made available in 13 out of 18 service areas for auction is far from sufficient to carry out the auction effectively**. In seven circles, the available spectrum for auction is equal to or less than existing spectrum holdings under expiring licenses. An auction in such a scenario **could plausibly force extension licensees to shut down operations** in case they are unable to win back expired spectrum. Such policies run the very real risk of negatively impacting continuity of services to a large number of subscribers.

In such skewed auction scenarios, new companies can always artificially raise bids in excess of any fair value they ascribe to that spectrum with the intent to force existing operators to buy spectrum at unrealistic prices (winner's curse).

In light of the proposed auction of spectrum held under licenses expiring in 2015-16, we believe that seamless **continuity of business & provision of additional spectrum** should be of paramount importance to the regulator and the government. The importance of maintaining continuity in building and maintaining operators' and investors' trust cannot be overstated. Lastly, **a roadmap for future availability of spectrum** must also be shared with stakeholders for prospective planning.

Thus, the guiding principles that needs to be considered while deciding on the issues raised in the consultation paper are:

1. Ensure business continuity
2. Release of additional spectrum

3. Roadmap for future availability of spectrum

1. <u>Ensure business continuity:</u>

In the proposed auction for Licenses expiring in 2015-16, 900 MHz spectrum allocated to the licenses expiring in 2015-16 is coming up for auction. The quantum of spectrum being put to auction in 900 MHz band varies from 8.8 MHz to 15.6 MHz in service areas where two licenses are expiring and from 4.4 MHz to 6.2 MHz in service areas where only one license is expiring. Moreover, much of the spectrum that is up for auction will come from extension licensees.

While the spectrum held by existing licensees is being put to auction, cut throat competition with 6-8 operators per service area and substantially low availability of spectrum per operator, also provide an opportunity to existing/ new operators to bid for spectrum being put to auction. Therefore, it is critical to ensure that the existing operator is able to win back its spectrum to ensure the continuity of services.

Considering the current scenario, where even the backup/ fallback spectrum in 1800 MHz is largely absent, it is proposed that the minimum spectrum in 900 MHz be set such that **it allows for the entry of new operators without affecting the continuity of services offered by extension licensees, and that the quantum procured be large enough to ensure the operation of standalone networks**.

Considering the above principle, we recommend that the minimum quantum of spectrum in the 900 MHz be kept at **4 MHz for new entrants, extension licensees and existing licensees not holding any spectrum in the 900 MHz band.** This will meet the twin objectives of business continuity and attracting competition of a third operator in the 900 MHz band which will increase competition. Since operators need a minimum of 5MHz for offering newer technologies; it may be argued that auctioning 900MHz in 4MHz blocks will result in the inefficient utilization of 900MHz spectrum. While the argument may be true from a technical efficiency point of view, it may plausibly force the holder of an expiring licence to abandon its 900MHz holdings without having a fallback option onto the 1800 MHz band and therefore force it to shut down operations. Therefore, the principles of allocative efficiency, i.e. acquisition of spectrum by those who value it most, should be given precedence. However, the option to buy 5 MHz or more in an auction is also available.

2. <u>Release of additional spectrum:</u>

The quantum of spectrum made available for auction in 13 out of 18 service areas is far from sufficient to carry out the auction. For instance, in four service areas namely MP, Kerala, Karnataka and Andhra Pradesh, spectrum being put up for auction is less than the spectrum vacated by expiry licensees. In another nine service areas namely Assam, West Bengal, UP(E), UP(W), Bihar, Maharashtra, Gujarat, Punjab and North-East, negligible amounts of additional spectrum will be put to auction. Unavailability of additional spectrum may also force holders of expiring licenses to shut down operations in case they are unable to win back spectrum.

This would have a significant negative impact on investors' confidence and continuity of services to a large number of subscribers.

It is therefore critical to make available additional spectrum in the 900 MHz, 1800 MHz, 2100 MHz and 800 MHz bands. To that end, we propose the following:

900 MHz band: Make available an additional 1 - 2.6 MHz of spectrum in the 900 MHz band and harmonize allocations to ensure availability of 3 contiguous blocks of 5 MHz. This move will allow the accommodation of at least one new operator in 900MHz band, as witnessed during the last spectrum auction.

1800 MHz band: Currently, out of the 55 MHz available for commercial communications, an average of 42 MHz spectrum ranging from 30 MHz-55 MHz has been allotted in various service areas. Harmonization of existing allocations will release 5 MHz to 20 MHz across various service areas.

2100 MHz band: Swapping the 2x7.5 MHz of 1900 MHz band (held with DoT) with the 15 MHz of uplink of 2100 MHz band (held with Defence) will make available four slots of 2x5 MHz in the 2100 MHz band (three new slots besides one slot that Defence has earlier committed in MoU)

800 MHz band: Available spectrum in 800MHz should be harmonized to make available maximum possible spectrum.

The auction of spectrum in all bands i.e. 800 MHz, 900 MHz, 1800 MHz & 2100 MHz should be conducted simultaneously. Availability of additional spectrum will ensure that existing operators are at least able to retain previous holdings or procure alternate spectrum to ensure continuity of services while newer operators would be able to procure spectrum for future needs.

3. Roadmap for future availability of spectrum:

With over 914 million wireless consumers and a mere 28 million wireline consumers, it is obvious that wireless is going to drive a majority of broadband growth. At this juncture, when we are entering the era of broadband, demand for spectrum will rise manifold and it is important to put in place a transparent mechanism so operators are aware of the future availability of spectrum. A roadmap for future availability of spectrum (band and year wise) is therefore required. This will afford operators the due visibility in respect of future availability of spectrum and would allow for better planning and execution.

The guidelines on Spectrum Trading and Spectrum Sharing are also critical and will have a lasting impact on operators for the years to come. The same may be released by DoT at the earliest prior to upcoming auction

Timely allocation of spectrum after an auction is critical for achieving the goals of the business case as well as the auction itself. In the Indian context, inordinate delays in the eventual allocation of spectrum after an auction, have been shown to negatively impact the expansion of existing networks as well as hamper the roll out of new networks and technologies. These delays can be observed in the case of the most recent auction (Feb, 2014), winners of which have yet to be allocated their due spectrum rights. TRAI in its recommendations on "Allocation & Pricing of Microwave Access and Microwave Backbone RF Carriers" recognized the importance of timely allocation, and recommended the following

*"Assignment of both access spectrum and MWA carriers should be done simultaneously within a period of one month from the date the TSP makes the payment for access spectrum, **failing which TSP should be paid compensation at the SBI PLR rate of the amount it had already paid to acquire the access spectrum.**"*

We therefore request TRAI to recommend that such conditions be made part of the NIA and due compensation should be given to the operators in cases of delayed allocation.

In the above backdrop, the detailed submissions on the issues raised in the Consultation paper are as below:

Q1. Please comment on the issue of making available additional spectrum in contiguous form in the 900 MHz and 1800 MHz band.

Bharti Airtel's Response:

The Authority in its consultation paper has indicates that only 184 MHz of spectrum in the 900 MHz band and 104 MHz in the 1800 MHz band is available for auction in the forthcoming auction. The majority of spectrum (184 MHz in 900 MHz band and 27.8 MHz in 1800 MHz band) is coming from extension licensees. The table below summarizes the quantum of spectrum available for auction viz-a-viz the current holdings of the extension licensee's service area wise.

S No	LSA	No. of Licenses Expiring	900 MHz			1800 MHz		
			Quantum of Spectrum with the extension licensees (MHz)	Quantum of spectrum available for auction as per TRAI (MHz)	Additional Spectrum put by DoT (MHz)	Quantum of Spectrum with the extension licensees (MHz)	Quantum of spectrum available for auction as per TRAI (MHz)	Additional Spectrum put by DoT (MHz)
1	MP	2	12.40	12.40	-	1.80	-	(1.80)
2	KL	2	12.40	12.40	-	1.80	1.00	(0.80)
3	KTK	2	14.00	14.00	-	2.20	1.80	(0.40)
4	AP	2	14.00	14.00	-	4.00	3.80	(0.20)
5	MH	2	14.00	14.00	-	2.00	2.00	-
6	GUJ	2	14.00	14.00	-	2.00	3.40	1.40

7	PB	2	15.60	15.60	-	-	1.60	1.60
8	NE	2	8.80	8.80	-	3.60	8.40	4.80
9	HR	2	12.40	12.40	-	-	8.00	8.00
10	RAJ	2	12.40	12.40	-	2.00	10.40	8.40
11	HP	2	12.40	12.40	-	-	10.20	10.20
12	AS	1	6.20	6.20	-	-	-	-
13	WB	1	4.40	4.40	-	1.80	1.80	-
14	BH	1	6.20	6.20	-	1.80	2.00	0.20
15	UP(W)	1	6.20	6.20	-	1.80	2.20	0.40
16	UP(E)	1	6.20	6.20	-	2.00	4.20	2.20
17	OR	1	6.20	6.20	-	-	16.20	16.20
18	TN	1	6.20	6.20	-	1.00	20.00	19.00
	Total	**29.00**	**184.00**	**184.00**	**-**	**27.80**	**97.00**	**69.20**

A detailed look at the availability of spectrum across 18 service areas, where the initial term of the license is expiring, reveals the following facts:

- In 4 service areas namely, MP, Kerala, Karnataka & AP, the spectrum being put to auction is even less than the spectrum being vacated by the extension licensees. Therefore, the TSP's would not be able to continue their network in the present form even if they buy back all the spectrum being put to auction. This will also impact customer service continuity as well.
- In 9 service areas namely, Maharashtra, Gujarat, Punjab, North East, Assam, WB, Bihar, UP(E) and UP(W), the availability of additional spectrum is either zero or negligible.
- Only in 5 service areas namely Haryana, Rajasthan, Orissa, TN & HP, the spectrum made available for auction is higher than the spectrum vacated by the licenses expiring in 2015-16

Thus, the quantum of spectrum made available for auction in 13 out of 18 service areas is far from sufficient to carry out a fair auction. Therefore, an auction in such a scenario can force the existing operator whose licenses are expiring to shut down its operations in case it is unable to win back its spectrum. This would have a definite negative impact on the continuity of services to a large number of subscribers as indicated in the table below:

Service Area	Subscriber Market Share of Expiring Licensees in the Service area
Rajasthan	48.8%
Gujarat	48.6%
Kerala	48.6%
Himachal Pradesh	48.3%
Madhya Pradesh	48.3%
Andhra Pradesh	47.7%
Maharashtra	46.5%
Karnataka	43.2%
Punjab	43.0%

Haryana	42.7%
North East	41.8%
Uttar Pradesh (West)	23.6%
Uttar Pradesh (East)	20.0%
TN Incl Chennai	17.3%
Assam	17.2%
West Bengal	15.7%
Orissa	15.6%
Bihar	10.8%

The proposed auction has the potential to disrupt the services provided to 275 million customers, which account for over 30 % of the mobile subscriber base. There is therefore a clear and urgent need to make available additional 900 MHz and 1800 MHz spectrum for conduct of a fair and equitable auction for the reasons as elucidated in the preamble. We propose the following for making available additional spectrum in 900 MHz and 1800 MHz band:

a) 900 MHz Band:

The present 900MHz allocations are shown in the Annexure 1.

In the circles coming up for extension between December 2015 and April 2016, between 6.2-15.6 MHz has been allocated in the 900MHz band to extension licensees. In the service areas of Maharashtra, Gujarat, AP, Karnataka, Kerala, Haryana, MP, Rajasthan and HP, a maximum of only 12.4/ 14.0 MHz of spectrum has been allocated presently for commercial use with the licensees coming up for extension in 2015-2016. This amounts to only two blocks of 5 MHz in each of these circles. We earnestly request serious consideration of the government to make **available an additional 2.6 MHz/ 1MHz spectrum in the 900 MHz band to ensure availability of 3 contiguous blocks of 5 MHz** as per suggestions below:

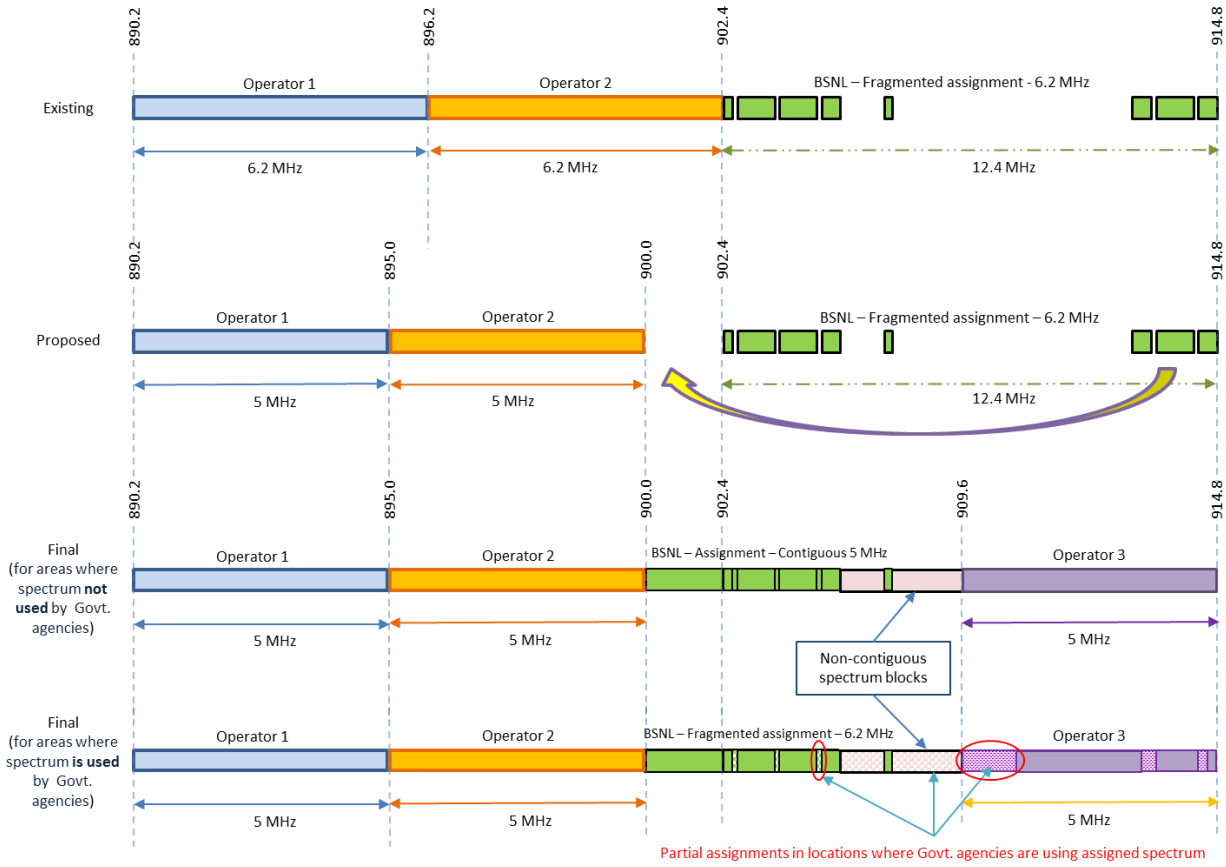
- Of the 25 MHz in 900 MHz band, only 18.6 to 20.2 MHz in State circles (except Punjab) has been earmarked for commercial usage and up to 4.8 MHz is assigned to Government Agencies, and used sparingly in very select locations. We believe that this allows for frequencies to be reused for commercial purposes in remaining service areas. This is analogous to the sale of 'partial' 1800 MHz spectrum in the February auction.

- We also believe that there is up to 1.6 MHz of spectrum in most circles in the 900 MHz band that is unassigned and not in use by either operators or Government Agencies. This can be put to auction

- Further, in the current assignments, BSNL has been given 6.2 MHz in small chunks spread over 12.4 MHz (902.4-915 MHz). The fragmented carriers assigned to BSNL can be brought closer together so it has 5 MHz of contiguous spectrum outside of

limited locations where Government Agencies use this spectrum. This will benefit both parties and facilitate the availability of another block of 5 MHz in the 900 MHz band outside of these limited locations. We show this proposal diagrammatically in figure 1 below, with the final position for all circles in Annexure 2:

Figure 1 : Proposal of moving some slots of BSNL to lower portion to create additional spectrum in 900 MHz Band



We believe that such harmonization is easy to implement and does not accompany any material technical challenges in implementation. Nonetheless, if BSNL does incur material costs in reshuffling its spectrum or reducing its holding, the DoT may consider funding this from auctions proceeds and even incentivising BSNL with a substantial (if not all) portion of auction proceeds from the 1.2 MHz. We believe with a point dialogue with BSNL, this could be a reality and innovative solution to the spectrum problem. In the US, the FCC encourages existing holders to give up spectrum by distributing a portion of the proceeds.

The above proposal will enhance the quantum of spectrum available for commercial use in all the service areas and increase the number of blocks of 5 MHz in 11 service areas as per the table below:

S.No.	LSA	Quantum of spectrum currently available (MHz)	Additional Spectrum available for auction (MHz)	Blocks of 5 MHz currently available	Blocks of 5 MHz available post harmonization
1	PB	15.6	-	2	3
2	MH	14.0	1.0	2	3
3	GUJ	14.0	1.0	2	3
4	AP	14.0	1.0	2	3
5	KTK	14.0	1.0	2	3
6	KL	12.4	2.6	2	3
7	HR	12.4	2.6	2	3
8	RAJ	12.4	2.6	2	3
9	MP	12.4	2.6	2	3
10	HP	12.4	2.6	2	3
11	NE	8.8	1.2	1	2
12	TN	6.2	1.0	1	1
13	UP(W)	6.2	2.6	1	1
14	UP(E)	6.2	2.6	1	1
15	BH	6.2	2.6	1	1
16	OR	6.2	2.6	1	1
17	AS	6.2	2.6	1	1
18	WB	4.4	2.6	0	0
	Total	**184.0**	**34.8**	**27 (135**	**38 (190 MHz)**

We therefore recommend harmonizing the existing allocations in 900 MHz to increase overall availability of spectrum.

b) 1800 MHz:

- Only 104 MHz of spectrum in the 1800 MHz band is available for auction.

S No	LSA	Quantum of total available spectrum (MHz)	Quantum of partial spectrum (MHz)	Quantum of spectrum available in entire service area (MHz)	Quantum of spectrum in 5 MHz contiguous block (MHz)	Quantum of balance spectrum after possible 5 MHz block (MHz)
1	DEL	-	-	-	-	-
2	MUM	-	-	-	-	-
3	KOL	7.00	-	7.00	5.00	2.00
4	MH	2.00	2.00	-	-	2.00
5	GUJ	3.40	2.00	1.40	-	3.40
6	AP	3.80	-	3.80	-	3.80
7	KTK	1.80	-	1.80	-	1.80
8	TN	20.00	-	20.00	15.00	5.00
9	KL	1.00	-	1.00	-	1.00
10	PB	1.60	-	1.60	-	1.60
11	HR	8.00	-	8.00	-	8.00
12	UP (W)	2.20	1.80	0.40	-	2.20

13	UP (E)	4.20	4.20	-	-	4.20
14	RAJ	10.40	10.40	-	5.00	5.40
15	MP	-	-	-	-	-
16	WB	1.80	1.80	-	-	1.80
17	HP	10.20	4.00	6.20	-	10.20
18	BH	2.00	1.80	0.20	-	2.00
19	OR	16.20	-	16.20	15.00	1.20
20	AS	-	-	-	-	-
21	NE	8.40	4.40	4.00	-	8.40
22	J&K	-	-	-	-	-
		104.00	**32.40**	**71.60**	**40.00**	**64.00**

- As indicated in the table above:
  - Out of 104 MHz, only 71.6 MHz is available in the entire service area. the remaining 32.4 MHz of spectrum is available only partially.
  - Out of 104 MHz, only 40 MHz is available in the blocks of 5 MHz (i.e. 3 blocks of 5 MHz each in TN & Orissa and 1 block of 5 MHz each in Rajasthan and Kolkata)
- In the 1800 MHz band, 75 MHz of spectrum is available. As per the agreement between DoT and Defence, 20 MHz (from 1765-1785 MHz/ 1860-1880 MHz) has been designated for use by Defence agencies and the remaining 55 MHz (from 1710-1765 MHz/ 1805-1860 MHz) is available for commercial communication
- However, currently an average of 42 MHz spectrum ranging from 30 MHz to 55 MHz has been allotted in various service areas.
- The availability of balance spectrum is contingent upon harmonization of existing allocations. A detailed proposal has been submitted to DoT by COAI for harmonization which will release 1-4 blocks of 5 MHz in the 1800 MHz band as indicated in the table below.

Circle	**Spectrum Currently Allocated excluding the spectrum of licenses expiring in 2015-16 (MHz)**	**Spectrum available for auction currently as per TRAI (in MHz)**	**Contiguous Blocks of 5 MHz currently available as per TRAI**	**Total Spectrum presently available including allocated spectrum (MHz)**	**Additional spectrum which can be made available post harmonization & considering availability of 55 MHz (MHz)**	**Total Spectrum that can be made available for auction post Harmonization considering availability of 55 MHz (in MHz)**	**Availability of Blocks of 5 MHz post harmonization**
J & K	20.70	-		20.70	34.30	34.30	6
Rajasthan	31.80	10.40	1	42.20	12.80	23.20	4
H.P	32.85	10.20		43.05	11.95	22.15	4
WB	34.15	1.80		35.95	19.05	20.85	4
Assam	34.55	-		34.55	20.45	20.45	4
NE	35.90	8.40		44.30	10.70	19.10	3
Orissa	36.30	16.20	3	52.50	2.50	18.70	3
UP(W)	37.70	2.20		39.90	15.10	17.30	3
Haryana	39.10	8.00		47.10	7.90	15.90	3
TN	40.00	20.00	3	60.00	-	20.00	4

Bihar	40.35	2.00		42.35	12.65	14.65	2
Kolkata	41.80	7.00	1	48.80	6.20	13.20	2
Punjab	41.85	1.60		43.45	11.55	13.15	2
Gujarat	42.60	3.40		46.00	9.00	12.40	2
UP (East)	43.05	4.20		47.25	7.75	11.95	2
Delhi	44.00	-		44.00	11.00	11.00	2
Maharashtra	45.45	2.00		47.45	7.55	9.55	1
Karnataka	48.80	1.80		50.60	4.40	6.20	1
MP	49.90	-		49.90	5.10	5.10	1
A.P.	50.80	3.80		54.60	0.40	4.20	-
Kerala	51.45	1.00		52.45	2.55	3.55	-
Mumbai	56.40	-		56.40	-	-	-
Total	**899.50**	**104.00**	**8**	**1,003.50**	**212.90**	**316.90**	**53**

- It is therefore recommended that the harmonization exercise be carried out before the next auction to enable availability of sufficient spectrum. This will also ensure that the licensees with expiring terms have an option to fall back to spectrum in the 1800 MHz band in case they are unable to win spectrum in the 900 MHz band. Such policies would favor business continuity and help restore investor confidence.

Q2. Please comment whether only contiguous blocks of minimum 5 MHz spectrum should be put for auction.

Bharti Airtel's Response:

By making sufficient contiguous spectrum available, the operators' benefit from access to newer technology ready spectrum. In our view, a sincere attempt is therefore required to increase the availability of contiguous spectrum.

However, the proposed spectrum auction will primarily be for licenses expiring in 2015-16 wherein the concerns over business continuity would take center stage. As indicated in the response to Q1, there is hardly any additional spectrum in 13 out of the 18 service areas where licenses are expiring. Any limitation such as putting up only contiguous blocks of 5 MHz for sale will limit the availability of spectrum from the currently available 184 MHz of spectrum to 135 MHz in the 900 MHz band and from 104 MHz of spectrum to 40 MHz in the 1800 MHz band. The reduction in quantum of spectrum will have a direct bearing on the spectrum that the licensee with an expiring term would be able to win, which could conceivably have a significant negative impact on the continuity of services to millions of subscribers.

Therefore, it is in the interest of the consumers, industry and the national exchequer that the entire available spectrum is put to auction with a sincere attempt to make available as much contiguous spectrum as possible.

Q3. What should be the block size to auction the spectrum in (a) 900 MHz band and (b) 1800 MHz band?
&

Q4. What should be the minimum quantum of spectrum in the 900 MHz and 1800 MHz band that (a) a new entrant and (b) an existing licensee should be required to bid for?

Bharti Airtel's Response:

900 MHz Band:

- The spectrum available for auction ranges from:
  - 8.8 MHz to 15.6 MHz in service areas where 2 licenses are expiring
  - 4.4 MHz to 6.2 MHz in service areas where only 1 license is expiring

- **Block Size:**
  - A block size of 1 MHz like in the Feb, 14 auction would mean spectrum ranging from 0.2 MHz to 0.8 MHz will not be put for auction leading to inefficient utilization of scare natural resource.
  - It is therefore proposed that **the block size of spectrum in 900 MHz band be 0.2 MHz so the entire spectrum can be put to auction**.

- **Minimum quantum of spectrum in the 900 MHz (a) a new entrant and (b) an existing licensee should be required to bid for:**
  - During the Feb, 14 auctions, the new entrant/extension licenses as well as the existing licensee were required to bid for a minimum of 5 MHz.
  - However, the same needs to be re-examined on the following grounds:
    - The quantum of spectrum put up for auction in the Feb, 14 auctions was 16 MHz in Delhi/ Mumbai and 14 MHz in Kolkata with 2 licenses expiring.
    - The quantum of spectrum in Delhi and Mumbai was sufficient to allow a block for 5 MHz for an operator who did not have spectrum in 900 MHz band and the same was witnessed in Delhi where Idea won 5 MHz.
    - There was no existing licensee with 900 MHz spectrum, except for MTNL and BSNL where the validity period was beyond year 2014.
    - Moreover, more than 20 MHz of spectrum in the 1800 MHz band was also put up for auction in Delhi (21 MHz), Mumbai (23.4 MHz) & Kolkata (25 MHz), allowing holders of expiring licenses to buy spectrum in the 1800 MHz band and maintain continuity of services especially in case they were unable to win back their 900 MHz holding.
    - In the proposed auction for Licenses expiring in 2015-16, the quantum of spectrum varies from 8.8 MHz to 15.6 MHz in service areas where 2 licenses are expiring and from 4.4 MHz to 6.2 MHz in service areas where only 1 license is expiring. Moreover, the quantum of 1800 MHz band spectrum put to auction is not enough to allow operators to fall back on 1800 MHz in case they are unable to acquire spectrum in the 900 MHz band.
  - Considering the current scenario, as one that is in stark contrast to the conditions that led to the previous auction in February 2014, we propose that the minimum spectrum be set such that **it allows for the entry of new operators other than the extension**

licenses and the quantum of allocations shall be large enough to ensure the operation of standalone networks.

Considering the above principle, we recommend that the minimum quantum of spectrum in the 900 MHz be kept at:

- **4 MHz for the new entrant, extension licensee and the existing licensees who do not have spectrum in 900 MHz band;**
- **0.6 MHz for existing licensee which presently has spectrum in 900 MHz band;**

1800 MHz Band:

- **Block Size:**
  - It is proposed that **the block size of spectrum in 1800 MHz band be set at 0.2 MHz as in the last auction**.

- **Minimum quantum of spectrum in the 1800 MHz (a) a new entrant and (b) an existing licensee should be required to bid for:**
  - We propose the following for the minimum quantum of spectrum in 1800 MHz band:

Category	**Minimum Quantum of spectrum in 1800 MHz Band**
a. Existing Licensee holding spectrum in 900 MHz/ 1800 MHz band b. Extension licensee holding auctioned spectrum in 1800 MHz band c. Extension Licensee (*not holding auctioned spectrum in 1800 MHz*) but successful in buying minimum quantum of spectrum in 900 MHz band	0.6 MHz
a. New Entrant b. Extension license (*not holding auctioned spectrum in 1800 MHz band*) but unsuccessful in buying minimum quantum or only bidding for 1800 MHz band	5 MHz

Q5. Should the licensee whose licences are due for expiry in 2015 and 2016 be treated as an existing licensee or as a new entrant?

Bharti Airtel's Response:

Before deliberating on the issue of considering the extension licensee as an existing licensee or a new entrant, it is important to mention that the licensees, whose initial term of license are due to expire in 2015-16, have invested significant amounts to roll out networks and continue

to do so on the premise that their licenses along with existing spectrum holdings will be extended for an additional period of 10 years as per Clause 4 of the UAS License agreement.

> *"4. Extension of Licence*
> *4.1 The LICENSOR may extend, if deemed expedient, the period of LICENSE by 10 years at one time, upon request of the LICENSEE, if made during 19th year of the License period on terms mutually agreed. The decision of the LICENSOR shall be final in regard to the grant of extension."*

Such assurance was also part of the press release dated 15th Feb, 2012 by the then Minister of Communications & IT, in the following words:

> *"The validity of existing UAS (& CMTS and Basic services) licences may be **extended for another 10 years at one time**, as per the provisions of the extant licensing regime with suitable Terms & Conditions so as not to imply automatic continuance of existing license and related conditions including quantum and price of any spectrum allocated. "*

The licenses, coming up for extension in 2015-16, have played a significant role in fulfilling the objectives of the Telecom Policy of the Government of India, and contributed significantly to the growth of telecommunication services in the country by building a network that serves millions of subscribers. **Extending the licence will ensure continuity of services and protect existing investments, both of which are in public interest**.

TRAI has consistently recommended for the extension of mobile licenses to maintain continuity of business. In July 2008, the regulator stated that the renewal of licenses is a sacrosanct process and should be automatic unless extreme reasons of national security, etc. warrant otherwise. Therefore, it suggested that "licenses should be renewed / extended as per the conditions laid down in respective licenses".

In October 2012, TRAI observed that if a licensee applied for renewal of its license, sheer practicality dictated that, in the interest of continuity of operations and service delivery, some degree of assurance about availability of spectrum would have to be provided. After all, the licensee would have made investments over a 20 year period to provide services to millions of subscribers on the reasonable expectation of being permitted to continue offering services at the time of license renewal. Surely, an operator was not expected to start de novo at the time of renewal of a license."

We therefore humbly submit that the Governments reference to the Regulator for auctioning the spectrum for licenses expiring in 2015/16 is fundamentally flawed. Under this reference, the Government intends to auction only the spectrum currently used by existing operators without adding any further quantity in either the 900 MHz or 1800MHz bands.

During the last spectrum auction, the government did not extend telecom licences along with spectrum in Delhi and Kolkata and put the spectrum up for auction. However, the government did include additional spectrum in 1800MHz, which allowed operators to buy more spectrum in 1800MHz if they failed to maintain their 900MHz spectrum holdings. For

example, in the Delhi circle, while 16 MHz of 900 MHz spectrum and 4 MHz of 1800 MHz spectrum was vacated as a result of expiring licenses, 17 MHz of additional spectrum in 1800 MHz band was also put to auction.

In the upcoming auction, existing licencees may not be afforded such an option. The quantum of spectrum made available for auction in 13 out of the 18 service areas is far from sufficient to carry out an effective auction. An auction in such a scenario could potentially force the existing operator, whose license is about to expire, to shut down operations in case it is unable to win back its spectrum. Such a policy would certainly have a negative impact on the continuity of services to a large number of subscribers.

We believe that seamless continuity of business & provision of additional spectrum should be of paramount importance to the regulator and the government. This security is an essential and basic condition for the growth of any industry, and its importance in building and maintaining investor confidence cannot be overstated.

Globally, continuity of business has been recognized as a critical precondition, and other countries have almost always extended telecom licences along with spectrum at fair prices rather than forcefully taking away spectrum from existing telcos and putting it to auction.

The following methods have been adopted globally to tackle the issues of extension/ renewal of spectrum licenses:

1. **Automatic renewal** where licenses are awarded for predefined terms and automatically renewed unless revoked, example Denmark
2. **Tacit renewal** where the licenses are tacitly renewed upon expiry unless the Regulator finds serious failings on the part of the holder, example Mauritius
3. **Renewal at request of licencees**, example Mozambique
4. **Presumption of renewal or Renewal expectancy** wherein if the licensees maintain standards in terms of using the spectrum for intended purposes and comply with all rules and policies then they may file for renewal expectancy, example United States
5. **Administrative renewal:** License renewal at a fees determined by the Government. For example Pakistan where licenses were renewed at renewal fee determined on an earlier open auction of 2 new licenses & Bangladesh where licenses were renewed on the condition of payment of revised fees.

According to a World Bank report, Singapore is the only country where auctions were conducted for the incumbents' existing 900/1800MHz spectrum. However, Singapore is a three player market and only the three incumbents sought to participate in the auction which assured them of winning the spectrum. Spectrum of all the three licensees that were operating was put to auction. Additionally, as part of the SMRA process employed in the case of auctions in Singapore, incumbents were given the first right of refusal for specific block positions.

In a market such as India, where **there exist 6-8 operators with all licenses expiring at different times and a perpetually low supply of spectrum**, an auction of spectrum associated with only expiring licenses would lead to chaos and a high degree of uncertainty with respect to business continuity. A renewal or extension policy that does not take the above into

account, would essentially erode investors' confidence and could potentially halt or hamper the growth of the industry.

We therefore support and recommend the extension/ renewal of licences along with associated spectrum at fair market prices.

Without prejudice to the submissions above, in response to question, whether holders of licenses due for expiry in 2015-2016 shall be treated as new entrants or existing licensee, it is submitted that the same may be considered as either existing licensee or extension licensee due to the following reasons:

- The licensees have deployed networks on the ground for which many approvals and resources have been taken from DoT and different agencies.
- Approvals such as SACFA clearances, TEC Test certificates etc., EMF certificates, RoW, Site Clearances etc. need to be carried forward.
- Resources such as Numbering series, signaling point codes, MNC codes allocations, microwave backbone and access spectrum are required on a continued basis and as such cannot be taken back and allocated afresh as in the case of new entrants.

It is difficult to list all such associated approvals and clearances. Therefore, treating the licensee with an expiring term as a new entrant can lead to ambiguity and severely impact the continuity of above approvals and resources. It is therefore important that holders of licenses expiring in 2015-16 be treated either as existing licensees or extension (renewal) licensees.

It is further submitted that the minimum quantum of spectrum that can be bid for by the licensees expiring in 2015-16 can continue to be as per submissions made in response to Question 4 above.

To promote consolidation in the telecom sector, the Government released merger & acquisition guidelines under which mergers were approved up to a market share (subscriber and revenue) of 60%. Currently, operators cannot hold more than 50% spectrum in a particular band and more than 25% of the total spectrum holdings in all bands together. The objective of placing this restriction is to ensure that a minimum of four mobile operators continue to operate in the cellular market. Since, it is highly unlikely and impractical to assume that all operators would maintain the same market share, the government relaxed market share limits for mergers and acquisitions by increasing the limit from 35% to 60%,

While serious operators need enormous amounts of spectrum to meet national objectives of broadband highways, especially since data consumes more spectrum than voice; the unfortunate ground reality is that there is less spectrum available for auction. Operators will have to access more spectrum through trading and sharing, which would be viable only if the present caps are also relaxed. The same can be achieved without adversely affecting competition and the minimum number of operators.

We therefore request the Authority to increase the cap for spectrum holdings from 50% to 60% for a particular spectrum band and from 25% to 35-40% of the total holdings in all bands

together. To ensure effective competition, the government may ensure that at any given point in time, at least four operators including one PSU operate in the market.

Q6. Should the valuation exercise for 1800 MHz spectrum be undertaken afresh for all the 22 LSAs?

&

Q7. Should the prices revealed in the February 2014 auction for 1800 MHz spectrum auction be taken as the value of 1800 MHz spectrum for the forthcoming auction in the respective LSA? Would the response be different depending on whether the forthcoming auction is conducted within one year of completion of last round of auction of February 2014 or later?

&

Q8. If the prices revealed in the February 2014 auction for 1800 MHz spectrum are taken as the value of 1800 MHz for the forthcoming auction, would it be appropriate to index it for the time gap (even if this is less than one year) between the auction held in February 2014 and forthcoming auction? If yes, what rate should be adopted for the indexation?

&

Q9. What should be the criteria for defining a 'market clearing price'? Can the auction determined price be considered as market clearing price, when (i) the demand for spectrum is greater than the supply and when (ii) the demand is greater than or equal to the supply? Can the auction determined price be considered as the market discovered price?

&

Q10. Should the valuation of spectrum and determination of reserve price be done only for those LSAs where market clearing price was not achieved for 1800 MHz spectrum in February 2014 auction?

&

Q11. Should the auction determined price for LSAs where market clearing price was achieved in February 2014, be taken as equal to the value of spectrum?

&

Q12. Should the market determined price be taken as the value of spectrum in all LSAs?

&

Q13. Should the value of spectrum in the LSAs where market clearing price was not achieved be estimated by correlating the sale prices achieved in similar LSAs where market clearing price was achieved with known relevant variables (paragraph 3.19)? If yes, please suggest which single variable is best suited for this purpose?

Bharti Airtel's Response:

The Authority vide its recommendations dated 9th Sep, 2013 had also recommended the value and reserve price of spectrum in 1800 MHz band, in the basis of which the recent auction was conducted by DoT. Since there have been no material changes over the past one year, we do not expect a fresh valuation to yield results that vary from prices determined in previous recommendations. It is also worth mentioning that no one factor/ method determines the value of spectrum but rather the interplay of several factors.

We also concur with the observations of the Authority in Para 3.14, wherein it has been mentioned that in circles where the demand was less than the supply at the given reserve price, the price cannot be considered as the market clearing price in the respective circles

We therefore believe that valuation arrived by the Authority in its recommendations of September 2013 can be taken as the value of 1800 MHz spectrum.

Q14. Can multiple regression analysis be gainfully employed for this purpose given the limited number of sample data points?
&
Q15. Should the value of spectrum in 1800 MHz band be assessed on the basis of producer surplus on account of additional spectrum?
&
Q16. Is there any need for a change/revision of any of the assumptions adopted by the Authority in producer surplus model in the Recommendations of September 2013? Justify with reasons.
&
Q17. Should the production function model based on the assumption that spectrum and BTS are substitutable resources be used as a valuation approach (as was done in the earlier valuation exercise)? Please support your response with justification/ calculations/ relevant data and results.
&
Q18. Should the revenue surplus approach be used to arrive at the value of 1800 MHz spectrum? Do you agree with the assumptions made?
&
Q19. Should the values contained in the Report of 8th February 2011 for spectrum up to 6.2 MHz be incorporated after indexation in the calculation of the average value of the 1800 MHz spectrum in the current exercise?
&
Q20. Should the prices revealed in the February 2014 auction for 1800 MHz spectrum auction be used as one of the values of 1800 MHZ spectrum?
&
Q21. Apart from the approaches discussed as above, is there any other approach for valuation of spectrum that you would suggest? Please support your answer with detailed data and methodology.
&
Q22. Would it be appropriate to value 1800 MHz spectrum as the simple mean of the values thrown up in all the approaches? If no, please suggest with justification that which single approach should be adopted to value 1800 MHz spectrum?

Bharti Airtel Response:

As indicated by the Authority itself, a fresh valuation using the above methods may not yield results different from the last exercise, as ground realities have remained largely unchanged. We believe that valuation arrived by the Authority in its recommendations of September 2013 may be used as the value of 1800 MHz spectrum.

Q23. Should the value of 900 MHz spectrum be derived on the basis of the value of 1800 MHz spectrum using technical efficiency factors (1.5 times and 2 times) as discussed above?

&

Q24. Should the economic efficiency approach as discussed above be used to calculate the premium for the 900 MHz spectrum, based on the additional CAPEX and OPEX that would be incurred on a shift from this band to the 1800 MHz band?

&

Q25. Is there any other method that could be used for arriving at the valuation of the 900 MHz spectrum? Please support with detailed methodology.

&

Q26. As in the case of the September 2013 Recommendations and adopting the same basic principle of equi-probability of occurrence of each valuation, should the average valuation of the 900 MHz spectrum be taken as the simple mean of the valuations obtained from the technical and economic efficiency approaches (and any other method)?

Bharti Airtel Response:

The coverage efficiency of sub 1 GHz frequencies represents tangible advantages over 1800 MHz because of their propagation characteristics. This is especially important from a penetration loss perspective, where indoor coverage is critical for a reliable quality of service.

We believe that such advantages of better coverage and quality of service will justify a premium in the valuation of 800/900 MHz spectrum over 1800 MHz. Based on the total cost of ownership the ratio of 800/900 MHz over 1800 MHz should be 1.2. However this ratio will vary depending on the absolute value of 1800 MHz.

It is also worthwhile to mention that 800 MHz and 900 MHz spectrum have similar propagation characteristics and are being used for the deployment of broadband technologies, both 3G and LTE. A comparative analysis of the 3G & LTE networks deployed and the devices available in the 800 MHz & 900 MHz band is presented below:

	800 MHz band	**900 MHz band**
3G Networks deployed	118	158
LTE Networks deployed	4	3
3G Devices available	1545	978
LTE Devices available	345	335

The Authority vide its recommendations dated Feb, 2014 elaborated on various methods to determine the valuation and reserve price of spectrum in the 800 MHz band. (such as 1.5/2 times 1800 MHz final price (Feb, 14), Producer surplus, projected revenue from data services, 900 MHz final price etc.)

We therefore propose that **the valuation/ reserve price of 800 MHz band as finally accepted by the Government based on the TRAI's recommendations dated Feb, 2014 shall be used for 900 MHz band also.**

Q27. Should the reserve price of 1800 MHz spectrum in the forthcoming auction be fixed equal to the realized price of 1800 MHz spectrum in the February 2014 auction? If not, what should be the ratio between the reserve price for the auction and the valuation of the spectrum?

&

Q28. If the realized prices in the February 2014 auction for 1800 MHz spectrum is taken as the reserve price of 1800 MHz for forthcoming auction, would it be appropriate to index it for the time gap (even if less than one year) between the auction held in February 2014 and forthcoming auction? If yes, what rate should be adopted for the indexation?

Bharti Airtel Response:

1800 MHz Band:

- **Circles where Final Price > Reserve Price (Demand > Supply):** Reserve price of 1800 MHz be kept equal to the reserve price determined by TRAI in Sep, 2013.

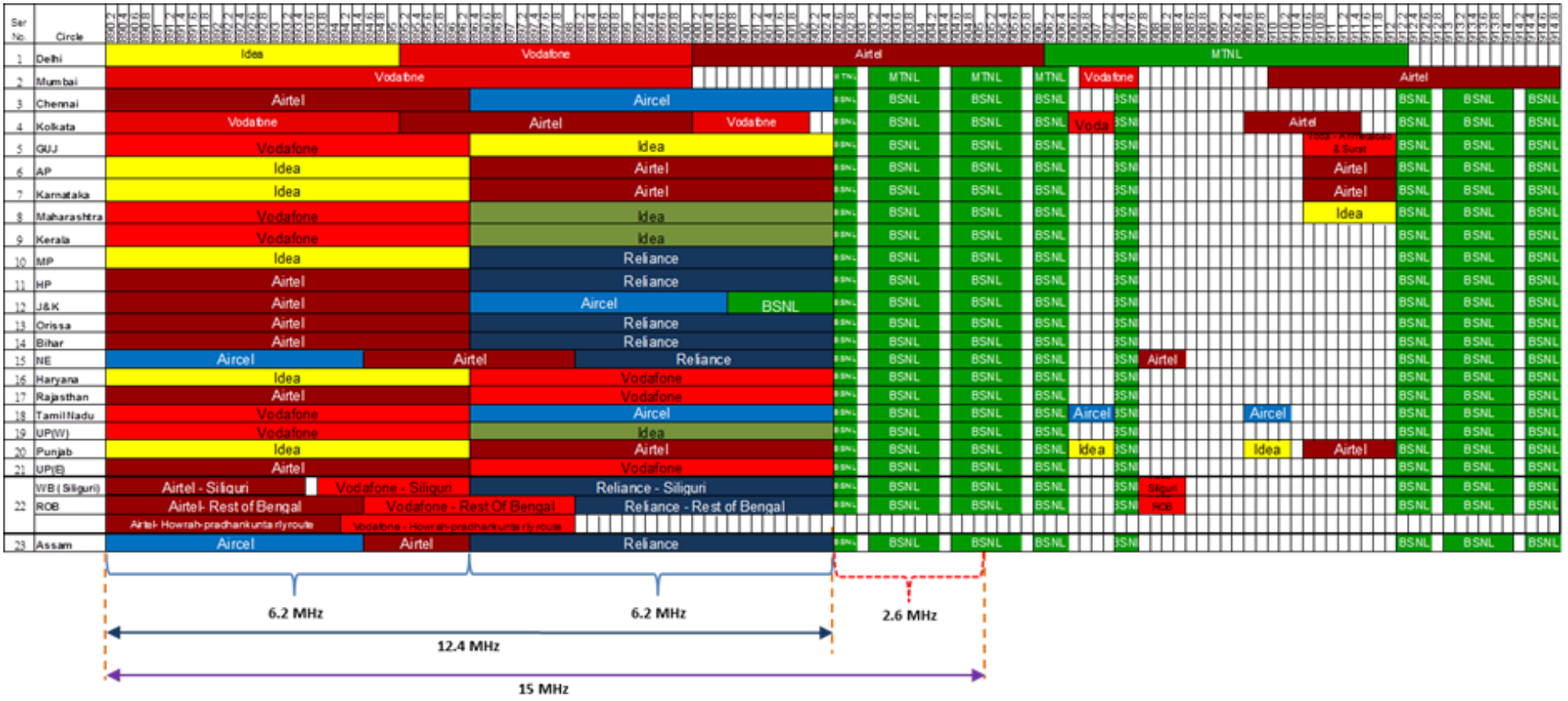
- **Circles where Final Price = Reserve Price (Demand <= Supply):** Reserve price of 1800 MHz be reduced by 20% and be set at 80% of the reserve price determined by TRAI in Sep, 2013.

900 MHz Band:

- Reserve price of 900 MHz be set equal to the reserve price of 800 MHz band as finally accepted by the Government based on the TRAI's recommendations dated Feb, 2014

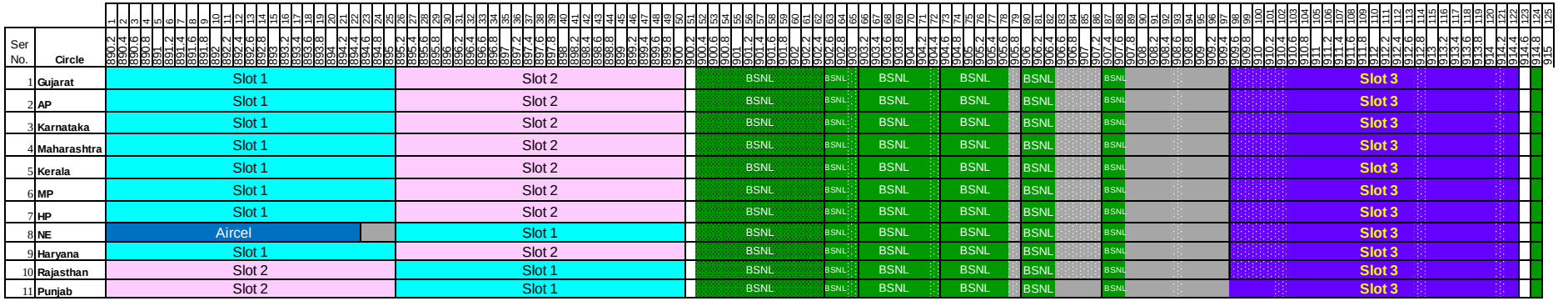
Annexure 1

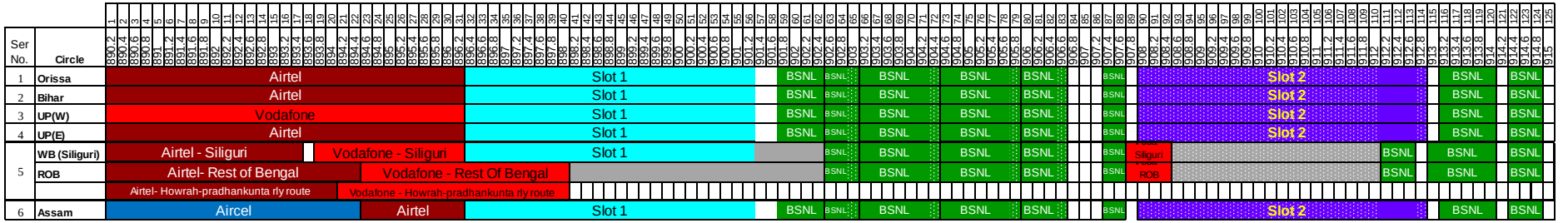
Current Assignment Status : 900 MHz spectrum



Annexure 2

Proposed Harmonization Plan: 900 MHz spectrum





Slot 1 - 5MHz of contiguous w hole spectrum

Slot 2 - 5MHz of contiguous w hole spectrum

Partial spectrum - not available in the limited locations w here Government Agencies use this spectrum

Slot 3 - A contiguous block of 5MHz composed of w hole and partial blocks but sold as a single block

Non-contiguous partial spectrum -not available in the limited locations w here Government Agencies use this spectrum

Non-contiguous w hole spectrum

Partial spectrum - not available in the limited locations w here Government Agencies use this spectrum