

Response to Consultation Paper dated 30 December 2013 on Reserve Price for Auction of Spectrum in the 800 MHz Band ¹

The current consultation paper presents classic case of decision making scenario of the Indian Spectrum management. The quantum 'x' of spectrum to be auctioned unknown and two other dependent variables on it are its Valuation 'y' and Reserve price 'z'.

For the ease of structuring response comment, I have clubbed the issues of consultation.

Response-A	Quantum of spectrum to be auctioned	Q-1 and 2
Response-B	Valuation of the Spectrum	Q-3,4,5,6,7 and 8
Response-C	Reserve Price Deciding factor	Q-9

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Response –A: Quantum of Spectrum to be auctioned in 800 MHz band

The two scenarios regarding quantum of spectrum available for auction in 800 MHz is as tabulated in Table A. There are metros LSA where carrier availability is single only , so block available for auction is less than 5 MHz and fragmented spectrum block proves productive only for the existing operator or operator having scope of carrier aggregation in 1800 MHz or 2600 MHz band optimum for LTE technologies.

Previously carrier block size assignment in 800 MHz band usage was considering CDMA assignment and was kept at 1.25 MHz . As the world wide practices show 800 MHz as digital dividend band and one of the optimum bands to deploy LTE technology, it will be prudent for authority to auction the spectrum with minimum standard of carrier block size as 1.4 MHz .Thereby operator can reap the benefit of the liberalized spectrum and provide better data service access.

Table 1 Quantum of Spectrum in 800 MHz

Quantum of spectrum to be auctioned in 800 MHz 'x'	LSA	Total No of Carriers	No of carriers available currently	Total No of carriers likely to be available if additional spectrum surrendered
			Status Quo Scenario	Best Possible Scenario
Scenario 1 x<5 MHz	Rajasthan	12	0	2
	Delhi	14	1	4
	Kolkata	13	1	3
	Kerala	14	1	4
Scenario 2 x >5 MHz	Karnataka	14	2	4
	Tamil Nadu	14	2	4
	UP (west)	14	2	4
	Gujarat	14	3	5
	Punjab	13	3	5
	Mumbai	14	4	7
	Maharashtra	14	4	7
	Andhra Pradesh	13	4	6
	West Bengal	14	4	5

Scenario 3 x >>5 MHz (underserved data serviced LSA	UP (east)	14	5	7
	Madhya Pradesh	13	5	6
	Bihar	14	5	7
	Haryana	14	6	8
	Orissa	14	7	8
	Himachal Pradesh	14	8	9
	Assam	14	10	10
	North East	14	10	10
	J&K	14	10	10
	Grand Total	302	97	133

Response –B: Valuation of Spectrum to be auctioned in 800 MHz band

- a. Derive on the basis of value of 1800 MHz spectrum using technical efficiency factors
- b. Assumption of data growth services in 800 MHz band
- c. Value of spectrum in the LSAs in India for 800 MHz be determined by utilizing the data on international price

a. The 1800 MHz and 800 MHz is the substitutable resource for LTE deployment. Currently LTE-international roaming is fuelling the ecosystem conducive for the better data usage provision. The handset and devices available are compatible for these bands owing to most of the international operators have carrier aggregation. So the technical efficiency factor can be applied to extrapolate the valuation of spectrum in 800 MHz with considerate weightage of amount of spectrum 'x' decided to be auctioned, as the scenario 1 where block size available is less than min required standard LTE carrier size of 1.4 MHz.

b. Cisco's Visual Networking Index projected mobile data traffic in India, to reach a whopping 900 petabytes per month by 2017, up from 15 petabytes per month in 2012. India is considered a 'mobile-first' country, where subscribers have their mobile phones as their first window to the web and seeing the smart phone penetration in rural area, TSPs are likely to be eyeing for 800 MHz band as one of the essentials for high data speed service provision in all the LSAs.

The Consultation paper takes the potential growth in data services as the valuation base with all relevant assumptions. Also alongside authority needs to ensure the vacant spectrum is put in immediate operation by obligation cause by holding operators for betterment of data penetration at reasonable rate. As the idle spectrum priced is the loss of the opportunity cost which otherwise any challenging operator had roll out if provided better block size to avail technology benefit.

c. The March 2013 800 MHz data and November 2012(1800 MHz—technology efficiency factor) auction price is the only historical data available from India.

To derive the prices based on the last two year auction prices fetched worldwide for this band gives one estimates that are nearby for the authority to decide. But converting the prices keeping in account totality of differences in technology, roll-out obligations attached like Germany requires intensive statistical exercise .LSA mapping with relevant country using hierarchical clustering method having same population, planned coverage(%) , infrastructure will give better customized valuation. One size fits all approach of pan India valuation will not held true as there are three scenarios already in status quo for LSAs. The better approach is clustering 22 LSAs with the available 11 country datasets and arriving at the valuation.

Response –C: Reserve Price basis of Spectrum to be auctioned in 800 MHz band

The auction held in March 2013 in 800 MHz have yielded the auction price equivalent to the reserve price fixed by authority as there was single bidder in 8 LSAs.

So LSAs were there is the need to create favourable response from the bidder scenario 3, the authority should keep the 80% of the valuation of the spectrum. The hot-cake LSAs where there is optimum bid expected the 100% of LSA specific valuation should be kept as reserve price. Remaining LSAs should have the 100% average Pan-India valuation as reserve price.