

Government of India  
Ministry of Communications  
Department of Telecommunications  
Wireless Planning & Coordination (WPC) Wing  
6<sup>th</sup> floor, Sanchar Bhawan,  
20, Ashoka Road, New Delhi – 110001.

No.: L-14006/01/2021-NTG (Part)

Date: 22.02.2022

To,

The Secretary  
Telecom Regulatory Authority of India  
Mahanagar Doorsanchar Bhawan  
Jawahar Lal Nehru Marg (Old Minto Road)  
New Delhi-110002.

**Subject:** Additional spectrum availability for auction of spectrum in 800 MHz, 900 MHz and 1800 MHz bands.

**References:** (1) DoT letter No. L-14006/01/2021-NTG dated 13.09.2021 and 23.09.2021.  
(2) TRAI letter No. C-15/2/(1)/2021-NSL-II dated 27.09.2021.  
(3) DoT letter of even no. dated 02.11.2021 and 27.11.2021.

Sir,

Vide DoT's above-referred letters dated 13.09.2021 and 27.11.2021, quantum of spectrum available for auction in different LSA-band combinations was conveyed to TRAI.

2. Recently, Indian Railways in 23 States/UTs has surrendered spectrum earmarked to them in 900 MHz band which has resulted in availability of additional 1.6 MHz (paired) quantum of spectrum in 900 MHz band in 7 LSAs namely Andhra Pradesh, Himachal Pradesh, Karnataka, Kerala, North East, Orissa, Tamilnadu LSAs.

2.1. Further, certain quantum of spectrum reserved for Government's use in 900 MHz at certain locations spread across 6 LSAs namely Gujarat, Haryana, Jammu and Kashmir, Punjab, Rajasthan and Uttar Pradesh (West) LSAs is also available now for auction. In Gujarat, Haryana, Punjab LSAs, this spectrum is available for assignment with immediate effect; whereas in other 3 LSAs, this spectrum will be available for assignment latest by 01.07.2022.

2.2. In view of the above surrender/vacation, spectrum availability in 900 MHz band in certain LSAs has increased. Table showing revised spectrum availability in 900 MHz band in different LSAs is attached as Annexure-I.

3. Vide DoT's letter dated 27.11.2021, revised spectrum availability in 1800 MHz band in 5 LSAs namely Kerala, Orissa, Haryana, Mumbai, Kolkata was communicated. In continuation to it, this is to further inform that in Haryana LSA, 10 MHz (paired) quantum in the spectrum block 1765-1775/1860-1870 MHz is available for assignment in entire Haryana LSA except Sirsa (with safe keep off distance). The required safe keep distance around Sirsa is being determined and will be communicated subsequently.

4. In 800 MHz band, frequency carriers with channel bandwidth of 1.23 MHz (paired) are assigned to TSPs/Government. With present 1.23 MHz channel plan, a total of only 14 blocks of 1.23 MHz are available. This channel plan was in use in view of the spectrum requirements of earlier CDMA networks deployed in the band. Further, inter-operator guard band of 0.3 MHz was also provided for interference-free operation of different CDMA networks operating in the band. After the introduction of LTE technology in 800 MHz band, there are no more CDMA networks operating in the band as on date. In view of the current trend of LTE networks in 800 MHz band and existing spectrum holdings of TSPs/Government in different service areas, channel plan in 800 MHz band can be revised from existing channel bandwidth of 1.23 MHz (paired) to 1.25 MHz (paired) and frequency carriers assigned to TSPs/Government may be revised accordingly. As a result, inter-operator guard band may also be removed due to inherent characteristic of LTE technology, which may result in availability of up to 16 spectrum blocks in place of existing 14 carriers in each of the 22 LSAs.

4.1. Revision of channel plan in 800 MHz band was discussed with TSPs. While M/s Reliance Jio has agreed to revision of channel plan from existing 1.23 MHz to 1.25 MHz and making available total 16 spectrum blocks in 800 MHz band, M/s Bharti Airtel and M/s Vodafone Idea have raised their concerns towards possibility of interference from downlink (higher power) of 800 MHz band (869-889 MHz) to uplink (lower power) of 900 MHz band (890-915 MHz) in case of making available 16 blocks in the downlink of 800 MHz band, due to slightly reduced band gap between 800 MHz (downlink) and 900 MHz (uplink) band. Guard band requirement being demanded by M/s Bharti Airtel and M/s Vodafone Idea is around 1.6 MHz. In case it is decided to allot all 16 blocks (each of 1.25 MHz), the guard band available will be 1.5 MHz (for 5 MHz LTE carrier in both 800 MHz and 900 MHz band), instead of 1.6 MHz being demanded by them. If demand of M/s Bharti Airtel and M/s Vodafone Idea is agreed to, only 15 blocks will be available for allotment. In any case, spectrum availability in each LSA will increase at least by 1 block of 1.25 MHz. Further, with regard to existing assignments in 800 MHz band, no additional payment is required to be made by the incumbent spectrum holders as market price for block size of 1.25 MHz has already been charged on them.

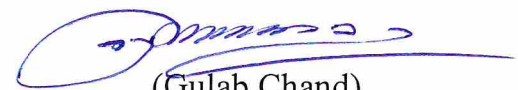
4.2. Revision of channel plan from 1.23 MHz to 1.25 MHz with no inter-operator guard band within the band will result in availability of additional spectrum blocks in 800 MHz band in each of the 22 LSAs. In case spectrum blocks, each of 1.25 MHz bandwidth, across entire band i.e. 824-844/869-889 MHz band are carved out, total availability in 800 MHz band will go up by 55 MHz (paired) quantum [=22\*2.5 MHz (paired), 2 blocks of 1.25 MHz (paired) bandwidth in each of the 22 LSAs]. However, if one spectrum block (ending at 889 MHz downlink) is not made available in view of possibility of interference to 900 MHz band uplink spectrum, total availability in 800 MHz band will go up by 27.5 MHz (paired) quantum [=22\*1.25 MHz (paired), 1 block of 1.25 MHz (paired) bandwidth in each of the 22 LSAs]. Table showing revised spectrum availability in 800 MHz band in different LSAs, in the above 2 scenarios, is attached as Annexure-II.

4.3. In view of the above, TRAI is requested to examine the need to review channel plan in 800 MHz band and number of spectrum blocks that can be made available for telecom services in 800 MHz band while providing their recommendations in response to DoT's reference dated 13.09.2021 regarding upcoming spectrum auction.

5. In reference to decisions/action points emanating from deliberations of a monitoring group, PMO has requested DoT to work towards the initial launch of 5G by 15<sup>th</sup> August 2022 and also explore the possibility of obtaining requisite recommendations from TRAI before March-2022. In view of the above, TRAI is requested to expedite the matter and provide the recommendations at the earliest.

This issues with the approval of Secretary (T).

Encl: As above.



(Gulab Chand)

Joint Wireless Adviser

**Annexure-I****Spectrum availability in 900 MHz band (paired)**

Sl. No.	LSA	Quantum already communicated to TRAI on 13.09.2021 (in MHz)	Released due to surrender by Indian Railways (in MHz)	To be released due to vacation by Defence (in MHz)	Revised availability (in MHz)
1	Andhra Pradesh	3.6	1.6		5.2
2	Assam	5.8			5.8
3	Bihar	7			7
4	Delhi	2.2			2.2
5	Gujarat	0		3	3
6	Haryana	0.8		4.6	5.4
7	Himachal Pradesh	2.6	1.6		4.2
8	Jammu and Kashmir	3		4.6	7.6
9	Karnataka	3.8	1.6		5.4
10	Kerala	0	1.6		1.6
11	Kolkata	4.2			4.2
12	Madhya Pradesh	5.8			5.8
13	Maharashtra	4.2			4.2
14	Mumbai	2.2			2.2
15	North East	3.8	1.6		5.4
16	Orissa	1.4	1.6		3
17	Punjab	1.2		1.4	2.6
18	Rajasthan	0.6		4.6	5.2
19	Tamilnadu	7.6	1.6		9.2
20	Uttar Pradesh (East)	1.4			1.4
21	Uttar Pradesh (West)	2.4		4.6	7
22	West Bengal	1.6			1.6
<b>Total</b>		<b>65.2</b>	<b>11.2</b>	<b>22.8</b>	<b>99.2</b>

**Annexure-II****Spectrum availability in 800 MHz band (paired)**

Sl. No.	LSA	Quantum already communicated to TRAI on 13.09.2021 (in MHz)	Additional quantum that can be made available (in MHz)		Revised availability (in MHz)	
			<i>In case 1 additional carrier is considered</i>	<i>In case 2 additional carriers is considered</i>	<b>In case 1 additional carrier is considered</b>	<b>In case 2 additional carriers is considered</b>
1	Andhra Pradesh	7.5	1.25	2.5	8.75	10
2	Assam	2.5	1.25	2.5	3.75	5
3	Bihar	7.5	1.25	2.5	8.75	10
4	Delhi	3.75	1.25	2.5	5	6.25
5	Gujarat	1.25	1.25	2.5	2.5	3.75
6	Haryana	1.25	1.25	2.5	2.5	3.75
7	Himachal Pradesh	5	1.25	2.5	6.25	7.5
8	Jammu and Kashmir	2.5	1.25	2.5	3.75	5
9	Karnataka	3.75	1.25	2.5	5	6.25
10	Kerala	3.75	1.25	2.5	5	6.25
11	Kolkata	2.5	1.25	2.5	3.75	5
12	Madhya Pradesh	2.5	1.25	2.5	3.75	5
13	Maharashtra	2.5	1.25	2.5	3.75	5
14	Mumbai	2.5	1.25	2.5	3.75	5
15	North East	2.5	1.25	2.5	3.75	5
16	Orissa	6.25	1.25	2.5	7.5	8.75
17	Punjab	5	1.25	2.5	6.25	7.5
18	Rajasthan	2.5	1.25	2.5	3.75	5
19	Tamilnadu	3.75	1.25	2.5	5	6.25
20	Uttar Pradesh (East)	7.5	1.25	2.5	8.75	10
21	Uttar Pradesh (West)	2.5	1.25	2.5	3.75	5
22	West Bengal	2.5	1.25	2.5	3.75	5
<b>Total</b>		<b>81.25</b>	<b>27.5</b>	<b>55.0</b>	<b>108.75</b>	<b>136.25</b>